A STUDY ON NEERKKURI NEIKKURI
DIAGNOSTIC METHODOLOGY IN
UTHIRAVATHASURONITHAM-
RHEUMATOID ARTHRITIS

(DISERTATION SUBJECT)

For the partial fulfillment of the requirements to the Degree of
DOCTOR OF MEDICINE (SIDDHA)
BRANCH V - NOINAADAL DEPARTMENT
NATIONAL INSTITUTE OF SIDDHA
CHENNAI 47

AFFILIATED TO THE TAMIL NADU Dr. M.G.R.MEDICAL UNIVERSITY
CHENNAI – 32

APRIL - 2013
## INDEX

<table>
<thead>
<tr>
<th>S.NO</th>
<th>CONTENTS</th>
<th>PAGE NO.</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>INTRODUCTION</td>
<td>1</td>
</tr>
<tr>
<td>2.</td>
<td>AIM AND OBJECTIVES</td>
<td>3</td>
</tr>
<tr>
<td>3.</td>
<td>REVIEW OF SIDDHA LITERATURE</td>
<td></td>
</tr>
<tr>
<td></td>
<td>[A] SIDDHA PHYSIOLOGY</td>
<td>4</td>
</tr>
<tr>
<td></td>
<td>[B] SIDDHA PATHOLOGY</td>
<td>23</td>
</tr>
<tr>
<td></td>
<td>[C] DIAGNOSTIC METHODOLOGY</td>
<td>31</td>
</tr>
<tr>
<td>4.</td>
<td>REVIEW OF LITERATURE- UTHIRAVATHASURONITHAM</td>
<td>51</td>
</tr>
<tr>
<td>5.</td>
<td>REVIEW OF LITERATURE -NEERKKURI AND NEIKKURI</td>
<td>66</td>
</tr>
<tr>
<td>6.</td>
<td>MODERN ASPECTS</td>
<td>83</td>
</tr>
<tr>
<td>7.</td>
<td>MATERIALS AND METHODS</td>
<td>117</td>
</tr>
<tr>
<td>8.</td>
<td>OBSERVATION AND RESULTS</td>
<td>126</td>
</tr>
<tr>
<td>9.</td>
<td>DISCUSSION</td>
<td>263</td>
</tr>
<tr>
<td>10.</td>
<td>CONCLUSION</td>
<td>266</td>
</tr>
<tr>
<td>11.</td>
<td>BIBLIOGRAPHY</td>
<td>267</td>
</tr>
</tbody>
</table>
ACKNOWLEDGEMENT

I express my sincere thanks to the Secretary, Department of AYUSH, Health & Family Welfare, New Delhi.

I express my sincere thanks to the Vice-chancellor, The Tamil Nadu Dr. M.G.R. Medical University, and Chennai.

I express my gratitude to Prof. Dr. K. Manickavasagam M.D (S), Director, National Institute of Siddha, Chennai, for granting permission to undertake a study in this dissertation topic and also for providing all the basic facilities in order to carry out this work.

I would like to express my profound sense of gratitude to Prof. Dr. M. Murugesan, M.D (S), Former Dean, Head of the Department, Nanju Nool, National Institute of Siddha, Chennai for the valuable guidance to complete my project.

I express my sincere thanks to Prof. Dr. R.S. Ramasamy, M.D (S), Director General, CCRS and Former Hospital Superintendent, National Institute of Siddha, Chennai.

I express my deep sense of gratitude, dignity and diligent salutations to Dr. M. Logamanian M.D (S), Ph.D., Emeritus Professor of The Tamil Nadu Dr. M.G.R. Medical University, Former Head of the department, Noi Naadal, National Institute of Siddha, Chennai-47, for his most valuable guidance to undertake this dissertation study.

I take this opportunity to acknowledge the encouragement offered to me by the HOD’s of other departments from time to time.

I express my deep sense of gratitude to Dr. G. J. Christian M.D (S), Associate Professor, Department of Noi Naadal, National Institute of Siddha, for his guidance, memorable support and ceaseless encouragement in carrying out this work.

I express my grateful thanks to Dr. S. Elansekan M.D (S), Lecturer, Department of Noi Naadal, National Institute of Siddha, for his guidance, moral support and encouragement.
I express my deep sense of gratitude to **Dr. M. Ramamurthy, M.D** (S), Lecturer, Department of Noi Naadal, National Institute of Siddha, for his guidance, moral support and encouragement.

I express my sincere thanks to **Dr. Rajavelu Indira, M.D** (Pathology), Head of the Department of Pathology, Madras Medical College, for her valuable support during this work.

I express my sincere thanks to **Dr. J. Sahayaraj, M.D** (Pathology), Professor of Pathology, Kilpauk Medical College, for his valuable and moral support during this work.

I express my sincere thanks to **Dr. G. Subburaghavalu, M.D** (General Medicine), Assistant Professor, Department of Medicine, Madras Medical College, Chennai for his valuable support during this work.

I wish to thank **Dr. A. Muthuvel M.Sc** (Bio-chemistry), Ph.D., Assistant Professor of Biochemistry, National Institute of Siddha for his valuable support during this work.

I wish to thank **Dr. M. Maruthu Ramachandiran, M.Sc** (Microbiology), Ph.D., Assistant Professor of Microbiology, National Institute of Siddha for his valuable support during this work.

I wish to thank **Mr. M. Subramaniyam, M.Sc** (Statistics), SRO in National Institute of Siddha for his valuable support during this work.

I express my sincere gratitude to library incharge **Dr. K. Suresh, M.D** (S), Lecturer, NIS and library staff of this Institution for their kindly help throughout the project work.

I wish to thank laboratory staff, Hospital staff & Administrative staff.

I thank the library authorities of Dr. Ambedkar library, Roja Mutthiah library, CCRI library and Dr. M.G.R. Medical University from where I derived much of the literary support.

I dedicate my dissertation work to my beloved **Father Mr. D. Pethaiyah, Mother Mrs. P. Kamalambigai and Sister Miss P. Ramya.**
1. INTRODUCTION

Siddha is a way of life morally and ethically founded upon that was instituted by Siddhars to attain the ultimate aim of reaching the Almighty. The hurdles they faced in attaining the target were the diseases of body and soul. These illnesses were overcome by Siddhars in Siddha systematic approach. Siddhars viewed every disease under the roof of, diagnostic technique, finding the root causes, clinical features and treatment methodologies. A good diagnosis can make a good treatment protocol in any disease. Siddha based on this fundamental truth as given important to diagnostic methodologies to approach a patient with illness.

Fundamentals of human body composed of Uyirthathu, Udalthath, Panchabootham. Any alterations in these principles can result in disease which is revealed in humours like Vali, Azhal and Iyam. Humoural basis of disease diagnosis is needed to select humour based treatment, which can result in better prognosis. Thiruvalluvar signifies this way of approach in the following lines

“பிள்ளாய் கருணையும் செரும் தெய்வும் விளயும்
 தப்பன் கூடியிருப்பிருப்பாமை”

To diagnose the alteration of humour, eight diagnostic tools are used in Siddha. They are Naadi, Sparism, Naa, Niram, Mozhi Vizhi, Malam and Moothiram. Among these, many literatures are available in present day regarding pulse and urine analysis.

Urine examination is one of those ‘Envagai thervugal’. Urine examination has got demonstrable objectivity with clear cut tangible rules laid down by Siddhars which will reduce the variations in examination between one physician and another.

Urine is an ultra filtrate of blood. Urine tests are very useful for providing information to assist in the diagnosis, monitoring and treatment of a wide range of diseases. In such cases, the abnormal conditions either due to metabolic or systemic or local conditions, the normal physico-chemical nature of urine is altered. To diagnose a disease and to get a hint on prognosis, urine analysis has been given
much emphasis in Siddha. It includes physical examination such as colour, specific gravity, odour, froth and volume. In addition a special procedure called as Neikkuri (Oil in urine sign) is in practice in Siddha system, in which the shape and spreading nature of Gingelly oil drop over an urine sample surface is observed.

Siddha way of urine analysis is an easier and individualistic technique with high reliability than the other parameters. This reliable, simpler, but effective diagnostic methodology can be utilised to approach varying medically challenging diseases of patients in the present world. One such disease is Rheumatoid arthritis.

Rheumatoid arthritis (RA) is the most common persistent inflammatory arthritis, occurring throughout the world and in all ethnic groups. The prevalence of RA is approximately 0.8% of the world population. In India it is quite similar to that reported from the developed countries. It is higher than that reported from China, Indonesia, Philippines and rural Africa. In India a house-to-house survey of a rural population near Delhi was conducted by two trained health workers. The target population comprised 44,551 adults (above 16 years of age). A response rate of 89.5% was obtained and 3393 persons were listed as possible cases of RA by the health workers. Of these, 299 satisfied the revised ARA criteria for the diagnosis of RA, giving a prevalence of 0.75%.

All the sensitive and specific laboratory investigations for Rheumatoid arthritis cost very high. Hence it is not helpful for all classes of people. On the other hand, though Siddha states Neerkkuri Neikkuri procedure as good diagnostic tool, proper observation and studies about Neerkkuri Neikkuri for Rheumatoid arthritis have not yet been done. The author hopes that this dissertation work can fill up this lacuna to a good extent.
2. AIM AND OBJECTIVES

2.1 AIM:

To develop the Neerkkuri Neikkuri examination in Siddha system as a cost effective, yet powerful tool to diagnose and appropriate prognosis of condition Uthira vatha suronitham/ Rheumatoid Arthritis.

2.2 OBJECTIVES:

- To document the diagnostic patterns of Neerkkuri Neikkuri in Uthira Vatha Suronitham/ Rheumatoid Arthritis.
- To observe for any significant Neerkkuri Neikkuri pattern, which may provide a clue in the diagnosis, prognosis or its complications.
- To establish the review of literature.
- To compare the Neerkkuri Neikkuri patterns of Uthira Vatha Suronitham patients with Modern parameters.
- To elucidate the shapes of Neerkkuri Neikkuri on the three consecutive days.
A. SIDDHA PHYSIOLOGY

3. A.1. SUGARANA NILAI (PHYSIOLOGICAL STATE) IN SIDDHA MEDICINE

The five basic elements, namely Aagayam (Space), Kaal (Air), Thee (Fire), Neer (Water), and Mann (Earth) are the building blocks of all the physical and subtle bodies existing in this whole universe. These are called as the ‘Adippadai Boothams’ (Basic Elements) (or) ‘Panchaboothams’.

These five elements together constitute the human body and origin of other material objects are explained as Pancheekaranam (Mutual Intra Inclusion). None of these elements could act independently by themselves. They could act only in co-ordination with other four elements. All the living creatures and the non-living things are made up of these five basic elements. The five basic elements form the connecting link between the Microcosm (Man) and Macrocosm (World). This concept is evident from Siddhar’s lines,

“அடிப்படையினர் இரண்டாயின் பிரிவும்;

பிரிவுகளின் இரண்டாயின் அடமேறும்”

Any change in the universe due to natural or unnatural causes will create changes in human systems. For example the natural disorders like cyclone, heavy rain, mist and scorching sun or man created impurities of air and water will create changes both in the atmosphere and in the human body. Hence the change in the elementary conditions of external world has its corresponding change in the human organs.

-மாகம் பருத்து சுதா

"இவ்வும் இல்லியாட்கள் விகிதமிருந்து விகிதமும் குறைந்து குறைந்து"
As per the above lines, the universe and the human body are made of five basic elements.

3. A.2. THE 96 BASIC PRINCIPLES (96 THATHUVAM)

According to Siddha system of medicine, ‘Thathuvam’ is considered as a science that deals with basic functions of the human body. Siddhars described 96 principles as the basic constituents of human body that include physical, physiological, psychological and intellectual components of an individual. These 96 Thathuvams are considered to be the cause and effect of our physical and mental well-being. The Thathuvam is the author of the conception of human embryo on which the theory of medicine is based.

1. BOOTHAM – 5 (ELEMENTS)

1. Aagayam - Firmament
2. Vaayu - Flatus(Air)
3. Thee - Fire
4. Neer - Fluid(Water)
5. Mann - Firm Ground( Earth)

2. PORI – 5 (SENSE ORGANS)

1. Sevi (Ear) - a structural component of ‘Aagayam’ bootham
2. Thol (Skin) - a structural component of ‘Vaayu’ bootham
3. Kann (Eye) - a structural component of ‘Thee’ bootham
4. Naakku (Tongue) - a structural component of ‘Neer’ bootham
5. Mookku (Nose) - a structural component of ‘Mann’ bootham
3. PULAN – 5 (FUNCTIONS OF SENSE ORGANS)

1. Kaetal - Hearing, a functional component of Aagayam bootham
2. Thoduthal - Touch, a functional component of Vaayu bootham
3. Paarthal - Vision, a functional component of Thee bootham
4. Suvaithal - Taste, a functional component of Neer bootham
5. Nugarthal - Smell, a functional component of Mann bootham

4. KANMENTHIRIYAM – 5 (MOTOR ORGANS)

1. Vaai (Mouth) - Speech is delivered in relation with Space element.
2. Kaal (Leg) - Walking takes place in concordance with Air element.
3. Kai (Hands) - Giving/Taking are carried out with the influence of Fire element.
4. Eruvaai (Rectum) - The excreta is eliminated in association with Water element.
5. Karuvaai (Sex Organs) - The Sexual acts are carried out in association with the earth element.

5. KARANAM – 4 (INTELLECTUAL FACULTIES)

1. Manam - Thinking about something
2. Bhuddhi - Deeply analyzes the same
3. Agankaaram - Determination to do the same
4. Siddham - Accomplishment of the determined Thing

6. ARIVU – 1 (WISDOM OF SELF REALIZATION)

To analyze good and bad

7. NAADI – 10 (CHANNELS OF LIFE FORCE RESPONSIBLE FOR THE DYNAMICS OF PRANAN)

1. Idakalai - Starts from the right big toe, runs criss-cross to end in the left nostril
2. Pinkalai - Starts from the left big toe, runs criss-cross to end at the right nostril.
3. Suzhumunai - Starts from Moolaathaaram and extends upto centre of head
4. Siguvaai - Located at the root of tongue; it helps in the swallowing of food and water
5. Purudan - Located in right eye.
7. Atthi - Located in right ear.
8. Allampudai - Located in left ear.
9. Sangini - Located in genital organ
10. Gugu - Located in ano-rectal region

8. VAAYU – 10 (VITAL NERVE FORCE WHICH IS RESPONSIBLE FOR ALL KINDS OF MOVEMENTS)

1. Uyir kaal (Piraanan)
   This is responsible for the respiration of the tissues, controlling knowledge, mind and five sense organs and digestion of the food taken in.

2. Keel nokku kaal (Abanan)
   It lies below the umbilicus. It is responsible for the downward expulsion of stools and urine, ejaculation of semen and menstruation.

3. Paravu kaal (Viyanan)
   This is responsible for the motor and sensory function of the entire body and the distribution of nutrients to various tissues.

4. Mael nokku kaal (Uthanan)
   It originates at Utharakini. It is responsible for digestion, absorption and distribution of food. It is responsible for all the upward movements.

5. Samaanan (Nadu kaal)
   This is responsible for the neutralization of the other 4 Valis i.e. Piranan, Abanan, Viyanan and Uthanan. Moreover it is responsible for the nutrients and water balance of the body.

6. Naagan
   It is a driving force of eye balls responsible for movements.

7. Koorman
   It is responsible for the opening and closing of the eyelids and also vision. It is responsible for yawning.
8. Kirukaran
   It is responsible for the salivation of the tongue and also nasal secretion. Responsible for cough and sneezing and induces hunger.

9. Devathathan
   This aggravates the emotional disturbances like anger, lust, frustration etc. As emotional disturbances influence to a great extent the physiological activities, it is responsible for the emotional upsets.

10. Dhanancheyan
    Expelled three days after the death by bursting out of the cranium. It is responsible for edema, plethora and abnormal swelling in the body in the pathological state.

9. AASAYAM – 5 (VISCERAL CAVITIES)
   1. **Amarvasayam** (Reservoir Organ) - Stomach. It lodges the ingested food.
   2. **Pakirvasayam** (Absorption Site)-Small intestine. The digestion and assimilation of food, absorption of saaram from the digested food are done by this Asayam.
   3. **Malavasayam** (Excretory organ for solid waste) -Large Intestine, especially rectum, the place where the expulsion of undigested food parts and flatus takes place.
   4. **Chalavasayam** (Excretory organ for liquid waste)- Urinary Bladder, kidney. Site of the formation and excretion of urine.
   5. **Sukkilavasyam** (Genital organs.) –Site of production and development of spermatazoa and ovum.

10. KOSAM – 5 (FIVE STATUS OF THE HUMAN BODY OR SHEATH)
   1. **Annamaya Kosam** -Gastro intestinal system
   2. **Pranamaya Kosam** - Respiratory system
   3. **Manomaya Kosam** - Mental System
4. **Vignanamaya Kosam** - Nervous system and higher intellect

5. **Aananthamaya Kosam** - Reproductive system

11. **AATHARAM – 6 (STATIONS OF SOUL)**  "அத்தாரம் ஏ எ கீ கார் மா"  

1. **Moolatharam**

   Situated at the base of spinal column between genital and anal orifice and beneath the perineum. Letter “ஓ” is stationed here.

2. **Swathitanam**

   Located 2 fingerwidths above the Moolaathaaram, (i.e.) midway between genital and navel region. Letter “ப” is inherently present here. Earth element is attributed to this region.

3. **Manipooragam**

   Located 8 fingerwidths above the Swathitanam, (i.e.) at the naval center. Letter “ω” is inherently present here. Element is water.

4. **Anakatham**

   Located 10 fingerwidths above Manipooragam, (i.e.) location of heart. Letter found is “ॐ”. Element is fire.

5. **Visuthi**

   Located 10 fingerwidths above the Anakatham (i.e.) located in throat. Letter “ॐ” is inherently present. Element is Air.

6. **Aakinai**

   Situated between the two eyebrows. Letter “ॐ” is inherently present here. Element is Space
12. MANDALAM – 3 (*REGIONS*)

1. **Thee Mandalam** (fire zone)
   Fire Zone is found 2 finger widths above the Moolaathaaram

2. **Gnayiru Mandalam** (Solar zone)
   Solar zone, located 4 finger widths above the umbilicus.

3. **Thingal Mandalam** (lunar zone)
   Lunar zone is situated at the center of two eye brows

13. MALAM – 3 (*THREE IMPURITIES OF THE SOUL*)

1. **Aanavam**
   This act clouds the clarity of thought, cognitive power of the soul, yielding to the egocentric consciousness like ‘I’ and ‘Mine’ claiming everything to be his own (Greediness).

2. **Kanmam**
   Goes in collaboration with the other two responsible for incurring Paavam (the Sin) and Punniyam (Sanctity / virtuous deed).

3. **Mayai**
   Serves as an obstacle due to the mentality of claiming ownership of the others property and thereby inviting troubles.

14. THODAM- 3 (*THREE HUMOURS*)

1. **Vali (Vatham)** - It is the creative force formed by combination of Vaayu and Aakaya bootham
2. **Azhal (Pitham)** - It is the protective force. Formed by Thee bootham
3. **Iyam (Kabam)** - It is the destructive force. Formed by Mann and Neer Bootham

15. EADANAI -3 (*PHYSICAL BINDINGS*)

1. **Porul Patru** - Materialistic affinity
2. **Puthalvar Patru** - Sibbling / Familial bonding
3. **Uлага Patru** - Worldly affections
16. GUNAM – 3 (THREE COSMIC QUALITIES)

1. **Sathuvam** (Characters of Renunciations or Ascetic Virtues)
   
   The grace, control of senses, wisdom, penance, generosity, Excellence, calmness, truthfulness is the 8 qualities attributed to their benevolent trait.

2. **Raasatham** (Royal character)
   
   Enthusiasm, wisdom, valour, virtue, penance, offering gift, art of Learning, listening are the 8 traits

3. **Thamasam** (Carnal / Immoral Character)
   
   Immorality, lust, anger, murderousness, violation of justice, gluttony, falsehood, forgetfulness, fraudulence, etc.

17. VINAI – 2 (ACT)

1. **Nalvinai** - Good Acts (Meritorious acts)

2. **Theevinai** - Bad Acts (Sinful acts)

18. RAGAM – 8 (THE EIGHT PASSIONS)

1. **Kaamam** - Lust

2. **Kurotham** - Grudge / Hatred

3. **Ulobam** - Stingy

4. **Moham** - Infatuation

5. **Matham** - Rut (The feeling of high ego towards oneself)

6. **Marcharyam** - Internal Conflict, Envy

7. **Idumbai** - Mockery

8. **Ahankaram** - High Ego

19. AVATHAI – 5 (FIVE STATES OF CONSCIOUSNESS)

1. **Ninaivu** - State of wakefulness with the 14 karuvikaranathigal in all vibrancy (5 Pulan, 5 Kanmaenthiriyam and 4 Karanam) and is able to experience the pleasures and pains
2. Kanavu – State of dreams. In this 10 karuvikaranathigal (5 Pulan, 5 Kanmaenthiriyam) except karanam all lies dormant in the neck.

3. Urakkam – State of Sleep after which one cannot recapitulate what is seen or heard. The respiration lies in the heart.

4. Perurakkam - State of Repose (Tranquil or Peaceful State). The Jeevaathma lies in the naabi, producing the respiration.

5. Uyirpadakkam – Oblivious of the surroundings. The Jeevaathma is deeply immersed in Moolaathaaram resulting in a state of unawareness.

3. A.3. THE UYIR THATHUKKAL

The physiological units of the Human body are,

- Vali (Vatham),
- Azhal (Pitham) and
- Iyyam (Kapham).

They are also formed by the combination of the five basic elements. Accordingly Vali is formed by the combination of Vali (Air) and Aagayam (Space). This is the Creative force. Azhal is formed by Thee (Fire). This is the Force of Preservation. Iyyam is formed by Mann (Earth) and Neer (Water). This is the Destructive Force. These three humors are in the ratio 4:2:1 in equilibrium which is a healthy normal Condition. They are called as the life forces or humours.

"இயற்கையில் கருத்துறவுகள் இயற்றுமத்துடன் கிளியும் வளத்துக் குழுக்கள்
பலியும் இயற்கையில் பாதுகாப்பு பிட்டிகள்
புதிய இயற்கையில் பிட்டிகள் போராடும்
இயற்கையில் பிட்டிகள் மதிப்புப்பெறியது
அதிகம் கருத்துறவு அலங்கை இயற்கையில்
முருகைத் பிட்டிகள் பிட்டிகள் பாதுகாப்பு அறிவுரை" -புரட்டு விக்கித பாது காண்கை
THE FORMATION OF UYIR THATHUKKAL,

The Vali naadi is formed by the combination of Abanan and Idagalai.

The Azhal naadi is formed by the combination of Piranan and Pinkalai.

The Iyya naadi is formed by the combination of Samanan and Suzhumunai.

I. Vali (Vatham)

Vali is soft, fine and the temperate (coolness and hotness) which could be felt by touch.

The sites of vali

According to Vaithya Sathakam, Vali dwells in the following places:

"நிற்கினில் பழக்கங்களுக்கு போற்றி

எளிநாக்கில் பார்க்குகள் கை கொண்டு"

"அறிக்கை வாத மலை அறிக்கை"  

-திருமுலார்

"காரிப் மலையாக கிருபார்கள் கொள்ள
காரிப் கிருபார்கள் மலை வாத"  

-முக்கிய

According to Sage Thirumoolar and Sage Yugi muni, the location of Vatham is the anus and the sub navel region.

**Properties of Vali**

"உந்துகளையே கருது போன்றவளிகள் போன்றது
செய்தியை பாதுகாப்பு செய்தியை
செய்ய முடிக்காத விளை செய்யப்படும்
காரிபிலும் மலையாக வாத"  

-சுந்தர கார்த்திகைச் சக்திக்க

The following are the natural properties of Vali

1) To stimulate the respiration
2) To activate the body, mind and the intellect.
3) To activate the fourteen different types of natural reflexes or urges.
4) To activate the seven physical constituents in functional coordination.

5) To strengthen the five sense organs.

In the above process Vatham plays a vital role in assisting the body functions.

II. Azhal (Pitham)

The nature of Azhal is Atomic. It is sharp and hot. The ghee becomes watery, salt crystallises and jaggery melts because of heat. The heat of Azhal is responsible for many actions and their reactions.

The sites of Azhal

According to Vaithiya Sathagam, the Pingalai, Urinary bladder, Stomach and Heart are the places where Azhal is sustained. In addition to the above places, the umbilicus, epigastric region, stomach, sweat, saliva, blood, essence of food, eyes and skin are also the places where Azhal sustains. Yugi muni says that, the Azhal resides in urine and in the places below the neck region.

The character of Azhal

Azhal is responsible for the digestion, vision, maintenance of the body temperature, hunger, thirst, taste etc. Its other functions include thought, knowledge, strength and softness.

The functions of Azhal

1) Maintenance of body temperature
2) Produces reddish or yellowish colour of the body.
3) Produce heat energy on digestion of food.
4) Produces sweating
5) Induces giddiness.
6) Produces blood and the excess blood is let out.
7) Gives yellowish colouration to the skin, eyes, faeces and urine
8) Produce anger, heat, burning sensation, inaction and determination.
9) Gives bitter or sour taste.
Types of Azhal

1. Aakkanal – Anila Pitham or Prasaka pitham – The fire of digestion.

   It lies between the stomach and the intestine and causes digestion and dries up the moist ingested substance.

2. Vanna eri – Ranjaga pitham – Blood promoting fire

   This fire lies in the stomach and gives red colour to the chyle and produces blood. It improves blood.

3. Aatralanki – Saathaga pitham – The fire of achievement

   It gives energy to do the work.


   It gives colour, complexion and lustre to the skin.


   It lies within the eyes and causes the faculty of vision. It helps to visualize things.

III. Iyyam (Kapam)

*The nature of Iyyam*

Greasy, cool, dull, viscous, soft and compact are the natures of Iyyam.

*Sites of Iyyam*

Head, tongue, eyes, nose, throat, thorax, bone, bone marrow, Joints, blood, fat, sperm and colon are the sites of Iyyam. It also lies in stomach, spleen, the pancreas, chyle and lymph.

*The natural quality of Iyyam*

Stability, greasiness, formation of joints, the ability to withstand hunger, thirst, sorrow and distress are the qualities. It also helps to withstand sufferings.
Functions of Iyyam

Greasiness, strength, roughness, knowledge, cool, growth, heaviness of bone, restriction of joint movements, pallor, indigestion, deep sleep and to have a sweet taste in tongue are the functions of Iyyam. The skin, eyes, faeces and urine are white in colour due to the influence of Iyyam.

Five types of Iyyam

1. Azhal Iyyam - Avalambagam

Heart is the seat of Avalambagam. It controls all other 4 Iyyams

2. Neerpi iyyam - Kilethagam

Its location is stomach. It gives moisture and softness to ingested food.

3. Suvai kaan iyyam – pothagam

Its location is tongue. It is responsible for the sense of taste.

4. Niraivur iyyam – Tharpagam

It gives coolness to the eyes.

5. Ondri iyyam – Santhigam

It gives lubrication to the bones particularly in the joints

3. A.4. THE UDAL THATHUKKAL

Udal Thathukkal are the basic physical constituents of the body. They are also constituted by the Five Elements.

SEVEN PHYSICAL CONSTITUENTS OF THE BODY

1. Saaram  - This gives mental and physical perseverance.

2. Senneer  - Imparts colour to the body and nourishes the body
3. **Oon** - It gives shape to the body according to the physical activity and plasters the skeleton to give the body a plumpy appearance.

4. **Kozhuppu** - It lubricates the joints and other parts of the body for smooth functioning.

5. **Enbu** - Supports the frame and responsible for the postures and movements of the body.

6. **Moolai** - It occupies the medulla of the bones and gives strength and softness to them.

7. **Sukkilam** - It is responsible for reproduction.

3. **A.5. UDAL THEE (Four kinds of body fire)**

There are four kinds of body fire. They are Samaakkini, Vishamaakkini, Deeshaakkini and Manthaakkini.

1. **Samaakkini**
   
The digestive fire is called as Samaakkini. This is constituted by Samana Vayu, Anala Pitham and kilethaga Kapham. If they are in normal proportion, then it is called as Samaakkini. It is responsible for the normal digestion of the food.

2. **Vishamaakkini**
   
   Due to deranged and displaced Samana Vayu, it takes longer time for digestion of normal food. It is responsible for indigestion due to delay in digestive process.

3. **Deeshaakkini**
   
The Samana vayu blends up with the Azhal, which leads to increased Anala Pitham, so food is digested rapidly.
4. Manthaakkini

The Samana vayu conjugates with the Iyyam, which leads to increased Kilethaga Kapham. Therefore food is sluggishly digested for a very longer period leading to abdominal pain, distention, heaviness of the body etc.

3. A.6. THINAI

There are five thinai (the land)

1. Kurinchi - Mountain and associated areas
2. Mullai - Forest and associated areas
3. Marudham - Agricultural land and associated areas
4. Neidhal - The coastal and associated areas
5. Paalai - Desert and associated areas

3. A.7. KAALAM

Ancient Tamilians divided a year into six different seasons known as Perumpozhudhu and likewise the day into six segments which are known as Sirupozhudhu

Perumpozhudhu:

A year is divided into six seasons. They are as follows

- Kaarkalam – Monsoon season (August 16 – October 15)
- Koothirkalam – Postmonsoon season (October 16 – December 15)
- Munpanikalam- Early winter season (December 16 – February 15)
- Pin panikalam – Late winter season (February 16 – April 15)
- Illavenilkalam – Early summer season (April 16 – June 15)
- Mudhuvenilkalam – Late summer season (June 16 – August 15)
Sirupozhuthu

A day is divided into six yamams. They are,

1. Maalai (Evening),
2. Idaiyammam (Midnight),
3. Vaikarai (Dawn),
4. Kaalai (Morning),
5. Nannpakal (Noon),

Each perumpozhuthu and sirupozhuthu is associated with the three humors naturally.

3. A.8.FOURTEEN NATURAL REFLEXES/ URGES

The natural reflexes excretory, protective and preventive mechanisms are responsible for the urges and instincts. They are 14 in number,

1. Vatham (Flatus)
2. Thummal (Sneezing)
3. Siruneer (Micturition)
4. Malam (Defaecation)
5. Kottavi (Act of yawning)
6. Pasi (Sensation of hunger)
7. Neer vetkai (Sensation of thirst)
8. Erumal (Coughing)
9. Ellaipu (Fatigue)
10. Thookam (Sleep)
11. Vaanthi (Vomiting)

12. Kaneer (Tears)

13. Sukilam (Semen)

14. Suvasam (Breathing)

These natural reflexes are said to be an indication of normal functioning of our body. A proper maintenance should be carried out and they should not be restrained with force.
3.B.SIDDHA PATHOLOGY

3.B.1. KUGARANA NILAI IN SIDDHA MEDICINE

According to Siddha System, human body sustains the state of healthy living via keeping the Three Humours - Vatham, Pitham and Kabam in equilibrium, influenced by dietary habits, daily activities and the environment around. The three humours represent the five basic elements or Bhuthas. In case this equilibrium is disturbed, it leads to a condition known as disease. It is basically the derangement of five elements, which in turn alters the Three Humors. There can either be a decrease or increase in the balance.

3. B.2. DISEASE

Disease is also known by other names viz sickness, distemper, suffering and ailment, distress of mind, chronic disease and dreadful illness.

3.B.3. THE CHARACTERISTICS FEATURE OF DISEASE

Diseases are of two kinds:

i. Pertaining to the body

ii. Pertaining to the mind according to the variation of the three humors.

1. Causes of Disease

Excepting the disease caused by our previous births, the disease is normally caused by the disparities in our food habits and actions. This has been rightly quoted in the following verses by Sage Thiruvalluvar,

"நீண்டு ராஜாவு கருப்புப்பான் கூரார்
மாறிகோ அமர்சூரை நாண்பு"

-நீலாசாகரன்

The food and actions of a person should be in harmony with the nature of his body. Any increase or decrease in a humor viz. Vatham, Pitham, Kabam leads to the derangement of the three humors. The acceptance of food means the taste and quality of the food eaten and a person’s ability to digest. ‘Action’
mean his good words, deeds or bad actions. According to Thiruvalluvar, the
disease is caused due to the increase or decrease of three humors causing the
upset of equilibrium.

So disease is a condition in which there is derangement in the five
elements, which alters the three humors, reflected in turn in the seven physical
constituents. The change could be an increase or decrease in the humours. This
shows the following signs as per vitiation of the individual humour.

As per Theraiyar, the cause of disease is vitiated Vatha, Pitha and Kaba,
increased appetite, increased thirst, excessive hot, anger, constipation, dysuria
polluted water.
## 2. Quantitative Changes of Uyir Thathukkal

<table>
<thead>
<tr>
<th>Humour</th>
<th>Increased</th>
<th>Decreased</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Vali</strong></td>
<td>Wasting, blackish discoloration, affinity to hot foods, tremors, distended abdomen, constipation, weakness, insomnia, weakness in sense organs, giddiness and laziness.</td>
<td>Body pain, feeble voice, and diminished capability of the brain, decreased intellectual quotient, syncope and increased kaba condition.</td>
</tr>
<tr>
<td><strong>Azhal</strong></td>
<td>Yellowish discoloration of conjunctiva, skin, urine and faeces, polyphagia, polydypsia, dyspepsia, burning sensation all over the body and decreased sleep.</td>
<td>Loss of appetite, cold, pallor and features of increased kabam.</td>
</tr>
<tr>
<td><strong>Iyyam</strong></td>
<td>Loss of appetite, excessive salivation, diminished activity, heaviness, pallor, cold, decreased physical constituents, dyspnoea, flatulence, cough and excessive sleep.</td>
<td>Giddiness, dryness of the joints and prominence of bones. Profuse sweating in the hair follicles and palpitation.</td>
</tr>
</tbody>
</table>
### 3. UDAL THATHUKAL

These are the changes produced when Udal thathukkal are affected.

<table>
<thead>
<tr>
<th>UDAL KATTUKKAL</th>
<th>INCREASED FEATURES</th>
<th>DECREASED FEATURES</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. SARAM</td>
<td>Loss of appetite, excessive salivation, diminished activity, heaviness, pallor, cold, decreased physical constituents, dyspnoea, flatulence, cough &amp; excessive sleep.</td>
<td>Dryness of skin, tiredness, loss of weight, lassitude and irritability while hearing louder sounds.</td>
</tr>
<tr>
<td>2. SENNEER</td>
<td>Boils in different parts of the body, splenomegaly, tumours, pricking pain, loss of appetite, haematuria, hypertension, reddish eye and skin, leprosy and jaundice.</td>
<td>Affinity to sour and cold food, nervous, debility, dryness and pallor.</td>
</tr>
<tr>
<td>3. OON</td>
<td>Tubercular adenitis, venereal diseases, extra growth around neck, cheeks, abdomen, thigh and genitalia.</td>
<td>Lethargic sense organs, pain in the joints, muscle wasting in mandibular region, gluteal region, penis and thighs.</td>
</tr>
<tr>
<td>4. KOZHUPPU</td>
<td>Identical feature of increased flesh, tiredness, dyspnoea on exertion, extra musculature in gluteal region, external genitalia, chest, abdomen and thighs.</td>
<td>Loins pain, splenomegaly and emaciation.</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>---</td>
<td>---</td>
<td>---</td>
</tr>
<tr>
<td><strong>5. ENBU</strong></td>
<td>Excessive ossification and dentition.</td>
<td>Joint pain, falling of teeth, falling and splitting of hairs and nails.</td>
</tr>
<tr>
<td><strong>6. MOOLAI</strong></td>
<td>Heaviness of the body and eyes, swollen interphalangeal joints, oliguria and non-healing ulcers.</td>
<td>Osteoporosis &amp; Blurred vision.</td>
</tr>
<tr>
<td><strong>7. SUKKILAM</strong></td>
<td>Increased sexual activity, urinary calculi.</td>
<td>Dribbling of sukkilam/ suronitham or senner during coitus, pricking pain in the testis &amp; inflammed and contused external genitalia.</td>
</tr>
<tr>
<td>(OR) <strong>SURONITHAM</strong></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
4. KAALAM

Change in Elementary conditions of the external world has its corresponding change in the human organs. They are as follows:

<table>
<thead>
<tr>
<th>KAALAM</th>
<th>KUTTRAM</th>
<th>STATE OF KUTTRAM</th>
</tr>
</thead>
<tbody>
<tr>
<td>4. Pinpani Kaalam (Post winter) (Masi – Panguni) (Feb 16 – Apr 15)</td>
<td>Vatham (--) Pitham (--) Kabam ↑</td>
<td>Restitution Restitution Insitu escalation</td>
</tr>
<tr>
<td>5. Elavenir Kaalam (Summer) (Chithirai–Vaikasi) (Apr 16 – Jun 15)</td>
<td>Vatham (--) Pitham (--) Kabam ↑↑</td>
<td>Restitution Restitution Ectopic escalation</td>
</tr>
<tr>
<td>6. Mudhuvenir Kaalam (Post summer) (Aani – Aadi) (Jun 16 – Aug 15)</td>
<td>Vatham ↑ Kabam (--)</td>
<td>Insitu escalation Restitution</td>
</tr>
</tbody>
</table>
5. THINAI

<table>
<thead>
<tr>
<th>S. NO</th>
<th>THINAI</th>
<th>LAND</th>
<th>HUMORS</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Kurinchi</td>
<td>Mountain and its surroundings Hilly terrain</td>
<td>Kabam</td>
</tr>
<tr>
<td>2.</td>
<td>Mullai</td>
<td>Forest and its surroundings Forest ranges</td>
<td>Pitham</td>
</tr>
<tr>
<td>3.</td>
<td>Marutham</td>
<td>Farm land and its surroundings Cultivable lands</td>
<td>All three humors are in equilibrium</td>
</tr>
<tr>
<td>4.</td>
<td>Neithal</td>
<td>Sea shore and its adjoining areas, Coastal belt</td>
<td>Vatham</td>
</tr>
<tr>
<td>5.</td>
<td>Palai</td>
<td>Desert and its surroundings Arid zone</td>
<td>All three humors are affected.</td>
</tr>
</tbody>
</table>

6. Alteration in Reflexes (14 VEGANGAL)

There are 14 natural reflexes involved in the physiology of normal human beings. If willfully restrained or suppressed, the following are resulted.

1. Vatham (Flatus)

This urge should not be suppressed. If it is suppressed it leads to chest pain, epigastric pain. Abdominal pain, ache, constipation, dysuria and indigestion predominate.

2. Thummal (Sneezing)

If restrained, it leads to headache, facial pain, low back pain and neuritic pain in the sense organs.

3. Siruneer (Urine)

If restrained, it leads to urinary retention, urethral ulcer, joint pain, pain in the penis, gas formation in abdomen.

4. Malam (Faeces)

If restrained, it leads to pain in the knee joints, headache, general weakness, flatulence and other diseases may also originate.

5. Kottavi (Yawning)

If restrained, it leads to indigestion, leucorrhoea, and abdominal disorders.
6. **Pasi (Hunger)**
   If restrained, it leads to the tiredness of all organs, emaciation, syncope, apathetic face and joint pain.

7. **Neer vetkai (Thirst)**
   If restrained, it leads to the affection of all organs and pain may supervene.

8. **Kaasam (Cough)**
   If it is restrained, severe cough, bad breath and heart diseases will be resulted.

9. **Ilaippu (Exhaustiveness)**
   If restrained, it will lead to fainting, urinary disorders and rigor.

10. **Nithirai (Sleep)**
    All organs will get rest only during sleep. So it should not be avoided. If disturbed it will lead to headache, pain in the eyes, deafness and slurred speech.

11. **Vaanthi (Vomiting)**
    If restrained, it leads to itching and symptoms of increased Pitham.

12. **Kanneer (Tears)**
    If it is restrained, it will lead to Sinusitis, headache, eye diseases and Chest pain.

13. **Sukkilam (Semen)**
    If it is restrained, there will be joint pain, difficulty in urination, fever and chest pain.

14. **Swaasam (Breathing)**
    If it is restrained, there will be cough, abdominal discomfort and Anorexia.
3. C. DIAGNOSTIC METHODOLOGY

The Diagnostic methodology in Siddha system is unique as it is made purely on the basis of clinical acumen of the physician. The diagnosis is arrived from,

- Poriyal arithal and Pulanal arithal (examination of sense organs)
- Vinaathal (Interrogation)
- Envagai thervu (Eight fold examination)
- Manikkadai nool (Wrist circumference sign)
- Sothidam (Astrology)
- Assessment of deranged three Dosham (humours), Udal thathukal and 96 principles.

PORIYAL ARIDHAL

The physician should examine the patient’s porigal by his porigal.

1. Mei - To feel all types of sensation
2. Vaai - For knowing taste
3. Kan - For vision
4. Mooku - For knowing the smell
5. Sevi - For hearing

PULANAL ARITHAL

The physician should examine the patient’s pulangal by his porigal & Pulangal

1. Hearing - Ear
2. Vision - Eye
3. Taste - Tongue
4. Sensation - Skin
5. Smell - Nose

31
VINAADHAL (INTERROGATION)

The physician should interrogate the patient’s name, age, occupation, native place, Socio – economic status, dietary habits, present complaints, history of present illness, aggravating factors, history of previous illness.

ENVAGAI THERVUGAL

"அகதியார் வைத்திய சிங்னமணி வீமா 4000, the

Envagaithervu Includes Naadi (Pulse) Naa (Tongue), Niram (Color), Mozhi (Voice), Vizhi (Eyes), Malam (Faeces), Neer (Urine) and Sparisam (Touch & palpation).

According to Agathiyar Vaithiya Sinthaamani Venba – 4000, the

Envagaithervu Includes Naadi (Pulse) Naa (Tongue), Niram (Color), Mozhi (Voice), Vizhi (Eyes), Malam (Faeces), Neer (Urine) and Sparisam (Touch & palpation).

As per Saint Therayar, the eight methods of diagnosis are Naadi (Pulse) Naa (Tongue), Niram (Color), Mozhi (Voice), Vizhi (Eyes), Malam (Faeces), Neer (Urine) and Sparisam (Touch & palpation).

As per Saint Therayar, the eight methods of diagnosis are Naadi (Pulse) Naa (Tongue), Niram (Color), Mozhi (Voice), Vizhi (Eyes), Malam (Faeces), Neer (Urine) and Sparisam (Touch & palpation).

As per Saint Therayar, the eight methods of diagnosis are Naadi (Pulse) Naa (Tongue), Niram (Color), Mozhi (Voice), Vizhi (Eyes), Malam (Faeces), Neer (Urine) and Sparisam (Touch & palpation).

As per Sage Agathiyar, Naadi (pulse), Malam (stools), Salam (urine), Niram (complexion), Gunam (character), MugaKuri (facies), Thegam (constitution), Vayadhu (age), Elamai are the diagnostic tools.
According to literature KannuSaami Paramparai Vaithiyam, Naadi, Naa, Thegam, Thodu unarvu, Niram, Malam, Salam and Vizhi are the diagnostic tools.

According to Agathiyar Vaithiya Rathina Surukkam, the diagnostic tools are Naadi (Pulse), Vizhi (Eyes), Kurigunam (Signs), Nalkurippu (Chronology), Maeni (Constitution), Malam (Stools) And Neer (Urine).

According to the Paripoorana Naadi, the diagnostic parameters are Mugam (Facies), Pal (Teeth), Vai (Mouth), Naakku (Tongue), Kaayam, Irumalam, Naadi (Pulse).
According to Dhanvantri Vaithiyam, the diagnostic parameters are Naadi (Pulse), Mugam (Facies), Malam (Stools), Neer (Urine), Udal (Constitution), Vizhi (Eyes), Naa (Tongue), Pal (Teeth).

According to the above literature, the diagnostic tools are Naadi (Pulse), Kan (Eyes), Sattham (Voice), Thegam (Constitution), Sparisam and Naa (Tongue).

1. TONGUE EXAMINATION

"As per Agathiyar Vaithiya Sinthaamani Venba – 4000, fissured and black tongue represent vitiated Vatha humor, pallor represents Kabam, green colour represents Pitha humor and mixed appearance of these features resembles Sanni noiy."
In Vali derangement, tongue will be cold, rough, furrowed and tastes pungent. In Azhal, it will be red or yellow and kaippu taste will be sensed. In Iyyam, it is pale, sticky and sweet taste will be lingering. In depletion of Thontham, tongue will be dark with raised papillae and dryness.

Examination of tongue also includes the salivary examination. The following stanza describes salivary examination

2. EXAMINATION OF COMPLEXION (வேதி விசை விளக்கம்)
In Vali, Azhal and Iyyam vitiations, the colour of the body will be dark, yellow or red and fair respectively.

3. VOICE EXAMINATION (குறிப்பிட்டு)

"வாரிகள் வாட்டலுக்குடன் வாரிகள் வரக்க
குறிப்பிட்டு வாட்டலுக்குடன் வரக்க - 4000
பொடித்து கீழ்ப்பட்டு பலமனம் செய்துகொள்க செய்துகொள்லை வா காலமாபான காலம்.

-அகதிங் காலீய கிருத்தானி ஜீசும்பா - 4000
In vitiation of Vali, Azhal and Iyyam, the voice would be normal, high pitched and shrill or low pitched respectively. By the voice, the strength of the body can be assessed.

4. THE EYE EXAMINATION (காண்க விளக்கம்)

"அதைத்தியா விளக்கத்தை காண்பது முன்னேறி
நிலவுக்கு விளக்கத்தை காண்பது - காண்பிக்க
சான்னிக்கும் விளக்கத்தை பிள்ளையில்
ஒரும்பம்கள் மறை பக்கங்கள்"

-அகதியார் காண்பு கிளமக் விளக்கம் - 4000

As per Agathiyar Vaithiya Sinthaamani Venba – 4000, in vititaded Vali eyes turn black and tears shed. In vitiated Azhal humour, mukkutram and in jaundice yellowish discoloration occurs. In vitiated Iyyam, the eyes turn white.

"அகதியார் விளக்கத்தை காண்பது பக்கங்கள் மறை
றுத்திருக்கும் விளக்கத்தை பிள்ளையில்
விளக்கத்தை பிள்ளையில் முன்னேறி காண்பு
சான்னிக்கும் பக்கங்கள் மறை பக்கங்கள்"
In Vali disease, the tears is darkened, in Azhal disease they are yellow, in Iyya disease they are whitish in colour and in Thontha disease the tears are multi coloured. In Vali disease there will be excessive tears (epiphora). In disturbance of all the three humours, eyes would be inflammed and reddish.

5. FAECES EXAMINATION

As per Agathiyar Vaithiya Sinthaamani Venba – 4000, in vitiated Vali, the stool is hard and black. In vitiated Azhal, it is hot and red. In vitiated Iyyam it is cool and watery.
In excacerbated Vali, faeces is hard, dry and black in colour. In Azhal vitiation, it is yellow. In Iyyam, disturbance it is pale.

6. URINE EXAMINATION (உற்பானை)

“உற்பானை காண்குறிகள் முதற்குறிகளுடன் மூலமாக தீங்குகோள் காரணத்தும் வைத்துழைப் போதும் இருக்கும் குறிகழுகும் பிபியும் சிந்து காட்டல். சரசவை குளிர்கரு விளக்கத்தும் குறிகழும் நீர்மாற்று குறிகழும் சிந்து காட்டல் போதும் இருக்கும் குறிகழுகும் பிபியும் சிந்து காட்டல். உிருப்பானையும் வைத்துழையும் போதும் இருக்கும் குறிகழுகும் பிபியும் சிந்து காட்டல்.

- தாரீம்பகம் புிறவகம் சாதனம் - 4000

'Neer’ refers to Urine ‘Kuri’ refers to Sign. Theraiyar, one of the renowned authors of Siddha medicine described urine examination and stages of health. He had explained about the colour and consistency of the urine in vitiated humor and disease. He also emphasized the spreading nature of a single drop of oil on the surface of the urine indicating the imbalance of specific dosha and prognosis of disease. Normal urine is straw coloured and odourless. The time of the day and food taken will have an impact on the colour of the urine.
COLOUR OF URINE

- Yellow colour – similar to straw soaked water – indigestion
- Lemon colour – good digestion
- Reddish yellow – heat in body
- Colour similar to flame of forest red or flame coloured excessive heat
- Colour of saffron – extreme heat

"நசிராத்தா வாணுசை மூர்த்த பீடம்
நசிராத்தா வாணுசாக வாணுசியில் - நசிராத்தா
நசிராத்தா வாணுசு வாணுசாக வாணுசியில்
புள்ளிய வாணுசி புள்ளிய."

- நசிராத்தா வாணுசை மூர்த்த பீடம்

As per Sikicharathna Theepam,

COLOUR OF URINE - PROGNOSIS

- Ruby red or milky white - Poor
- Honey - Slow and take long time
- Golden yellow - Good

NEIKKURI (நிக்கியரிக்)

"ஆனால் நமித்தும் அனிதாந்தம்
அன்னர் ஆன்னும் அசத்தி நிக்கியானது
நூற்றாண் நாற்று நூற்று கருணை
அதன்படி தோற்றம் கருணை
உதவாது கோபாக்கார்கள் நிக்கிய
நிக்கியி நிக்கியின் நிக்கியும் காட்டு
" ஆனால் நமித்தும் அனிதாந்தம்
அன்னர் ஆன்னும் அசத்தி பிள்ளை
உதவாது கோபாக்கார்கள் நிக்கியானது
-நிக்கியான் நிக்கியின் நிக்கிய் காட்டு

40
The spreading pattern of oil drop is the indicative of Vali, Azhal and Iyyam diseases e.g.

1. Aravu (Snake Pattern of spread) indicates Vali disease
2. Mothiram (Ring Pattern of spread) indicates Azhal disease
3. Muthu (Pearl Pattern of spread) indicates Iyyam disease

In Neikkuri, the rapid spread of oil drop; Pearl beaded and Sieve type of spreading pattern indicates incurable state of the disease. From this, we can assess the prognosis by the Neikkuri.

"..."
7. TOUCH (தாள் சுருக்கம்)

"தாளம் தொகைக்கும் பிறக்களுடன் வாழும் குடும்ப நிராகரிப்பாகச் சார்பாக- தாளம் முடிவுக்கு உருவானவுடன் சிறுத்து முடிவுக்கு முடியாத சிற்றுடன் சிறுத்து விளங்கும்."

-ஆபத்தித் தமிழில் சியாக்கரி விளம்பா - 4000

In Vali disease, some regions of the body felt chill and in some areas they are hot. In Azhal disease, we can feel heat. In Iyya disease, chillness can be felt. In Thontham diseases, we can feel altered sensations.

8. NAADI (நாடி)

The ‘Pulse Diagnosis’ is a unique method in Siddha Medicine. The pulse should be examined in the Right hand for male and the left hand for female. The pulse can be recorded at the radial artery. By keenly observing the pulsation, the diagnosis of disease as well as its prognosis can be assessed clearly.

Naadi is nothing but the manifestation of the vital energy that sustains the life within our body. Naadi plays an most important role in Envagai thervu and it has been considered as foremost thing in assessing the prognosis and diagnosis of various diseases. Any variation that occurs in the three humors is reflected in the Naadi. These three humors organize, regularize and integrate
basic functions of the human body. So, Naadi serves as a good indicator of all ailments.

Naadi is felt by,

Vali - Tip of index finger
Azhal - Tip of middle finger
Iyyam - Tip of ring finger

"Naadi is a life force, it is a measure of health. If Naadi is normal, then the body is healthy; if Naadi is abnormal, then the body is diseased. In both cases, the Naadi is an important indicator of health. If you want to check your Naadi, you should first make sure that your hands are relaxed. Then, place your hands on your abdomen, with your fingers pointing upwards. Now, feel the pulsation of your Naadi. If the pulsation is regular, then your body is healthy. If the pulsation is irregular, then your body is diseased.

-Adhikesavan, Kalaiappan"
The pulse is measured in wheat/grain expanssile heights. The normal unit of pulse diagnosis is 1 for Vali (Vatham), \( \frac{1}{2} \) for Azhal (Pitham) and \( \frac{1}{4} \) for Iyyam (Kapham).

**THE PULSE PLAY**

Compared to the gait of various animals, reptiles and birds,

"பற்றுத்தந்தப் படி மூன்று பல்கள் மாறும்

கருவிய மகக்கினை பிளவுகினை பல்கள் பிள்ளை

மாரிய சுருக்க பல்கள் பிளவுகினை பல்கள் பிள்ளைச் சுருக்க பல்கள்"

---

**Vali** - Movement of Swan and Peacock  
**Azhal** - Movement of Tortoise and Leech  
**Iyyam** - Movement of Frog and Serpent.

"பற்றுத்தந்தப் படி மூன்று பல்கள் மாறும்

கருவிய மகக்கினை பிள்ளை - பல்கள்

-அகதியா மருத்துவ திசைக்கல்  ஜைவப்பினம் - 4000"

Naadi is examined in right side for men and on the left side for women.

9. MANIKADAI NOOL (Wrist circumetric sign)

Agathiya soodamanikayaru ..

"சாதாரண மருத்துவம் கைத்திருப்பு

மினைமை மருத்துவம் ஜைவப்பினம்

முனையின் மினைமை கைத்திருப்பு

அரு மருத்துவம் மருத்துவம் ஜைவப்பினம்"

-பிள்ளைச் சுருக்க பல்கள்
According to the Pathinen Siddhar Naadinool, Manikadainool is also helpful in diagnosis. This manikkadai nool is a parameter to diagnose the disease by measuring the circumference of the wrist by means of a thread and then dividing the measured circumference with the patient’s fingers. By this measurement the disease can be diagnosed.

When the Manikkadai nool is 11 fbs, the person will be stout and he will live a healthy life for many years. When the Manikkadai nool measures between 4 to 6, it indicates poor prognosis of disease and the severity of the illness will be high and it leads to death.

**MANIKKADAI -INFERENCE NOOL**

| 10 fbs  | - Pricking pain in chest and limbs, gastritis and ulcer result. |
| 9 ¼ fb  | - Fissure, dryness and cough will be resulted. |
| 9½ fbs  | - Odema, increased body heat, burning sensation of eye, fever, Mega noi and anorexia. |
| 9 ¼ fbs | - Dysuria, insomnia ,sinusitis and burning sensation of eye. |
| 9 fbs   | - Impaired hearing, pain around waist, thigh pain, unable to walk. |
| 8 ¾ fbs | - Increased body heat, skin disease due to toxins, abdominal discomfort, cataract, sinusitis. |
| 8 ½ fbs | - Leucorrhoea, venereal disorder and Infertility will occur. |
| 8 ¼ fbs | - Stout and painful body. Headache. Sinusitis and toxins induced cough. |
| 8 fbs   | - Abdominal discomfort, gastritis, anorexia and venereal diseases. |
| 7 ¾ fbs | - Piles, burning sensation of limbs, headache, numbness occur. Within 2 years cervical adenitis and epistaxis results. |
| 7 ½ fbs | - Osteoporosis, abdominal discomfort, burning sensation of eyes, increased body temperature. Within 6 days all the joints of the limbs presents a swelling. |
| 7 ¼ fbs | - Lumbar pain, increased pitha in head, anemia, eye pain, odema and somnolence |
7 fbs - Pitham ascends to head, haematemesis, phlegm, burning sensation of limbs and constipation.

6 ¾ fbs - Eye ache, dizziness, testis disorder. Within 3 years it causes anuria, pain and burning sensation over limbs, facial sweating results.

6 ½ fbs - Thirst, anorexia, increased body heat and vatham results.

6 ¼ fbs - Diarrhea, belching, vomiting and mucous dysentery

6 fbs - Reduced weight, phlegm in chest. It results in death within 20 days.

5 ¾ fbs - Delirium, dizziness, loss of consciousness. It results in death even if the patient takes gruel diet

5 ½ fbs - Severity of illness is increased. Toxins spread to the head. Tooth darkens. Patient will die in 10 days.

5 ¼ fbs - Patient seems to be sleepy and death results on the next day.

5 fbs - Pallor and dryness of the body. Kabam engorges the throat and the person will die.

4 ¾ fbs - Dryness of tongue and tremor present. Patient will die in 7 days.

4 ½ fbs - Shrunken eyes, odema will present and death results in 9 days.

4 ¼ fbs - Tremor, weakness of limbs and darkening of face occurs. Finally death results in two days.

4 fbs - Pedal odema will be present. Patient will die in 5 days.

10. THE ASTROLOGY

Macrocosm and Microcosm

Man is said to be Microcosm, and the Universe is Macrocosm; since what exist in the Universe exists in the human body too. Man is being an integral part of universal nature. The forces prevailing in the microcosm (Human body) are analogous with that of the forces prevailing in the macrocosm (Universe). The natural forces acting in and through various organs of the body are intimately related to or similar to or correspond to the forces acting in and through the organisms of the world.
This closely follows the Siddhar’s doctrine,

"அன்றை நிற்பிக்கவும் பிறொருளிய
பிறொருளிய முனையிலே
அன்றை முனையிலே நிற்பிக்கவும்
அன்றை நிற்பிக்கவும் பிறொருளிய
பிறொருளிய முனையிலே
அன்றை நிற்பிக்கவும் பிறொருளிய
பிறொருளிய முனையிலே
அன்றை நிற்பிக்கவும் பிறொருளிய
பிறொருளிய மு

Astral influences:

All the influences which are radiated from the sun, planets and that of the stars can act upon the human bodies. Moon exercises a very bad impact on the disease in general especially during the period of new moon. For instance, paralysis, brain affections, dropsy, and stimulation of sexual perversions are resulted during the newmoon. Mars causes anemia and lack of nervous vigour. A conjugation of the moon with other planets such as Venus, mars, etc may make its influence still more injurious.

The 8th place forms the laghanam which deals about ones age, chronic diseases, death etc. In the organisms of man, these forces may act in an abnormal manner and cause disease. Similarly, in the great organism of the cosmos, they act abnormally likewise and bring about disease on earth and its atmospheric condition like earthquake, storms etc. The Mars invisibly influences human’s blood constituents. The Venus instigates intersexual love.

The following are the instances in which every sign of the zodiac acts towards some particular parts of the body.

1. According to T.V.S. Dictionary:

1. Aries - Neck
2. Taurus - Neck and shoulder
3. Gemini - Arms and hands
5. Leo - The heart and stomach
6. Virgo - The intestines, base of stomach and umbilicus
7. Libra - Kidney
8. Scorpio - Genitals
9. Sagittarius - Lips  
10. Capricorns - Knees  
11. Aquarius - Legs  
12. Pisces - Feet  

2. According to literature Thiruvalluvar periya sunthara sekaram.

1. Mesham - Head  
2. Rishabam - Face  
3. Mithunam - Neck  
4. Kadagam - Shoulders  
5. Simmam - Chest  
6. Kanni - Side of body  
7. Thulaam - Back, stomach  
8. Virutchigam - Testicles  
9. Thanusu - Thigh  
10. Magaram - Knees  
11. Kumbam - Heel  
12. Meenam - Foot  

11. The Impact of the Planets on the Human Organs

According to the literature Siddha Maruthuvanga Surukkam

Each of these planets hold jurisdiction over some parts of the body similar to the signs of the Zodiac. The planets exercise special power over some parts of the body resulting in a disease or diseases in accordance with their impacts on the three basic humors in the system.

1. Sani (Saturn)

   It exhibits supremacy over the bones, tooth, cartilages, ear, spleen, bladder and brain and gives rise to fever, leprosy, paralysis, dropsy, cancer, cough, asthma, deafness of the right ear, hernia etc.
2. **Guru (Jupiter)**

It holds jurisdiction over the blood, liver, pulmonary veins, diaphragm, Muscles of the trunk and sense of touch & smell.

3. **Sevvaai (Mars)**

It has got power over the bile, gall bladder, left ear, pudendum, kidneys, fever, jaundice, convulsions, hemorrhage, carbuncle, erysipelas, ulcer etc.

4. **Sukkirian (Venus)**

It exercises its impact on the blood and semen, throat, breast, abdomen, uterus, genitalia, taste, smell, pleasurable sensation, gonorrhea, barrenness, Abscesses or even death from sexual passions or from poison.

5. **Pudhan (Mercury)**

It holds jurisdiction over the animal, spirit, also over legs, feet, hands, fingers, tongue, nerves and ligaments and produces fevers mania, phrenitis, epilepsy, convulsion, profuse expectoration or even death by poison, witchcraft and so on.

<table>
<thead>
<tr>
<th>Planets</th>
<th>Organs of impact</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Solar force</td>
<td>Heart</td>
</tr>
<tr>
<td>2. Lunar force</td>
<td>Brain</td>
</tr>
<tr>
<td>3. Mars</td>
<td>Gall Bladder</td>
</tr>
<tr>
<td>4. Mercury</td>
<td>Kidney</td>
</tr>
<tr>
<td>5. Venus</td>
<td>Lungs</td>
</tr>
<tr>
<td>6. Jupiter</td>
<td>Liver</td>
</tr>
<tr>
<td>7. Saturn</td>
<td>Spleen</td>
</tr>
</tbody>
</table>
5. According to literature Thiruvalluvar Periya Sunthara Sekaram.

1. Sooriyan - Head
2. Santhiran - Face
3. Sevvai - Chest
4. Puthan - Center of Posterior Trunk
5. Guru - Stomach
6. Sukkiran - Groin, Genitalia
7. Sani - Thigh
8. Raagu - Hands
9. Kedhu - Legs

Each of these rasis and the organs of impact as well as the Girahams are found to be related with the resultant diseases of corresponding organs. Therefore, the human body is impregnated with the vital forces that could be acted upon by the astronomical bodies in the sky. With the augmented spiritual force, a sage is able to get control over the above said planets. All the others are under the influence of the forces exhibited by these asteroids.
4. UTHIRAVATHA SURONITHAM

4.A. INTRODUCTION TO VATHAM

According to T.V Sambasivam pillai, the Vali is defined as the one of the three humors (life forces), occupying the region below navel. It is responsible for all movements of the body. It spreads throughout the body and causes respiration, hunger, thirst etc. It is the energy or power that prevails all over the body keeping various tissues in good condition. Vali is soft, fine and temperate (coolness) which could be felt by touch. It is the base for the genesis of other two humors.

4.A.1. THE SITES OF VALI

According to Vaidya sathakam, Vali dwells in the following places:
Umbilicus, rectum (abanan), abdomen, anus, bones, hip-joint, skin, navel plexes, joints, hair follicles and muscles.

According to Sage Tirumoolar and Yugi muni, the places of Vali are anal region and the region below the navel.
According to Agasthiyar Vaithiya Kaviyam, the Vali exists all over the body.

According to Anupoga Vaithiya Brama Ragasiyam, the Vali exists between the Umbilicus and navel region.

### 4.A.2. CHARACTERS OF VALI

<table>
<thead>
<tr>
<th>S.NO</th>
<th>OWN CHARACTER</th>
<th>OPPOSITE CHARACTER</th>
</tr>
</thead>
<tbody>
<tr>
<td>2.</td>
<td>Varatchi - Dry</td>
<td>Pasumai - Unctious</td>
</tr>
<tr>
<td>3.</td>
<td>Elasu - Light</td>
<td>Baluvu - Heavy</td>
</tr>
<tr>
<td>4.</td>
<td>Kulirchi - Cold</td>
<td>Akini - Hot</td>
</tr>
<tr>
<td>5.</td>
<td>Asidha – Unstable</td>
<td>Sthiram - Stable</td>
</tr>
<tr>
<td>6.</td>
<td>Anuththuvam-Stable</td>
<td>Katti - Solid</td>
</tr>
</tbody>
</table>

### 4.A.3. PROPERTIES OF VALI

"உச்சக்கில்லை தானியம் சாதைநாள் குருவை
சுற்றுக்குரு கூட்டிகுறுங்கு-சுற்றுக்கியின்
கொட்ட பாட்துண்டத்தை கொலும்பாடு
சாதைநூற்றுத் தானியானது மானை"

-அய்யம் கோயில்பாட்
The following are the inherent properties of Vali.

- To stimulate
- To respire.
- To activate the Body, mind and the intellect.
- To operate the fourteen different kinds of natural reflexes / urges.
- To activate the seven physical constituents in junctional co-ordination.
- To strengthen the five sense organs.

In the above processes Vatham plays a vital role to assist the body functions.

**Functions of deranged Vatham (Vali) (Abnormal functions of Vatham)**

- Body pain,
- Pricking pain,
- Pain as though the body is tightly bounded by cords,
- Nervous debility,
- Tremor,
- Rigidity,
- Dryness,
- Remorseness,
- Debility (Emaciation),
- Throbbing pain (Restriction of movements),
- Trauma,
- Dislocation of joint,
- Weakness of functional organs and loss of functions,
- Loss of taste sensation or perception of Astringent taste only,
- Constipation, concentrated urine,
- Thirst,
- Sensation of fragility in the foreleg and thigh,
- Numbness and pricking pain in the bones,
- Goose skin,
- Stiffness of upper and lower limbs and black,
- The skin, eyes, faeces and the urine are dark in colour.
4.A.4.CAUSES FOR VATHA DISEASES:

"According to Yugi Vaithya Sinthamani, those who are squandering money, insulting elders, abandoning or forgetting the parents, blaspheming the Holy books, not respecting the divine gifts, having wickedness in their mind and those with day slumber and staying back at night will attract Vali diseases.

Increased intake of bitter taste, astringent, hot taste, increased intake of water, excessive starvation, sexual indulgence will produce Vali diseases."
Pararasa sekaram also states the same that is also stated in Yugi Vaithya Sinthamani like increased intake of varagu, thinai, ghee and kaippu taste, increased intake of food, increased fear, excessive anger, deep sadness, increased exposure to forcible flow of air, altered dietary timings etc.
According to Angaathipatham, increased starvation and increased anger will produce Vali disease.

According to theraiyar vagadam, walking under hot sun, increased sexual desire, increased intake of food and bitter gourds will produce Vali disease.

4. A. 5. वथा (Characteristic features of Vatha)

According to Agathiyar Sikicha Rathna Deepam derangement in Vali will produce delirium and emaciation.

According to Theraiyar Vagadam, deranged Vali produces loss of appetite, fever, cough, insomnia, shivering of the body, nerveine disorders, pain in all the joints.
According to Vatha Kooru Virutham, deranged Vali produces fatigue, lethargy, loss of appetite, abdominal discomfort, diarrhoea, constipation, cough, insomnia and joint pain.

Physical nature of Vatha constitution is dark coloured face, eye, teeth and stool.
4.A.6. Aetiology of Vali (AETIOLOGY)

Environmental Factors:

"Avalamaiṟṟai ridiculosa aapentha aamkile

Marattan _DST  kurna bakal sarkar

Vadhakaram bakiram akgalikai kambalike

Kurumkiri mepatharai kanamkiri

Puravuveli sivakamai kannakum

-Navarasi

Vali diseases will be precipitated in the months from Aani to karthigai (June to December)

"Purumamaiṟṟai puram kannakum paanatikai sarkar

Marattan _DST  sivirai mepatharai -Karakasam

Marattan _DST  kannakum apanthikai marumthirkum

Kurumkiri mepatharai kannakum

-Navarasi

In Muthuvenil kaalam (Late summer), the increased solar radiation increases the evaporation of water content in the world, at the same time these similar actions on the body produces increased production of mucous for digestion and develop the derangement of Vali disease.

(Diet)

"Avalamaiṟṟai ridiculosa aapentha aamkile

Marattan _DST  sivirai mepatharai kannakum purumkiri

Marattan _DST  sivirai mepatharai kannakum purumkiri

Marattan _DST  sivirai mepatharai kannakum purumkiri

-Navarasi

According to Sababathi Kaiyedu, increased intake of tubers, increased exposure to wind, living in higher altitudes, increased sexual desire, and increased exposure to chill weather will aggravate Vali diseases.
According to Pararasa Sekeram, increased intake of bitter taste, astringents, sour tastes, increased intake of old cooked rice, day slumber and staying back at night will increase Vali.

4.A.7. FUNCTIONS OF DERANGED VALI:
(Altered functions of Vali)

"According to Pararasa Sekeram, increased intake of bitter taste, astringents, sour tastes, increased intake of old cooked rice, day slumber and staying back at night will increase Vali.

Excessive walking in hot sun, excessive intake of water bitter guard increased sexual desire, may play a role in disturbing the normal functions of Vali.

4.A.7. FUNCTIONS OF DERANGED VALI:
(Altered functions of Vali)
According to Pararasa Sekaram the deranged Vali will produce cough, delirium, diarrhoea and abdominal distension.

"ஒன்று விளைந்த பிரிவுக் குறிப்பிட்டாகச் சொல்லப்படுகின்ற வலி குழு தோன்றும் குழுக்களும் பிரிவுகளும் காலத்தில் வனிக விப்பு

According to the Sage Theraiyar, the deranged Vali produces reduced appetite, fever, cough and insomnia.

"ஒன்று விளைந்த பிரிவுக் குறிப்பிட்டாகச் சொல்லப்படுகின்ற வலி குழு தோன்றும் குழுக்களும் பிரிவுகளும் காலத்தில் வனிக விப்பு

- அம்மகிழ்ச்சுக்

"பாராராசா மாத்தியத் புனிதமிக்க

பெருமையுடன் தன்று அதன்விளகாதை

நூற்றாண்டு புனிதத்தான் வரும் எளுத்தாக

ஒன்றையுடைய பாராசா விளைந்த பிரிவுகளும்

தாயச்சொன்னு விளைந்த பிரிவுகளும் விளைந்த

- அம்மகிழ்ச்சுக்
According to Angaathipatham the deranged Vali produces constipation, scanty micturition, increased lacrimation, with darkening of eyes, fissures in tongue, dysarthria, flatulence, abdominal distension, and cough with expectoration, indigestion and diarrhoea.

"காணாத்தின் மாற்றத்துடன் வள்ளுகின்ற வள்ளுக்குறுக்கம் புனரம் அழுப்பின் மாற்றத்துடன் பாதுகை சுற்றின் அழுப்பின் அழுப்பின் அழுப்பின் அழுப்பின் அழுப்பின் அழுப்பின் அழுப்பின் அழுப்பின் அழுப்பின் அழுப்பின் அழுப்பின் அழுப்பின் அழுப்பின்

- அகாதியர் தெற்கிய காவியம் 1500

According to Agathiyar vaithiya kaaviyam, the deranged Vali produces pain in the joints of the hands and legs, flatulence, constipation, scanty micturition, fever with rigor, generalized body pain and increased sweating.

"தான் அழுத்த பிறப்பட்டிருந்து காணாத்தின் மாற்றத்துடன் காணாத்தின் மாற்றத்துடன் காணாத்தின் மாற்றத்துடன் காணாத்தின் மாற்றத்துடன் காணாத்தின் மாற்றத்துடன் காணாத்தின் மாற்றத்துடன் காணாத்தின் மாற்றத்துடன் காணாத்தின் மாற்றத்துடன் காணாத்தின் மாற்றத்துடன்

-இதுறுப்பு மாகழ

According to Theraiyar vagadam, the deranged Vatham produces pain in the joints, headache, constipation, increased salivation, chills with rigor, loss of normal complexion.

According to Theraiyar karisal, the deranged vatham produces blackish discolouration of body, feverishness, increased sweating, indigestion and dyspnoea.
According to Agathiyar vatha kaaviyam and kannusamiyam the deranged Vatham produces abdominal discomfort, pain in joints, oliguria, dysuria, constipation and flatulence.

4.A.8. KINDS OF VATHAM-10

“தம்மக்கவலம் பிறந்தனித்தார் பாசத்தை மிழ்வஞ்சத்தார்
சுந்தகள் சுருக்கலிந்த சோஸ்தா காதல்
மறுமுக்கு காற்றியையும் காற்று வைத்தான்
வயிற்பது வேறுகட்டுடன் செய்து பாசுவாம்”

- புது காலக்கு கிளைகல்லை 800

Eventhough the vatham is a single functional unit, it has got ten different forms and actions.

10 DIFFERENT KINDS OF VATHAM

Praanan (Respiratory functions)
Abaanan (Excretory functions)
Viyaanan (Perfusion of oxygen & nutrients)
Samaanan (Homeostatic functions)
Udhaanan (Reverse peristalsis)
Naagan (Higher intellectual function)
Koorman (Constrictory functions)
Kirukaran (Secretory functions)
Devathathan (Mental & physical sluggishness)
Dhananjeyan (Bloat of the body)
### 4.A.9. CLASSIFICATION OF VATHAM IN CLASSICAL LITERATURE:

<table>
<thead>
<tr>
<th>S.NO</th>
<th>NAMES OF THE BOOKS</th>
<th>TYPES OF VATHAM</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Yugi vaithiya sinthamani</td>
<td>80</td>
</tr>
<tr>
<td>2.</td>
<td>Astanga sangiragam</td>
<td>85</td>
</tr>
<tr>
<td>3.</td>
<td>Noi Naadal Noi Mudal Naadal vol - 2</td>
<td>81</td>
</tr>
<tr>
<td>4.</td>
<td>Theraiyar Vaagadam</td>
<td>81</td>
</tr>
<tr>
<td>5.</td>
<td>Dhanvantri vaithiyam</td>
<td>81</td>
</tr>
<tr>
<td>6.</td>
<td>Jeevarakshamirtham</td>
<td>80</td>
</tr>
<tr>
<td>7.</td>
<td>Agathiyar - 2000</td>
<td>80</td>
</tr>
<tr>
<td>8.</td>
<td>Bohar vaithiyam</td>
<td>84</td>
</tr>
<tr>
<td>9.</td>
<td>Agathiyar kurunaadi</td>
<td>84</td>
</tr>
<tr>
<td>10.</td>
<td>Agathiyar rathna churukkam - 500</td>
<td>84</td>
</tr>
<tr>
<td>11.</td>
<td>Pararasa sekaram</td>
<td>80</td>
</tr>
<tr>
<td>12.</td>
<td>Aviyalikkum amutha murai churukkam</td>
<td>Diseases according to various parts of the body.</td>
</tr>
</tbody>
</table>
4.B. UTHIRAVATHA SURONITHAM

4.B.1. Definition (Iyal):

Uthiravatha Suronitham is a type of arthritis characterised by pain, swelling, pricking sensation stiffness of the joints and restriction of movements due to deranged vatham.

Uthiravatha Suronitham = Uthiravatham + Suronitham

Uthiravatham = Arthritis of rheumatic origin marked by severe pain and the formation of inflammatory nodules in the region of joints especially in the limbs of the body.

Suronitham = Blood or menstrual blood or semen like fluid.

4.B.2. CLINICAL FEATURES OF UTHIRAVATHA SURONITHAM:

The joint between the tibia and fibula above on sides,
The part of the leg just above the ankle joint

4.B.3. BREAK OF SYMPTOMATOLOGY:

The joint between the tibia and fibula above on sides,
The part of the leg just above the ankle joint

Knee joint

- Back of the leg
4.B.4.CLINICAL FEATURES:

- Pain in the knee joint, ankle joint and small joint of the body
- Swelling in the knee joint, ankle joint and small joint of the body
- Apathetic mood
- Mental instability
- Loss of appetite.

4.B.5.THE CLINICAL FEATURES OF UTHIRAVATHA SUREITHAM IN ‘PARA RASA SEKARAM’:

It is characterised by pain and tenderness of the axilla, breathlessness, pain in the upper limbs and lower limbs.
Lord Vinayaga who developed from the Pranava manthiram 'Ohm', Lord Muruga, Lord Shiva and Parvathy should be meditated before determining the Neerkkuri and Neikkuri, which was emphasized by Sage Theraiyar in his book of Theraiyar Thylavarka surukkam.

In order to shed off the ambiguity in the diagnosis of disease through pulse perception, the exponents have charted out a method called Neerkkuri - an incomparable method of diagnosis.

5. NEERKKURI NEIKKURI

5.A. NEIKKURU

Lord Vinayaga who developed from the Pranava manthiram 'Ohm', Lord Muruga, Lord Shiva and Parvathy should be meditated before determining the Neerkkuri and Neikkuri, which was emphasized by Sage Theraiyar in his book of Theraiyar Thylavarka surukkam.

In order to shed off the ambiguity in the diagnosis of disease through pulse perception, the exponents have charted out a method called Neerkkuri - an incomparable method of diagnosis.

5.A.1. NEIKKURU

"After performing various observances
A sage named Aswini Adapattu established
A method to determine Neerkkuri
An incomparable method of diagnosis"
On the day before the urine test one should take food, consisting of all the six tastes in an harmonious blend at the regular time based on one's digestive fire (Appetite), after a sound overnight sleep, Urine should be collected in a crystal bowl and the test should be done before 90 minutes from dawn.

5.A.2. General features of urine:

"மாற்று முழுக்கினி ரேம், மனிதன் குடும்பம் கல்வி முன்பதனம் பாதுகாக்கும் கிளை வைத்திற்கு "

The following are the features of urine,

1. Colour (முந்தம்)
2. Density (சாதல்)
3. Froth (நூலா)
4. Odour (அறுமம்)
5. Deposits (சக்கரங்கள்)

5.A.3. different colour of urine:

"முந்தம் முச்சைச்சால் குடும்ப தோல்கணவையில்
 நீரானதுகிரமையிலே பாதுகாக்கி விரிவு "

The urine may be of the colours,

1. Yellow
2. Red
3. Green
4. Black
5. White
5.A.4. SUBDIVISIONS IN EACH COLOURS:

"அரிச்ச்சுறு அழற்சில்லான உண்மையான நிலையிற்கு
அரிச்ச்சுறு அழற்சில்லான நிலையிற்கு
ஒலிக்கானப் பிக்குவிய விலக்கம் கூறவும்"

According to the above verse there are six types in yellow, four in red, five in green, four in black and two in white coloured based on different disease conditions.

5.A.5. YELLOWISH CHANGES IN URINE:

1. Urine indicating states of improper digestion:

"வெட்டும் மாறு மாறு மறையில்
சிறுவலாமுறு அவலம் தத்து.

Urine taking the colour of water in which straw is drenched.

2. Urine indicating the ongoing digestion

"பனி நீரின் புறையில் பூண்டுறின்
சிறுவலாமுறு திண்ணார் கூர்.

Here the colour of the urine is that of the Thurungi Pazham-Giant lime fruit (citrus medica).

3. Urine which shows excessive heat present in the body:

"செடுநைம் செடுநைம் செடுநைம் மறையில்
சிறுவலாமுறு விலங்குத்துறு தத்து.

Yellowish red urine is suggestive of excessive body temperature.

4. The colour of the urine in hot nature:

"சாப்பு சாப்பு சாப்பு சிறுந்தில்
சுள்ளுத்துறு போனேறு தத்து.

If the colour of urine is similar to the wild orange, it indicates the rise in temperature.
5. The colour of the very hot urine:
"ஒருநுற்று கோவையான ஒருநுற்றை மறுநொய்யல்வாயில்
அடுத்துச்சிறிய பட்டை செய்து." 
The flame coloured urine denotes high temperature.

6. Very hotter than previously mentioned:
"மேலும் கோவையான புதுக்கோளை கிளை
சுருட்டிய பட்டை அம்பிடை செய்து." 
Saffron coloured urine denotes very high temperature in the body.

5.A.6. REDDISH CHANGES IN URINE:
"அகலநுற்று கோலையான அகலநொய்யல்வாயில்
அல்லநொய்யல்வாயில் செய்து." 
"செந்திக வைஸ்கையான பலையாளின்
செந்திக வைஸ்கையான செய்து." 
"தாசுமன்ற ஒருநுற்றையான கோலையான
tோணையான செய்து." 
Dark red colour of urine as that of rose flower may be observed in case of heated haematological systems and black and red colours admixed and frank red colours shows even more heated haematological systems.

5.A.7. REENISH CHANGES IN URINE:
1. காளா இது இன்று:
"கலாட்சி கற்பண்ட் கோலையானுக்கு
வருளிக்காய் பைப் செய்து." 
Black coloured urine with slight greenish tinge in it.

2. பெரியதுவாசியன் காளா இது இன்று:
"பெரியதுவாசியன் பசுகு பைபியுக
tோலையுகாக் செய்து." 
Urine of sky colour indicates toxic state of the body along with coldness.
3. A sort of bluish tinge in urine caused by extreme coldness and also by Vatha dominant diseases occurring in children and elderly people.

4. Apart from being bluish tinged if it is also viscous indicating underling derangement of the three humour the urine.

5. Urine appears frankly greenish as fresh foliage in diseases where all the humors are utterly deranged.

5.A.9. BLACKISH CHANGES IN URINE:

1. Black colour in a saffron colour background shows the Kamalai (Pitha disease) condition.

2. Saffron, block and little red coloured urine indicates a blood disorder.
3. Greenishness in dark coloured urine indicates unhealthy blood:

"Kangādēm pūrāthātkē KangādēM Bhūkēdēm
AbhāyaKēM Bhūkēdēm AñjēMākēdēm.

Greenishness in dark coloured urine indicates unhealthy blood.

4. Dark and whitish colours in urine indicate upset of Vatha and pitha. Also it indicates chronic body heat disorders and complications of fevers in elderly and associated fainting.

5.A.10. Whitish or light coloured in urine:

1. Whitish or clear urine is usually because of sheer coldness of the body this condition is not amenable to medical treatment. A patient to get over from this condition is as it where a person having a new lease of life drowned in the raging sea.

2. In conditions of highly agitated ‘coldness’ of the body the urine is said to be not only highly clear but also little mucoid in appearance.
5. A. 11. CHANGES IN THE DENSITY OF URINE:

“If the voided urine is denseless and crystal clear then it is due to excessive cold and to the melting of the kabam.”

5. A. 12. ODOUR:

1. "A urine sample with atrocity indicates ulceration in the urinary tract and bladder.

2. "A urine sample with overwhelming odour of the tamarind points to the disorders of the body due to heat.

3. "Urine descending with a sweet flavour implies an increased haematopoiesis in diseases like leukaemia.”
4. Urine with a smell of dark coloured deer is voided in conditions of pitham dominance.

5. Urine with a smell of fresh meat (carnivorous) will be in decreased body adipose tissue.

5.A.12. FROTH ON URINE

When the greasiness of the body is melted, it gets associated with the urine in the gad form to cause froth in it. This greasiness of the body normally adds resilience and resistance to the body. In conditions of impending jaundice the froth appears to be multi coloured with yellow and black and coloured appearance. The quantum of froth gets reduced in conditions of reduced humours of the body.

Similarly, reduced urine output inspite of having normal intake of water throws light on impending anaemic disorders and associated lassitude.

5.B. NEIKKURI

5.B.1.
Invoking the absolute reality who was assumed the form of gurupara, the lord facing south, seated in ayogic postura under the banyan tree, extolling the symbolic cinmudra by the very show of the right hand itself to the four sons of Brahmadeva, the chosen disciples lets us expond the formula of urine test us to get at the right clues for disease conditions without any doubt whatsoever as performed by our mystically intuited Siddha practitioners who have the command over the eight fold tests, without compounding one for the other, for the benefit of world at large.

5.B.2.சனவித்தியம் கிளி பாய்க்கும் நிகர்நாசி விள்ளை:  

"சிக்கோல்வி கால்வி வியாபார நிகர்நாசி
சிற்றா கால்வாசியப் பிரிவுகள் நிகர்நாசி
நிகர்நாசி வியாபார நிகர்நாசி
சிற்றாசுநரசு பிரிவு என்வுறுத்தும்
நிகர்நாசி பாய்ப்பு என்வுறுத்தும்".

The urine collected should follow the same procedure like the general examination of urine. A drop of oil is dropped on centre of bowl without any shake. It should be ensured that the sunlight falls on it, but it should not be disturbed by the wind. A keen observation with our knowledge on the oil drop suggests the condition of the patient.

சனவித்தியம் நிகர்நாசி

காலி காலியாவளி குடுக்க நீண்ட பாய்ப்பு
சொந்தமுறை சிலியாக பிள்ளை பிள்ளையாள் செய்யிருந்த ஆர்வியை கால காலியா வியாபார செய்து தின்போடு
சொந்தமுறை காலியா மகாமி குழுவியாளியின் சிலியா பாய்ப்பு - ஆல்கயின்பால்
5.B.3. GENERAL NATURE OF URINE IN OIL-EXAMINATION:

“அரீல்ச் செய்து உறுக்கு ஏற்க”
“அரீல் பார்ப்புக்கு அரீல் பிவு”
“அரீல்டாக் துங்கத் பார்ப்புக்கு குறும்”

If the oil drop takes the shape of a snake, it indicates Vatha disease. If it spreads like a ring it indicates Pitha diseases and if it stands like a pearl it indicates Kapha diseases.

SHAPE OF THE OIL DROP IN COMBINED DERANGEMENT OF HUMOR:

“அரீல்டாக் துங்கத் பார்ப்புக்கு அரீல் பிவு
அரீல் பார்ப்புக்கு அரீல் பிவு
சாத்துக் காற்று செய்து தாக்குகள்”

If there is a combined shape like a ring in a snake or snake in the ring, snake and a pearl or a pearl in the ring, it indicates combined derangement of humors.

SINGNS OF THREE HUMORS:

“அரீல்தாக் செய்து அரீல்தாக் பிவு
அரீல்தாக் பார்ப்புக்கு அரீல்தாக் பிவு
சாத்துக் காற்று செய்து தாக்குகள்”

If the oil drop sinks in the urine and if all features of the three humors are seen together in the urine. It suggests derangement of all three humors

5.B.4. SIGNS OF GOOD PROGNOSIS:

"சித்தியாவாக் குதிரையும் பார்ப்பு
சித்தியாவாக் பார்ப்புக்கு வாற்றுவக்கு
சித்தியாவாக் பார்ப்புக்கு குறும் பார்ப்பு.”

If the oil drop in the urine is round in shape and spreads gradually, it indicates good prognosis.

"அரீல்டாக் காற்று அரீல்டாக்
அரீல் பார்ப்புக்கு வாற்றுு.”
If the oil drop takes the shape like Conch, Throne, Umbrella, Yazh (a stringed instrument), a lotus flower, Jasmine bud suggests good prognosis.

**SIGNS OF CURABILITY:**

If the oil drop in the urine spreads like Ritual fire, Human being, Fish, Temple corridors, Elephant it is curable.

**SIGNS OF CURABILITY:**

Further, if the oil drop takes the shape like Hill, Umbrella, Tree, A fan made of fur, Lotus flower, the tusk of a wild elephant, Cap, Mirror, Conch Tapestry, Earth, lute and the square shaped house it is curable.
SIGNS OF CURABILITY:

If it is in the shape of the leaf of bitter gourd, bee, buds of lotus and throne, the disease is curable.

5.B.5. SIGNS OF INTRACTABILITY:

If the oil drop takes the shape of a drum, flag, pot, pig, jungle beast and potter's wheel the cure is slow and with some difficulty.

5.B.6. SIGNS OF INCURABILITY:

If the oil drop takes the shape of an obese man, man with one, three or four legs, a headless body, or as if a person holding a dragger. Three headed spear, iron pestle, bow and sword. Snake the prognosis is bad.

If the oil drop takes the shape of a cat, mouse, arrow, crab, bottle gourd, hen, tiger, monkey, lion, horse, betel, creeper, bull and bear the prognosis is bad.

Further, if the oil drops takes the shape of a cat, mouse, arrow, crab, bottle gourd, hen, tiger, monkey, lion, horse, betel, creeper, bull and bear the prognosis is bad.

If the gingely oil drop sinks in urine it indicates bad prognosis.

If the oil drop takes the shape of a bird scorpion tortoise or if it non spreading or spreads very fast by it suggests bad prognosis.
SIGNS OF BAD PROGNOSIS:

"என்று கூறியது காட்டுத்தல் நீர்ப்பொருள் பாதியில் புலம்
காண்பொல் பின்னி கீழ்கண்டு செய்யவேண்டும்."

"நிகழ்வுக் கால்துறையிலுள்ள குழுக்களில் பாதியில் குளிர்கூடவையில்."

"அல்லாம் சுந்தரப் பெருநூற்றாண்டுகள் இந்தியர்
அனுப்பு தண்டங்கள் நிலக்கும் அருகல்."

"தான் விழாவுக்கு இன்றுகுறியில் ஒருவர்
ஏற்றுக் குழுவை வளர்விக்கிறது."

"அம்பாள் காதலையும் காதலையும்
குழும் வைத்தியைவிடத்து கிளைகள் கிே."

If the oil spreads fast or becomes small like a mustard or gets mixed completely with urine or sinks in urine, it suggests bad prognosis. Further if the oil drop takes the shape like Sword, Arrow, Iron pestle, Three headed spear, Pot, Betel leaf indicates bad prognosis.

"என்று கூறியது தேசியக் கூறும்
நேராக முழுப்பொருள் கிளைகள் கிளைகள்
புத்தாண்டிகள் வட்டப்பு தக்தாத்தில்
மூலானிகளை பிள்ளை கிளைப்பொருடு."

If the oil drop takes the shape like Lion, Elephant, Tiger, Ram, PigMan, Tortoise, Bird, Fox, Monkey, Ass, Cat, Scorpion indicates bad prognosis.

5.B.7.CURABLE AND INCURABLE STATES OF DISEASES:

"நூத்தம் கருணையும் கொள்ள்களைத் தமிழகப்
நூத்தமும் கருணையும் செய்ய கருணை கருணை
காண்கு கூறும் கூறும் கருணை கருணை
தேசிய கூறும் கூறும் கருணை."

If the oil drop takes the shape of a sieve, it suggests Kapha diseases. According to Gowthama, it is incurable but others say it is curable.
5. B. 8. HUMORAL (KUTTRAM) BASIS:
Acording to the Theriyar Neerkkuri Neikkuri Vathiyam,

VATHAM

VATHA PITHAM

VATHA KABAM
6. MODERN ASPECTS

6.A. JOINTS

6.A.1. Introduction

The bones of the skeleton are joined by a variety of structural arrangements collectively termed as ‘Joints’. Joints allow differential growth to the remission of forces and movements.

6.A.2. Normal structure of joints:

The joints are two types

- Diarthrodial or synovial joints with a joint cavity.
- Synarthrodial or nonsynovial joints without a joint cavity.

Most of the diseases of joints affect diarthrodial or synovial joints. In diarthrodial joints, the ends of the two bones are held together by joint capsule with ligaments and tendons inserted at the outer surface of the capsule. The articular surfaces of bones are covered by hyaline cartilage which is thicker in weight-bearing areas than in nonweight-bearing areas. The joint space is lined by synovial membrane or synovium which forms synovial fluid that lubricates the joint during movements. The synovium may be smooth or thrown into numerous folds and villi. The synovial membrane is composed of inner layer of 1-4 cell thick synoviocytes and outer layer of loose vascular connective tissue.

6.A.3. The structure of the joint consists of:

(i) Soft tissues,

1. Joint space – joint space contains articular cartilage with thin film of synovial fluid.

2. Joint capsule and ligaments – The size of the capsule varies as per the joint involved, Small joints have close filling joint capsules, but larger joints like knee and hip have larger joints capsule.
3. Periarticular tissue – The soft tissue covering the periosteum is called periarticular soft tissue.

(ii) Bone ends,

In adults it consists of,

- Subarticular cortex
- Joint margin
- Medulla

In younger age group it consists of,

- Epiphysis
- Diaphysis

(ii) Structure of synovial joints:

The majority of joints in our body are synovial joints. In this type the bone ends are not directly connected by any tissue. They have smooth articular surface covered by a layer of hyaline cartilage. Two bones are held together by a capsule made up of fibrous tissue. The capsule encloses the articular surfaces within a joint cavity. The capsule is lined by a synovial membrane which secretes a synovial fluid that acts as a lubricating agent and provides nourishment to the articular cartilage.

6.A.4. CLASSIFICATION OF JOINTS

1. Fibrous (Synarthrodial) – immovable joints found in cranial vault and teeth

2. Cartilaginous (Synchondroses and Symphyeses) – partially movable joints

3. Synovial joints (Diarthrosis) – freely movable joints are the most common joints found in the skeleton
Uniaxal joints

- Hinge joint (Elbow and Knee)
- Pivot joint (Neck, Atlas and Axis bones)

Biaxial joint

- Saddle joint (Thumb)
- Condylar joint (Wrist)

Multi axial joint

- Ball and socket joint (Shoulder and Hip)
- Gliding joint (Intercarpal)

6.A.5. ARTHRITIS

Arthritis is a non-specific term denoting acute or chronic inflammation of the joint. Clinically, arthritis falls in to the following groups

1. Osteoarthritis
   - Primary
   - Secondary

2. Rheumatoid arthritis
   - Adult
   - Juvenile

3. Infective arthritis
   - Acute
   - Chronic

4. Metabolic arthritis
   - Gout
   - Pseudogout

Nonspecific monoarthritis
Neuropathic joint disorders, e.g Charcot's
Special forms - Hemophilic arthritis, Psychogenic arthritis and Psoriatic arthritis
6.B. RHEUMATOID ARTHRITIS:

6.B.1. Introduction:

Rheumatoid arthritis (RA) is a chronic multisystem disease. Although there are a variety of systemic manifestations, the characteristic feature of established RA is persistent inflammatory synovitis, usually involving peripheral joints in a symmetric distribution. The potential of the synovial inflammation to cause cartilage damage and bone erosions and subsequent changes in joint integrity is the hallmark of the disease. Despite its destructive potential, the course of RA can be quite variable.

6.B.2. Epidemiology:

The prevalence of RA is ~0.8% of the population (range 0.3–2.1%); women are affected approximately three times more often than men. The prevalence increases with age, and sex differences diminish in the older age group. RA is seen throughout the world and affects all races. However, the incidence and severity seem to be less in rural sub-Saharan Africa and in Caribbean blacks. The onset is most frequent during the fourth and fifth decades of life, with 80% of all patients developing the disease between the ages of 35 and 50. The incidence of RA is more than six times greater in 60- to 64-year-old women compared to 18- to 29-year-old women.

The prevalence of rheumatoid arthritis was studied in the adult Indian population. The target population comprised 44,551 adults (over 16 years old). A response rate of 89.5% was obtained and 3393 persons were listed as possible cases of RA by the health workers. Of these, 299 satisfied the revised ARA criteria for the diagnosis of RA, giving a prevalence of 0.75%. Projected to the whole population, this would give a total of about seven million patients in India. The prevalence of RA in India is quite similar to that reported from the developed countries. It is higher than that reported from China, Indonesia, Philippines and rural Africa. These findings are in keeping with the fact that the north Indian population is genetically closer to the Caucasians than to other ethnic groups.
6.B.3. Genetics:

Family studies indicate a genetic predisposition. For example, severe RA is found at approximately four times the expected rate in first-degree relatives of individuals with disease associated with the presence of the autoantibody, rheumatoid factor. Moreover, monozygotic twins are at least four times more likely to be concordant for RA than dizygotic twins. Only 15–20% of monozygotic twins are concordant for RA, however, implying that factors other than genetics play an important etiopathogenic role.

Despite this, genetic factors are thought to explain ~60% of the disease susceptibility of RA. Of note, the highest risk for concordance of RA is noted in twins who have two HLA-DRB1 alleles known to be associated with RA. The class II major histocompatibility complex allele HLA-DR4 and related alleles are known to be major genetic risk factors for RA. Early studies showed that as many as 70% of patients with RA express HLA-DR4 compared with 28% of control individuals. This association is particularly strong for individuals who develop RA associated with antibodies to cyclic citrullinated polypeptides (CCP).

6.B.4. Etiology:

The cause of RA remains unknown. It has been suggested that RA might be a manifestation of the response to an infectious agent in a genetically susceptible host. Because of the worldwide distribution of RA, it has been hypothesized that if an infectious agent is involved, the organism must be ubiquitous. A number of possible causative agents have been suggested, including Mycoplasma, Epstein-Barr virus (EBV), cytomegalovirus, parvovirus, and rubella virus, but convincing evidence that these or other infectious agents cause RA has not emerged. The process by which an infectious agent might cause chronic inflammatory arthritis with a characteristic distribution also remains unknown.
6.B.5. PATHOLOGY: Genetic susceptibility

(MHC class II)
Antigenic stimulation
(∞ Infectious agent)
CD4+ T cells

Cytokine

(TNF-alpha, INF-gamma, IL-1)

Activate

B cell

Anti-IgG antibody

(Rheumatoid factor)

Formation of immune complex, inflammatory cells, pannus

Release of adhesion

Cytokine, proteases

Endothelial cells

Macrophages

Inflammatory damage to synovium, small vessels, collagen

Destruction of cartilage, bone, fibrosis, ankylosis

Joint deformities
6.B.6. PATHOGENESIS:

Present concept on aetiology and pathogenesis proposes that RA occurs in an immunogenetically predisposed individual to the effect of microbial agents acting as trigger antigen. The role of super antigens which are produced by several microorganisms with capacity to bind to HLA-DR molecules (MHC-II region) has also emerged.

I. Immunologic derangements:

A number of observations in patients and experimental animals indicate the role of immune processes, particularly autoimmune phenomenon, in the development of RA. These include the following:

1. Detection of circulating autoantibody called rheumatoid factor against Fc portion of autologous IgG in about 80% cases of RA. RF antibodies are heterogeneous and consist of IgM and IgG class.

2. The presence of antigen-antibody complexes (IgG-RF complexes) in the circulation as well as in the synovial fluid.

3. The presence of other auto antibodies such as antinuclear factor (ANF), antibodies to collagen type II, and antibodies to cytoskeleton.


5. The presence of gamma-globulin, particularly IgG and IgM, in the synovial fluid.

6. Association of RA with amyloidosis.

7. Activation of cell-mediated immunity as observed by presence of numerous inflammatory cells in the synovium, chiefly CD4+ T lymphocytes and some macrophages.

II. Trigger events:

Though the above hypothesis of a possible role of autoimmunity in the aetiology and pathogenesis of RA is generally widely accepted, controversy
continues as regards the trigger events which initiate the destruction of articular cartilage. Various possibilities which have been suggested are as follows:

1. The existence of an infectious agent such as mycoplasma, Epstein-Barr virus, cytomegalovirus, or rubella virus, either locally in the synovial fluid or systemic infection some time prior to the attack of RA.

2. The possible role of HLA-DR4 and HLA-DR1 in initiation of immunologic damage.

The proposed events in immunopathogenesis of RA are as under:

In response to antigenic exposure (e.g infectious agent) in a genetically predisposed individual (HLA-DR), CD4+ cells are activated.

These cells elaborate cytokines, the important ones being tumour necrosis factor (TNF)-alpha, interferon (IF)- gamma, interleukins (IL) and IL-6.

These cytokines activate endothelial cells, B lymphocytes and macrophages.

Activation of B-cells releases IgM antibody against IgG (i.e anti-IgG); this molecule is termed rheumatoid factor.

IgG and IgM immune complexes trigger inflammatory damage to the synovium, small blood vessels and collagen.

Activated endothelial cells express adhesion molecules which stimulate collection of inflammatory cells.

Activation of macrophages releases more cytokines which cause damage to joint tissues and vascularisation of cartilage termed pannus formation.

Eventually damage and destruction of bone and cartilage are followed by fibrosis and ankylosis producing joint deformities.
6.B.7. Clinical Manifestations

Onset:

Characteristically, RA is a chronic polyarthritis. In approximately two-thirds of patients, it begins insidiously with fatigue, anorexia, generalized weakness, and vague musculoskeletal symptoms until the appearance of synovitis becomes apparent. This prodrome may persist for weeks or months and defy diagnosis. Specific symptoms usually appear gradually as several joints, especially those of the hands, wrists, knees, and feet, become affected in a symmetric fashion. In ~10% of individuals, the onset is more acute, with a rapid development of polyarthritis, often accompanied by constitutional symptoms, including fever, lymphadenopathy, and splenomegaly. In approximately one-third of patients, symptoms may initially be confined to one or a few joints. Although the pattern of joint involvement may remain asymmetric in some patients, a symmetric pattern is more typical.

<table>
<thead>
<tr>
<th>Type</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Insidious</td>
<td>75%</td>
</tr>
<tr>
<td>Acute</td>
<td>15%</td>
</tr>
<tr>
<td>Sub acute</td>
<td>10%</td>
</tr>
<tr>
<td>Monoarticular</td>
<td>20%</td>
</tr>
<tr>
<td>Palindromic</td>
<td>5%</td>
</tr>
<tr>
<td>Oligo articular</td>
<td>45%</td>
</tr>
<tr>
<td>Poly articular</td>
<td>35%</td>
</tr>
</tbody>
</table>

6.B.8. Signs and Symptoms of Articular Disease:

Pain, swelling, and tenderness may initially be poorly localized to the joints. Pain in affected joints, aggravated by movement, is the most common manifestation of established RA. Generalized stiffness is frequent and is usually greatest after periods of inactivity. Morning stiffness of >1-h duration is an almost invariable feature of inflammatory arthritis. The majority of patients will experience constitutional symptoms such as weakness, easy fatigability, anorexia, and weight
loss. Although fever to 40°C occurs on occasion, temperature elevation in >38°C is unusual and suggests the presence of an intercurrent problem such as infection.

Clinically, synovial inflammation causes swelling, tenderness, and limitation of motion. Initially, impairment in physical function is caused by pain and inflammation, and disability owing to this is a frequent early feature of aggressive RA. Warmth is usually evident on examination, especially of large joints such as the knee, but erythema is infrequent. Pain originates predominantly from the joint capsule, which is abundantly supplied with pain fibers and is markedly sensitive to stretching or distention. Joint swelling results from accumulation of synovial fluid, hypertrophy of the synovium, and thickening of the joint capsule. Initially, motion is limited by pain. The inflamed joint is usually held in flexion to maximize joint volume and minimize distention of the capsule. Later, fibrous or bony ankylosis or soft tissue contractures lead to fixed deformities.

Although inflammation can affect any diarthrodial joint, RA most often causes symmetric arthritis with characteristic involvement of certain specific joints such as the proximal interphalangeal and metacarpophalangeal joints. Synovitis of the wrist joints is a nearly uniform feature of RA and may lead to limitation of motion, deformity, and median nerve entrapment (carpal tunnel syndrome). Synovitis of the elbow joint often leads to flexion contractures that may develop early in the disease. The knee joint is commonly involved with synovial hypertrophy, chronic effusion, and frequently ligamentous laxity. Pain and swelling behind the knee may be caused by extension of inflamed synovium into the popliteal space (Baker's cyst). Arthritis in the forefoot, ankles, and subtalar joints can produce severe pain with ambulation as well as a number of deformities. Axial involvement is usually limited to the upper cervical spine. Involvement of the lumbar spine is not seen, and lower back pain cannot be ascribed to rheumatoid inflammation.

6.B.9. Extra articular Manifestations of Rheumatoid Arthritis:

**Musculoskeletal:**

Muscle wasting (small muscles of the hand)
Myalgias, vague arthralgias
Tenosynovitis, bursitis
Osteoporosis

**Haematological:**
Normocytic hypochromic anaemia
Thrombocytopenia
Eosinophilia

**Lymphatic system:**
Localized and generalized lymphadenopathy
Splenomegaly

**Gastrointestinal system:**
Xerostomia
Parotid enlargement
Dysphagia
Mesenteric artery occlusion

**Renal system:**
Pyelonephritis
Amyloidosis

**Ocular manifestations:**
Episcleritis
Scleritis
Keratoconjunctivitis sicca
Keratomalacia

**Cardiac involvement:**
Pericarditis
Myocarditis
Endocarditis
Conduction defects
Coronary vasculitis

**Pulmonary involvement:**
Pulmonary nodules
Pleural effusion
Fibrosing alveolitis
Pneumonia
Chronic bronchitis
Caplan's syndrome

**Neurological manifestation:**
- Autonomic neuropathy
- Peripheral neuropathy
- Compression neuropathies—carpal tunnel syndrome, cervical cord compression, median nerve, posterior tibial nerve compression.

**6.B.10. Deformities in Rheumatoid Arthritis:**
- Swan neck deformity (intrinsic plus deformity)
- Boutonniere or button hole deformity
- Z deformity or hitch - hiker's thumb
- Baker's cyst
- Hammer toe, claw toes
- Hallus valgus,
- Equinus deformity
- Trigger finger
- Trigger thumb
- Ulnar deviation of the hand


1987 Revised Criteria for the Classification of RA

1. *Guidelines for classification:*
   
   a. Four of seven criteria are required to classify a patient as having rheumatoid arthritis (RA).
   
   b. Patients with two or more clinical diagnoses are not excluded.
2. **Criteriae:**

a. Morning stiffness: Stiffness in and around the joints lasting 1 h before maximal improvement.

b. Arthritis of three or more joint areas: At least three joint areas, observed by a physician simultaneously, have soft tissue swelling or joint effusions, not just bony overgrowth. The 14 possible joint areas involved are right or left proximal interphalangeal, metacarpophalangeal, wrist, elbow, knee, ankle, and metatarsophalangeal joints.

c. Arthritis of hand joints: Arthritis of wrist, metacarpophalangeal joint, or proximal interphalangeal joint.

d. Symmetric arthritis: Simultaneous involvement of the same joint areas on both sides of the body.

e. Rheumatoid nodules: Subcutaneous nodules over bony prominences, extensor surfaces, or juxtaarticular regions observed by a physician.

f. Serum rheumatoid factor: Demonstration of abnormal amounts of serum rheumatoid factor by any method for which the result has been positive in less than 5% of normal control subjects.

g. Radiographic changes: Typical changes of RA on posteroanterior hand and wrist radiographs that must include erosions or unequivocal bony decalcification localized in or most marked adjacent to the involved joints.

**6.B.12. Laboratory Findings:**

No tests are specific for diagnosing RA. However, rheumatoid factors, which are autoantibodies reactive with the Fc portion of IgG, are found in more than two-thirds of adults with the disease and have classically been used to evaluate patients with RA. Widely utilized tests largely detect IgM rheumatoid factors. The presence of rheumatoid factor is not specific for RA, as rheumatoid factor is found in 5% of healthy persons.
The presence of rheumatoid factor does not establish the diagnosis of RA as the predictive value of the presence of rheumatoid factor in determining a diagnosis of RA is poor. Thus fewer than one-third of unselected patients with a positive test for rheumatoid factor will be found to have RA. Therefore, the rheumatoid factor test is not useful as a screening procedure. However, the presence of rheumatoid factor can be of prognostic significance. In summary, a test for the presence of rheumatoid factor can be employed to confirm a diagnosis in individuals with a suggestive clinical presentation and, if present in high titer, to designate patients at risk for severe systemic disease.

Antibodies to CCP can also be used to evaluate patients with RA. Although these antibodies are most commonly found in rheumatoid factor–positive patients, on occasion they can be detected in the absence of rheumatoid factor. In addition, the anti-CCP test has a similar sensitivity and a better specificity for RA than does rheumatoid factor. This is particularly the case in individuals with early RA, in whom assessment of anti-CCP may be the most useful to confirm the diagnosis and establish a likely prognosis. The presence of anti-CCP is most common in persons with aggressive disease, with a tendency for developing bone erosions. However, it is a useful test to confirm a diagnosis of RA and to estimate prognosis.

Normochromic, normocytic anemia is frequently present in active RA. It is thought to reflect ineffective erythropoiesis; large stores of iron are found in the bone marrow. In general, anemia and thrombocytosis correlate with disease activity. The white blood cell count is usually normal, but a mild leukocytosis may be present. Leukopenia may also exist without the full-blown picture of Felty's syndrome. Eosinophilia, when present, usually reflects severe systemic disease.

The erythrocyte sedimentation rate (ESR) is increased in nearly all patients with active RA. The levels of a variety of other acute-phase reactants including ceruloplasmin and C-reactive protein are also elevated, and generally such elevations correlate with disease activity and the likelihood of progressive joint damage.

Synovial fluid analysis confirms the presence of inflammatory arthritis, although none of the findings is specific. The fluid is usually turbid, with reduced
viscosity, increased protein content, and a slightly decreased or normal glucose concentration. The white cell count varies between 5 and 50,000/ L; PMNLs predominate. A synovial fluid white blood cell count >2000/ L with >75% polymorphonuclear leukocytes is highly characteristic of inflammatory arthritis, although not diagnostic of RA.

6.B.13. Radiological features:

**Early changes:**
- Soft tissue swelling
- Peri articular osteoporosis
- Erosions-Peri articular and sub articular cysts

**Late changes:**
- Articular surface irregularity
- Osteoporosis
- Subluxation
- Ankylosis
- Secondary osteoarthritis

6.B.14. Clinical Course and Prognosis:

The course of RA is quite variable and difficult to predict in an individual patient. The current therapeutic approach of early aggressive intervention appears to have mitigated the clinical course of RA, resulting in less persistent inflammation, disability, joint damage, and mortality. Classically, most patients had experienced persistent but fluctuating disease activity, accompanied by a variable degree of joint abnormalities and functional impairment. After 10–12 years, <20% of patients had no evidence of disability or joint abnormalities. Moreover, within 10 years, 50% of patients had work disability. All of these outcomes are thought to be positively influenced by early aggressive intervention. A number of features are correlated with a greater likelihood of developing joint abnormalities or disabilities. These include the presence of >20 inflamed joints, a markedly elevated ESR, radiographic evidence of bone erosions, the presence of rheumatoid nodules, high titers of serum rheumatoid factor or anti-CCP antibodies, the presence of functional disability, persistent inflammation, advanced age at onset, the presence of comorbid conditions.
6.C. URINE

6.C.1. Introduction

Kidney excretes the unwanted substances including metabolic end products and those substances, which are present in excessive quantities in the body, through urine.

Normally, about 1-1.5 litres of urine is formed every day. The mechanism of urine formation includes various processes. First, when blood passes through glomerular capillaries, the plasma is filtered into the Bowman’s capsule. When this filtrate passes through the tubular portion of the nephron, it undergoes various changes both in quality and in quantity. Many wanted substances like glucose, amino acids, water and electrolytes are reabsorbed from the tubules. This process is called tubular reabsorption and some unwanted substances are secreted into the tubule from peri tubular blood vessels. This process is called tubular secretion or excretion.

Thus, the urine formation includes the following three processes:

1. Glomerular filtration
2. Tubular reabsorption
3. Tubular secretion

Filtration is the function of the glomerulus or renal corpuscle of nephron and, reabsorption and secretion are the functions of tubular portion of the nephron.

6.C.2. GLOMERULAR FILTRATION:

When the blood passes through the glomerular capillaries, the plasma is filtered into the Bowman’s capsule. All the substances of the plasma are filtered except the plasma proteins. The filtered fluid is called glomerular filtrate. During filtration, the substances pass through three layers of structures namely:

1. The endothelium of glomerular capillary membrane
2. Basement membrane
3. Spaces between pedicles (fenestra) of epithelial cells of visceral layer of Bowman’s capsule.
The glomerular filtration is called ultrafiltration because; even the minute particles are filtered. But, the plasma proteins are not filtered due to their large large molecular size. The protein molecules are larger than the slit pores present in the endothelium of capillaries. Thus, the composition of the glomerular filtrate is similar to that of plasma except in the absence of plasma proteins.

6.C.3. TUBULAR REABSORPTION:

When the glomerular filtrate passes through the tubular portion of nephron, both quantitative and qualitative changes occur. Large quantity of water (more than 99%), electrolytes and other substances are reabsorbed by the tubular epithelial cells. The substances, which are reabsorbed, pass into the interstitial fluid of renal medulla. And, from here, the substances move into the blood in peri tubular capillaries. As the substances are taken back into the blood, the entire process is called tubular reabsorption.

SELECTIVE REABSORPTION:

The tubular cells of kidney selectively reabsorb the substances present in the glomerular filtrate, according to the needs of the body. So, the tubular reabsorption is called the selective reabsorption. Depending upon the degree of reabsorption, the various substances are classified into 3 categories.

1. High threshold substances:
The substances like glucose, amino acids, acetoacetate ions and vitamins are completely reabsorbed and do not appear in urine under normal conditions.

2. Low threshold substances:
Urea, uric acid and phosphate are reabsorbed to a lesser extent.

3. Non threshold substances:
The metabolic end products like creatinine are not at all reabsorbed and are excreted in urine irrespective of their level.
6.C.4. TUBULAR SECRETION:

In the process urine formation, some substances are also secreted into the lumen from the peritubular capillaries through the tubular epithelial cells. This is known as tubular secretion or tubular excretion.

Substances secreted in different segments of renal tubules

1. Potassium is secreted actively by sodium-potassium pump in distal convoluted tubule and collecting duct.
2. Ammonia is secreted in the proximal convoluted tubule.
3. Hydrogen ions are secreted in the proximal and distal convoluted tubules. Maximum hydrogen ion secretion occurs in proximal tubule.

Thus, by the processes of glomerular filtration, selective reabsorption and tubular secretion urine is formed in the nephron. It is also concentrated by counter current mechanism and ADH. Finally, it passes through ureter into the urinary bladder and, is stored there until is voided out.
6.C.5. COLLECTION OF URINE SAMPLE

TYPES OF COLLECTION:

Laboratory urine specimens are classified by the type of collection conducted or by the collection procedure used to obtain the specimen.

1. RANDOM SPECIMEN:
   - Specimen most commonly sent to the laboratory for analysis,
   - Usually submitted for urinalysis and microscopic analysis,
   - Pediatric specimens are generally of this type.
   - Can be collected at any time.

2. FIRST MORNING SPECIMEN:
   - Also called an 8-hour specimen.
• The first morning specimen is collected when the patient first wakes up in the morning, having emptied the bladder before going to sleep.

• Since the urine can be collected over any eight-hour period, collection is practical for patients who have atypical work/sleep schedules.

3. MIDSTREAM CLEAN CATCH SPECIMEN:
• This is the preferred type of specimen for culture and sensitivity testing
• Because of the reduced incidence of cellular and microbial contamination.
• Patients are required to first cleanse the urethral area with a castile soap towel.
• The patient should then void the first portion of the urine stream into the toilet.
• These first steps significantly reduce the opportunities for contaminants to enter into the urine stream.
• The urine midstream is then collected into a clean container
• This method of collection can be conducted at any time of day or night.

4. TIMED COLLECTION SPECIMEN:
• 24 hour specimen
• Among the most commonly performed tests requiring timed specimens
• Measuring Creatinine, urine urea nitrogen, glucose, sodium, potassium, or analytes such as catecholamine and 17-hydroxysteroids that are affected by diurnal variations

5. CATHETER COLLECTION SPECIMEN:
• when a patient is bedridden
• Insert a Foley catheter into the bladder through the urethra to collect the urine specimen.
• Collected directly from a Foley into an evacuated tube or transferred from a syringe into a tube or cup.

6. SUPRAPUBIC ASPIRATION SPECIMEN:
• When a bedridden patient cannot be catheterized or a sterile specimen is required.
• The urine specimen is collected by needle aspiration through the abdominal wall into the bladder

7. PEDIATRIC SPECIMEN:
• For infants and small children,
• A special urine collection bag is adhered to the skin surrounding the urethral area.
• The urine is poured into a collection cup or transferred directly into an evacuated tube with a transfer straw.
• Urine collected from a diaper is not recommended

6.C.6. URINE COLLECTION CONTAINERS:
• Variety of shapes and sizes with lids.
• To protect healthcare personnel from exposure to the specimen
• protect the specimen from exposure to contaminants,
• Leak-resistant cups should be utilized.
• Some urine transport cup closures have special access ports that allow closed-system transfer of urine directly from the collection device to the tube.

6.C.7. PRESERVATIVES:
• should be added to the collection container before the urine collection begins
• Warning labels should be placed on the container.
- The least hazardous one should be selected.

- Some common 24-hour preservatives are hydrochloric acid, boric acid, acetic acid and toluene.

6.C8. VOLUME:

- Adults normally 700-2500ml (1200ml) of urine is passed in 24 hours.
- Infants-300ml

1. POLYURIA:

When excess of urine is passed in 24 hours (>2500ml).

Causes of transient polyuria:

- Excessive intake of fluids
- Anxiety
- During convalescence esp., .., after fever
- Recovery from oedema
- diuretics
- Diabetes mellitus
- Diabetes insipidus
- Chronic nephritis
- Arteriosclerosis.

2. Oliguria

When less than 500ml of urine is passed in 24 hours.

Causes:

- Acute and sub acute nephritis
- Diarrhoea/vomiting
- Fever
- Hypotension
• Congestive cardiac failure
• Obstruction to the urinary passage.
• Acute renal failure.

3. **ANURIA:**
   When there is almost complete suppression of urine (<150ml) in 24 hours.

**Pre Renal Causes:**
• Non obstructive type
• Hypotension

**Renal Causes:**
• Obstructive type
• Acute nephritis
• TB of both the kidneys
• Polycystic kidney.
• Pyelonephritis
• Black water fever
• Incompatible blood transfusion
• Intravascular haemolysis
• Poisoning by turpentine, cantharides.

**Post Renal Causes:**
• Calculi in the urinary passage
• Carcinoma of ureteral orifice
• Carcinoma of uterus infiltrating both the ureters
• Pelvic or abdominal tumours.
4. NOCTURIA:

When excess of urine is passed during night time (>500ml).

6.C.9.COLOUR:

Normally urine is clear, pale or straw coloured.

1. COLOURLESS URINE:
   - Diabetes mellitus
   - Diabetes insipidus
   - Excess intake of water.

2. ORANGE COLOUR URINE:
   - Increased urobilinogen.
   - Concentrated urine.
   - Jaundice.
3. RED COLOUR URINE:

- Haematuria
- Haemoglobinuria

4. GREEN COLOUR URINE:

- Putrified sample.
- Phenol poisoning.
- Administration of carbolic acid.
5. BLUE COLOUR URINE:
Administration of Methylene

6. MILKY URINE:
- Pus
- Fat
- Urinary Tract infection
6.C.10. ODOR OF URINE:

Normally urine has faint aromatic odour.

PUNGENT

It due to ammonia produced by bacterial contamination.

PUTRID:

It due to Urinary Tract infection.

FRUITY:

It due to ketoacidosis.

6.C.11. REACTION/PH:

It reflects ability of the kidney to maintain h+ ions concentration in extra cellular fluid and plasma. It can be measured by PH indicator paper or by electronic PH meter.

Normal PH range 4.6-7 (average-6.0).

Much of the variation is due to diet.
High protein diets - more acidic urine.
vegetarian diets - more alkaline urine
DIGITAL PH METER:

Digital PH meter

LITMUS PAPER METHOD:
4% Alcoholic solution of methyl red + 5ml of urine.

- Red colour - Acidic
- Orange - Neutral
- Yellow - Alkaline.

6.C.12.SPECIFIC GRAVITY

This is the ratio of 1 ml volume of urine to that of weight of 1ml of distilled water. It depends upon the concentration of various particles/solutes in the urine. Specific gravity is used to measure the concentrating and diluting power of the kidney.
• Normal specific gravity 1.003-1.030
• Neo nates-1.012

It can be used be measured by

a. Urinometer
b. Refractometer
c. Reagent strips.

_Urino meter_

1. Low Specific gravity
• Diabetes insipidus
• Chronic renal diseases
• Acute tubular necrosis
• Interstitial nephritis
2. High specific gravity:
   - Fever
   - Dehydration
   - Albuminuria
   - Hematuria
   - CCF
   - Acute nephritis
   - Diabetes mellitus

6.C.13. COMPOSITION OF URINE:
   Approx. 95% of the volume of normal urine is due to water. The other 5% consists of solutes
   1. ORGANIC MOLECULES:
      - Urea
      - Creatinine
      - Uric acid
      - Ammonia
      - Purine bodies
   2. INORGANIC MOLECULES:
      - Sodium
      - Potassium
      - Chloride
      - Magnesium
      - Calcium
      - Ammonium
      - Phosphates

3. UREA EXCRETION INCREASED IN:
   - High intake of protein diet
   - Fever
   - Diabetes mellitus
   - Convalescence
   - Poisoning like phosphorus and arsenic
3. **UREA EXCRETION DIMINISHED IN:**
   - Starvation
   - Chronic kidney diseases
   - Liver cirrhosis

4. **URIC ACID EXCRETION INCREASED IN:**
   - Myeloid leukaemia
   - Acute fever
   - Pneumonia
   - Liver diseases

5. **URIC ACID EXCRETION DECREASED IN:**
   - Quinine administration

6. **CREATININE EXCRETION INCREASED IN:**
   - Pneumonia
   - Typhoid
   - Tetanus

7. **CREATININE EXCRETION DECREASED IN:**
   - Anaemia
   - Leukemia
   - Thyrotoxicosis
   - Advanced degeneration of kidney and liver
   - Muscular atrophy

8. **AMMONIA EXCRETION INCREASED IN:**
   - Ketosis
   - Delayed chloroform poisoning
   - Severe vomiting of pregnancy
   - Liver cirrhosis.

6.C.14.**CHEMICAL EXAMINATION:**
Routine chemical examination of urine
   - Protein
   - Sugar
   - Ketone bodies
- Occult blood
- Bile pigment
- Bile salt
- Urobinogen

I. Test for Protein:
- Heat coagulation test
- Sulphosalicylic acid test
- Heller’s test

II. Test for Sugar:
- Fehling’s test
- Benedict’s test

III. Test for Ketone Bodies:
- Rothera’s test

IV. Test for Occult Blood:
- Guaiacum test
- Haematrix test

V. Test for Bile Pigments:
- Fouchet’s test
- Gmelin’s test
6.D. SESAME OIL:

Sesame oil (also known as gingelly oil or tir oil) is an edible vegetable oil derived from sesame seeds.

The oil from the nutrient rich seed is popular in alternative medicine—from traditional massages and treatments to modern day fads. Ancient Indian medical system perceives sesame oil to pacify stress related symptoms and on-going research indicates that the rich presence of anti-oxidants and poly-unsaturated fats in sesame oil could help in controlling blood pressure.

6.D.1. History:

Sesame seeds were one of the first crops processed for oil as well as one of the earliest condiments. In fact, the word ‘ennai’ that means oil in Tamil language has its roots in the Tamil words EL and NEI which mean sesame and fat.

6.D.2. ORGANIC SESAME OIL PROFILE:

<table>
<thead>
<tr>
<th>Botanical Name</th>
<th>Sesame indicum</th>
</tr>
</thead>
<tbody>
<tr>
<td>Origin</td>
<td>Mexico</td>
</tr>
<tr>
<td>Extraction</td>
<td>Expeller Pressed/Unrefined</td>
</tr>
<tr>
<td>Shelf life</td>
<td>1 year</td>
</tr>
</tbody>
</table>

6.D.3. Specifications:

<table>
<thead>
<tr>
<th>Colour</th>
<th>Golden brown</th>
</tr>
</thead>
<tbody>
<tr>
<td>Odour</td>
<td>Nutty</td>
</tr>
<tr>
<td>Free fatty acids</td>
<td>0.79%</td>
</tr>
<tr>
<td>Peroxide value</td>
<td>1.26</td>
</tr>
<tr>
<td>Moisture</td>
<td>0.01%</td>
</tr>
<tr>
<td>Iodine value</td>
<td>109.8</td>
</tr>
<tr>
<td>Specific gravity</td>
<td>0.98</td>
</tr>
<tr>
<td>pH</td>
<td>4.26</td>
</tr>
</tbody>
</table>

6.D.4. FATTY ACIDS:

<table>
<thead>
<tr>
<th>Fatty Acids</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Linoleic</td>
<td>44.91%</td>
</tr>
<tr>
<td>Oleic</td>
<td>41.45%</td>
</tr>
<tr>
<td>Stearic</td>
<td>4.06%</td>
</tr>
<tr>
<td>Palmitic</td>
<td>7.83%</td>
</tr>
<tr>
<td>Nutritional value per 100 g (3.5 oz)</td>
<td></td>
</tr>
<tr>
<td>-----------------------------------</td>
<td></td>
</tr>
<tr>
<td><strong>Energy</strong></td>
<td>3.699 kJ (884 kcal)</td>
</tr>
<tr>
<td><strong>Carbohydrate</strong></td>
<td>0.00 g</td>
</tr>
<tr>
<td><strong>Fat</strong></td>
<td>100.00 g</td>
</tr>
<tr>
<td><strong>Saturated</strong></td>
<td>14.200 g</td>
</tr>
<tr>
<td><strong>Monounsaturated</strong></td>
<td>39.700 g</td>
</tr>
<tr>
<td><strong>Polyunsaturated</strong></td>
<td>41.700 g</td>
</tr>
<tr>
<td><strong>Protein</strong></td>
<td>0.00 g</td>
</tr>
<tr>
<td><strong>Vitamin C</strong></td>
<td>0.0 mg (0%)</td>
</tr>
<tr>
<td><strong>Vitamin E</strong></td>
<td>1.40 mg (9%)</td>
</tr>
<tr>
<td><strong>Vitamin K</strong></td>
<td>13.6 (13%)</td>
</tr>
<tr>
<td><strong>Calcium</strong></td>
<td>0 mg (0%)</td>
</tr>
<tr>
<td><strong>Iron</strong></td>
<td>0.00 mg (0%)</td>
</tr>
<tr>
<td><strong>Magnesium</strong></td>
<td>0 mg (0%)</td>
</tr>
<tr>
<td><strong>Phosphorus</strong></td>
<td>0 mg (0%)</td>
</tr>
<tr>
<td><strong>Potassium</strong></td>
<td>0 mg (0%)</td>
</tr>
<tr>
<td><strong>Sodium</strong></td>
<td>0 mg (0%)</td>
</tr>
</tbody>
</table>
7. MATERIALS AND METHODS

“A STUDY ON NEERKKURI NEIKKURI DIAGNOSTIC METHODOLOGY IN UTHIRAVATHASURONITHAM- RHEUMATOID ARTHRITIS” would be carried out in the Out patients and In Patients NoiNaadal Department of Ayothidoss Pandithar Hospital of the National Institute of Siddha, Tambaram Sanatorium, and Chennai 47.

7.1. POPULATION SAMPLE:
Out of the 80 cases screened, 40 diagnosed cases will be selected from the outpatient department and 20 normal subjects screened, 10 normal subjects will be selected. The study followed under the supervision of the HOD and Lecturers of the Noi Naadal Department.

7.2. SAMPLE SIZE:

| Normal Healthy Volunteers | : 10 |
| Uthiravathasuronitham patients | : 40 |
| Total                      | : 50 |

7.3. SELECTION OF CASES:
Selection of cases is based on the screening of patient population as per the inclusion and exclusion criteria listed out in the Screening Proforma.

The patient population consists of patients attending the OPD/IPD of Ayothidoss Pandithar Hospital of National Institute of Siddha, Chennai.

7.4. STUDY PERIOD : One year
7.5. INCLUSION CRITERIA:

- Age: 18-60 years in both sex
- Pain in the knee joint, ankle joint and inter phalangeal joints of the body
- Swelling of the knee joint, ankle joint and inter phalangeal joints of the body
- Loss of appetite.
- Patient who are willing to give blood and Urine samples for laboratory Investigation.

7.6. EXCLUSION CRITERIA:

- Major systemic illness
- Vulnerable group
- Complications of rheumatoid arthritis other than joint contracture.
7.7. METHODOLOGY

METHODOLOGY

HEALTHY VOLUNTEERS

PATIENT SCREENED (INCLUSION & EXCLUSION CRITERIA)

INVESTIGATIONS

SATISFIED

NOT SATISFIED

INFORMED ABOUT THE STUDY (INFORMATION SHEET)

EXCLUDED FROM THE STUDY

GETTING CONSENT (CONSENT FORM)

NORMAL OPD TREATMENT GIVEN

REGISTRATION CARD GIVEN AND SUBJECTED TO

HISTORY TAKEN

CLINICAL ASSESSMENT

LABORATORY INVESTIGATIONS

NEERKKURI NEIKURI
7.8. EVALUATION OF CLINICAL PARAMETERS:

During examination, the cases were subjected to careful enquiry, which involved history taking and evaluate the Siddha parameters and modern parameters.

7.9. SIDDHA PARAMETERS:

The seven body components (Udal thathukal)
Trihumoural theory (Mukkutram)
The eight-fold examination (Ennvagai thervu)
  Naa
  Niram
  Mozhi
  Vizhi
  Malam
  Moothiram (Neerkkuri and neikkuri)
  Sparisam
  Naadi
Wrist circummetric sign (Manikadai Nool),
Habitat (Nilam),
Season (Kaalam)
Astrology (Sothidam) of the patient would be assessed.

7.9.1. NEERKKURI NEIKKURI PROCEDURE

7.9.1.A. PREPARATION OF THE PATIENT:

DIET PATTERN:
Quality- Balanced food type of with appropriate proportion of all six tastes and humors.
Quantity- Upto the level of his appetite
SLEEP PATTERN

Sound sleep

7.9.1.B. METHOD OF URINE COLLECTION:

The mid stream urine should be collected in a sterilized container and it should be closed at tight.

7.9.1. C. NEERKKURI PROCEDURE:

In Neerkkuri, five physical properties of the urine should be noted. They are

1. Colour:

The colour of the urine should be noted with naked eye and the photos of the colour are documented.

2. Odour:

The odour of the urine should be noted.

3. Froth:

The patient should be enquired whether the froth present are not in the urine, immediately after collecting the mid stream urine.

4. Density:

Density of the urine should be measured by using Urinometer

5. Deposits and volume:

24 hours urine should be collected in the urinary container and the volume of the urine is noted.

7.9.1.D. pH OF THE URINE:

The pH of urine is measured by using the digital PH meter.
7.9.1E NEIKKURI PROCEDURE:

I. SOURCE OF OIL:

Oil will be procured from mill as freshly ground Gingely seeds in millstone (chekku) without any additives being added to avoid variations in the investigations.

Because the presently marketed Gingely oils are treated with additives for which the reason I have chosen the above method of additive free preparation.

II. SELECTION OF BOWL:

I have selected a glass bowl of 200 ml quantity with wide neck.

III. SELECTION OF STICK:

Coconut leaf mid rib.

IV. METHOD OF OIL INSTILLING:

Distance between the bowl& the oil stick is 3-4 cm. below 3cm, the stick may touch the bowl. Above 5cm, the oil may be dispersed due to air or it may cause ripples over the surface of the urine sample interfering with the results of the examination.

A drop of oil is dripped on centre of bowl without any shake. It should be ensured that the sunlight should fall on it, but it should not be disturbed by the wind.

The above Neikkuri procedure is repeated (except physical and chemical urine analysis) for the next two consecutive days.

V. OBSERVATION AND DOCUMENTATION OF NEIKKURI:

A keen observation with our knowledge on the oil drop suggests the condition of the patient and photos will be documented with standard Digital imaging.
5 slides of picture will be taken
   1. 1 minute after dropping of oil.
   2. After 3 minutes.
   3. After 5 minutes.
   4. After 7 minutes.
   5. After 10 minutes.

7.10. MODERN PARAMETERS:
1. BLOOD:
   Haemogram
   HB
   ESR
   RBC
   TC
   DC
   Platelet count
   Blood sugar
   Urea
   Creatinine
   Cholesterol
   HDL
   LDL
   VLDL
   Alkaline phosphatase
   Triglycerides

2. URINE:
   Albumin
   Sugar
   Acetone
   Bile salt
Bile pigment
Urobilinogen
Occult blood
Urine deposits (Pus cells, Epithelial cells ,RBC, Crystals).
pH
Specific gravity

3. MOTION TEST:
   Ova
   Cyst
   Occult blood

4. OTHERS:
   RA factor
   CRP
   ASO TITER
   X-Ray

7.11. DATA MANAGEMENT

- After enrolling the patient in the study, a separate file for each patient was be opened and all forms were filed in the file. Patient No. were entered on the top of file for easy identification and arranged in a separate rack at the concerned OPD unit. Whenever study patient visits OPD during the study period, the respective patient file were taken and necessary recordings were made at the case record form or other suitable form.
- The Data recordings were monitored for completion and compliance of patients by HOD.
- Any missed data found in during the study, it were collected from the patient, but the time related data were not be recorded retrospectively
- All collected data were entered using MS access/ excel software onto computer. Investigators were trained to enter the patient data and cross checked by SRO.
7.12. STATISTICAL ANALYSIS

All collected data were entered into computer using MS Access / MS Excel Software by the investigator. The data were analyzed using STATA Software under the guidance of SRO (stat), NIS. The level of significance were be 0.05. Descriptive analysis were made and necessary tables / graphs generated to understand the profile of patients included in the study. The Statistical analysis for significance of different diagnostic Neerkkuri – Neikkuri were done. Student ‘t’ test and chi-square test, are proposed to be performed for quantitative and qualitative data.

7.13. ETHICAL ISSUES:

- Patients will be examined and screened unbiased and will be subjected to the criteria.
- To prevent any infection, while collecting blood sample from the patient, only disposable syringes, disposable gloves, with proper sterilization of lab equipments were used.
- Normal treatment procedure followed in NIS will be prescribed to the study patients. There was no infringement on the rights of patient.
- The data collected from the patient were kept confidential. The patient was informed about the diagnosis.
- Informed consent was obtained from the patient explaining in the understandable language to the patient.
- This study involves only the performing investigations and No other investigation (not mentioned in the protocol) would be done.
8. OBSERVATION AND RESULTS

8.A. UTHIRA VATHA SURONITHAM PATIENTS:

8.A.1. AGE DISTRIBUTION:

<table>
<thead>
<tr>
<th>AGE</th>
<th>NO OF CASES</th>
<th>PERCENTAGE</th>
</tr>
</thead>
<tbody>
<tr>
<td>BELOW 30</td>
<td>5</td>
<td>12.5%</td>
</tr>
<tr>
<td>31-50</td>
<td>23</td>
<td>57.5%</td>
</tr>
<tr>
<td>ABOVE 51</td>
<td>12</td>
<td>30%</td>
</tr>
<tr>
<td>TOTAL</td>
<td>40</td>
<td>100%</td>
</tr>
</tbody>
</table>

OBSERVATION:

Among 40 cases, 57.5% of cases came under 31-50 yrs, 30% of cases came under above 51 and 12.5% of cases came under below 30 yrs.

INFERENCE:

Majority of cases affected (57.5%) in the study were of 31-50 yrs (Pitha kalam).
8.A.2. GENDER:

<table>
<thead>
<tr>
<th>GENDER</th>
<th>NO OF CASES</th>
<th>PERCENTAGE</th>
</tr>
</thead>
<tbody>
<tr>
<td>MALE</td>
<td>5</td>
<td>12.5%</td>
</tr>
<tr>
<td>FEMALE</td>
<td>35</td>
<td>87.5%</td>
</tr>
<tr>
<td>TOTAL</td>
<td>40</td>
<td>100%</td>
</tr>
</tbody>
</table>

**OBSERVATION:**

Among 40 cases, 87.5% of cases were Females, 12.5% of cases were males.

**InferEnce:**

In the study Females(87.5%) are more affected than Males.
8.A.3.NAADI (PULSE):

<table>
<thead>
<tr>
<th>NAADI</th>
<th>NO OF CASES</th>
<th>PERCENTAGE</th>
</tr>
</thead>
<tbody>
<tr>
<td>VATHAM</td>
<td>2</td>
<td>5%</td>
</tr>
<tr>
<td>VATHA PITHAM</td>
<td>8</td>
<td>20%</td>
</tr>
<tr>
<td>VATHA KABAM</td>
<td>5</td>
<td>12.5%</td>
</tr>
<tr>
<td>PITHAM</td>
<td>14</td>
<td>35%</td>
</tr>
<tr>
<td>PITHA VATHAM</td>
<td>3</td>
<td>7.5%</td>
</tr>
<tr>
<td>PITHA KABAM</td>
<td>6</td>
<td>15%</td>
</tr>
<tr>
<td>KABAM</td>
<td>2</td>
<td>5%</td>
</tr>
<tr>
<td>TOTAL</td>
<td>40</td>
<td>100%</td>
</tr>
</tbody>
</table>

OBSERVATION:
Among 40 cases, 35% of cases had the Naadinadai of Pitham, 20% cases had Vatha pitham, 15% of cases had Pitha kabam, 12.5% of cases had the Naadi nadi of Vatha pitham, 7.5% of cases had Pitha vatham.

INFERENCES:
Many of the cases had Pitham and Vathapitham,
8.A.4. COLOUR OF URINE:

<table>
<thead>
<tr>
<th>COLOUR OF URINE</th>
<th>FIRST DAY</th>
<th></th>
<th>SECOND DAY</th>
<th></th>
<th>THIRD DAY</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>NO OF CASES</td>
<td>PERCENTAGE</td>
<td>NO OF CASES</td>
<td>PERCENTAGE</td>
<td>NO OF CASES</td>
<td>PERCENTAGE</td>
</tr>
<tr>
<td>PALE YELLOW</td>
<td>30</td>
<td>75%</td>
<td>29</td>
<td>72.5%</td>
<td>29</td>
<td>72.5%</td>
</tr>
<tr>
<td>DARK YELLOW</td>
<td>7</td>
<td>17.5%</td>
<td>8</td>
<td>20%</td>
<td>7</td>
<td>17.5%</td>
</tr>
<tr>
<td>COLOURLESS</td>
<td>3</td>
<td>7.5%</td>
<td>3</td>
<td>7.5%</td>
<td>4</td>
<td>10%</td>
</tr>
<tr>
<td>TOTAL</td>
<td>40</td>
<td>100%</td>
<td>40</td>
<td>100%</td>
<td>40</td>
<td>100%</td>
</tr>
</tbody>
</table>

**OBSERVATION:**

**FIRST DAY:**

Among 40 cases, the colours of the urine were 7.5% colourless urine, 75% Pale yellow colour urine and 17.5% Dark yellow colour urine.
SECOND DAY:

Among 40 cases, the colours of the urine were 7.5% colourless urine, 72.5% Pale yellow colour urine and 20% Dark yellow colour urine.

THIRD DAY:

Among 40 cases, the colours of the urine were 10% colourless urine, 72.5% Pale yellow colour urine and 17.5% Dark yellow colour urine.

INFORMATION:

In many of the cases, the colour of the urine observed were Pale yellow colour in three days. The colours obtained were normal.

8.A.5. ODOR OF URINE:

<table>
<thead>
<tr>
<th>ODOR</th>
<th>FIRST DAY</th>
<th>SECOND DAY</th>
<th>THIRD DAY</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>NO OF CASES</td>
<td>PERCENTAGE</td>
<td>NO OF CASES</td>
</tr>
<tr>
<td>AROMATIC</td>
<td>38</td>
<td>95%</td>
<td>39</td>
</tr>
<tr>
<td>AMMONIACAL</td>
<td>2</td>
<td>5%</td>
<td>1</td>
</tr>
<tr>
<td>TOTAL</td>
<td>40</td>
<td>100%</td>
<td>40</td>
</tr>
</tbody>
</table>
OBSERVATION:

FIRST DAY

Among 40 cases, 95% of cases had aromatic odour in urine and remaining 5% of cases had Ammoniacal odour.

SECOND DAY

Among 40 cases, 97.5% of cases had aromatic odour in urine and remaining 2.5% of cases had Ammoniacal odour.

THIRD DAY

Among 40 cases, 97.5% of cases had aromatic odour in urine and remaining 2.5% of cases had Ammoniacal odour.

INFERENCE:

In many of the cases, the odour of the urine observed were aromatic odour in three days. The odour obtained was normal.
8.A.6. SPECIFIC GRAVITY:

<table>
<thead>
<tr>
<th></th>
<th>FIRST DAY</th>
<th></th>
<th>SECOND DAY</th>
<th></th>
<th>THIRD DAY</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>NO OF CASES</td>
<td>PERCENTAGE</td>
<td>NO OF CASES</td>
<td>PERCENTAGE</td>
<td>NO OF CASES</td>
<td>PERCENTAGE</td>
</tr>
<tr>
<td>1.001-1.010</td>
<td>13</td>
<td>32.5%</td>
<td>12</td>
<td>30.0%</td>
<td>17</td>
<td>42.5%</td>
</tr>
<tr>
<td>1.011-1.015</td>
<td>14</td>
<td>35%</td>
<td>19</td>
<td>47.5%</td>
<td>17</td>
<td>42.5%</td>
</tr>
<tr>
<td>1.016-1.020</td>
<td>10</td>
<td>25%</td>
<td>5</td>
<td>12.5%</td>
<td>5</td>
<td>12.5%</td>
</tr>
<tr>
<td>1.021-1.030</td>
<td>3</td>
<td>7.5%</td>
<td>4</td>
<td>10%</td>
<td>1</td>
<td>2.5%</td>
</tr>
<tr>
<td>TOTAL</td>
<td>40</td>
<td>100%</td>
<td>40</td>
<td>100%</td>
<td>40</td>
<td>100%</td>
</tr>
</tbody>
</table>

**OBSERVATION:**

**FIRST DAY**

Among 40 cases, 32.5% of cases had specific gravity between 1.001-1.010, 35% of cases had specific gravity between 1.011-1.015, 25% of cases had specific gravity between 1.016-1.020 and 7.5% of cases had specific gravity between 1.021-1.030.
SECOND DAY

Among 40 cases, 32.5% of cases had specific gravity between 1.001-1.010, 35% of cases had specific gravity between 1.011-1.015, 25% of cases had specific gravity between 1.016-1.020 and 7.5% of cases had specific gravity between 1.021-1.030.

THIRD DAY

Among 40 cases, 42.5% of cases had specific gravity between 1.001-1.010, 42.5% of cases had specific gravity between 1.011-1.015, 12.5% of cases had specific gravity between 1.016-1.020 and 2.5% of cases had specific gravity between 1.021-1.030.

INFERENCE:

In many of the cases, the specific gravity of the urine observed was 1.010 – 1.020 in three days. The result obtained was normal.

8.A.7.FROTH:

<table>
<thead>
<tr>
<th>FROTH</th>
<th>FIRST DAY</th>
<th>SECOND DAY</th>
<th>THIRD DAY</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>NO OF CASES</td>
<td>PERCENTAGE</td>
<td>NO OF CASES</td>
</tr>
<tr>
<td>CLEAR</td>
<td>39</td>
<td>97.5%</td>
<td>36</td>
</tr>
<tr>
<td>CLOUDY</td>
<td>0</td>
<td>0%</td>
<td>1</td>
</tr>
<tr>
<td>FROTH</td>
<td>1</td>
<td>2.5%</td>
<td>3</td>
</tr>
<tr>
<td>TOTAL</td>
<td>40</td>
<td>100%</td>
<td>40</td>
</tr>
</tbody>
</table>
OBSERVATION:

FIRST DAY

Among 40 cases the froth of the urine is absent in 97.5% and remaining 2.5% of urine had froth.

SECOND DAY

Among 40 cases the froth of the urine is absent in 90%, 7.5% of urine had froth and 2.5% of urine had cloudy.

THIRD DAY

Among 40 cases the froth of the urine is absent in 97.5% and 2.5% of urine had cloudy.

INFERENCE:

In most of the cases, the froth is absent in the urine. The result which is obtained was normal.
8A.8. VOLUME OF URINE

<table>
<thead>
<tr>
<th></th>
<th>FIRST DAY</th>
<th></th>
<th>SECOND DAY</th>
<th></th>
<th>THIRD DAY</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>NO OF CASES</td>
<td>PERCENTAGE</td>
<td>NO OF CASES</td>
<td>PERCENTAGE</td>
<td>NO OF CASES</td>
<td>PERCENTAGE</td>
</tr>
<tr>
<td>500ML -1000ML</td>
<td>0</td>
<td>0%</td>
<td>0</td>
<td>0%</td>
<td>2</td>
<td>5%</td>
</tr>
<tr>
<td>1100ML -1500ML</td>
<td>38</td>
<td>95%</td>
<td>39</td>
<td>97.5%</td>
<td>35</td>
<td>87.5%</td>
</tr>
<tr>
<td>1600ML- 2000ML</td>
<td>2</td>
<td>5%</td>
<td>1</td>
<td>2.5%</td>
<td>3</td>
<td>7.5%</td>
</tr>
<tr>
<td>TOTAL</td>
<td>40</td>
<td>100%</td>
<td>40</td>
<td>100%</td>
<td>40</td>
<td>100%</td>
</tr>
</tbody>
</table>

OBSERVATION:

**FIRST DAY:**

Among 40 cases 95% of cases passed 1100ml -1500ml per day and remaining 5% of cases passed 1600ml- 2000ml per day.

**SECOND DAY:**

Among 40 cases 97.5% of cases passed 1100ml -1500ml per day and remaining 2.5% of cases passed 1600ml- 2000ml per day
THIRD DAY:

Among 40 cases 5% of cases passed 500ml -1000ml of urine per day, 87.5% of cases passed 1100ml -1500ml per day and remaining 7.5% of cases passed 1600ml- 2000ml per day

INERENCE:

In most of the cases, the volume of the urine passed per day was 1100ml -1500ml. The result which is obtained was normal.

8.A.9.DIFFERENT RANGE OF PH:

<table>
<thead>
<tr>
<th>PH</th>
<th>NO OF CASES</th>
<th>PERCENTAGE</th>
</tr>
</thead>
<tbody>
<tr>
<td>BELOW 6</td>
<td>21</td>
<td>52.5%</td>
</tr>
<tr>
<td>6.1-7</td>
<td>18</td>
<td>45.0%</td>
</tr>
<tr>
<td>ABOVE 7.1</td>
<td>1</td>
<td>2.5%</td>
</tr>
<tr>
<td>TOTAL</td>
<td>40</td>
<td>100%</td>
</tr>
</tbody>
</table>
OBSERVATION:
Among 40 cases, 52.5% of cases had PH below 6, 45% of cases had PH between 6.1-7 and remaining 2.5% of cases had PH above 7.

INFERENCE:
In most of the cases, the PH values of the urine observed were between 5.1-6. The result which obtained was normal.

8.A.10.DIFFERENT PATTERNS OF NEIKKURI: FIRST DAY

<table>
<thead>
<tr>
<th></th>
<th>FIRST MINUTE</th>
<th></th>
<th>THIRD MINUTE</th>
<th></th>
<th>SEVENTH MINUTE</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>NO. OF CASES</td>
<td>PERCENTAGE</td>
<td>NO. OF CASES</td>
<td>PERCENTAGE</td>
<td>NO. OF CASES</td>
<td>PERCENTAGE</td>
</tr>
<tr>
<td>COIN</td>
<td>26</td>
<td>65%</td>
<td>29</td>
<td>72.5%</td>
<td>26</td>
<td>65%</td>
</tr>
<tr>
<td>PEARL</td>
<td>12</td>
<td>30%</td>
<td>3</td>
<td>7.5%</td>
<td>1</td>
<td>2.5%</td>
</tr>
<tr>
<td>DISC</td>
<td>2</td>
<td>5%</td>
<td>4</td>
<td>10%</td>
<td>5</td>
<td>12.5%</td>
</tr>
<tr>
<td>RECTANGLE</td>
<td>0</td>
<td>0%</td>
<td>0</td>
<td>0%</td>
<td>2</td>
<td>5%</td>
</tr>
<tr>
<td>CIRCULAR</td>
<td>0</td>
<td>0%</td>
<td>1</td>
<td>2.5%</td>
<td>3</td>
<td>7.5%</td>
</tr>
<tr>
<td>MITRE</td>
<td>0</td>
<td>0%</td>
<td>2</td>
<td>5%</td>
<td>0</td>
<td>0%</td>
</tr>
<tr>
<td>BUTTERFLY</td>
<td>0</td>
<td>0%</td>
<td>0</td>
<td>0%</td>
<td>1</td>
<td>2.5%</td>
</tr>
<tr>
<td>PEAR</td>
<td>0</td>
<td>0%</td>
<td>0</td>
<td>0%</td>
<td>1</td>
<td>2.5%</td>
</tr>
<tr>
<td>SIEVE</td>
<td>0</td>
<td>0%</td>
<td>1</td>
<td>2.5%</td>
<td>1</td>
<td>2.5%</td>
</tr>
<tr>
<td>TOTAL</td>
<td>40</td>
<td>100%</td>
<td>40</td>
<td>100%</td>
<td>40</td>
<td>100%</td>
</tr>
</tbody>
</table>

FIRST DAY

[Bar chart showing distribution of different patterns across minutes]

137
OBSERVATION:

Among 40 cases, in 65% of cases the shape of the Neikkuri in first minute was coin shape, 30 % of cases had pearl and 5% of cases had disc.

In third minute observation, 72.5% of cases had coin shape, 7.5 % of cases had pearl, 10% of cases had disc , 5% of cases had mitre,2.5% of cases had circular and sieve.

In seventh minute observation, 65% of cases had coin shape, 2.5 % of cases had pearl, 12.5% of cases had disc, 5% of cases had rectangle, 7.5% of cases had circular, 2.5% of cases had butterfly, pear and sieve.

INFERENCE:

In many of the cases, the shape of the Neikkuri observed in first minute, third minute and seventh minute were of coin and pearl shapes.

8.A.11.DIFFERENT PATTERNS OF NEIKKURI: SECOND DAY

<table>
<thead>
<tr>
<th></th>
<th>FIRST MINUTE</th>
<th></th>
<th>THIRD MINUTE</th>
<th></th>
<th>SEVENTH MINUTE</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>NO. OF CASES</td>
<td>PERCENTAGE</td>
<td>NO. OF CASES</td>
<td>PERCENTAGE</td>
<td>NO. OF CASES</td>
<td>PERCENTAGE</td>
</tr>
<tr>
<td>COIN</td>
<td>22</td>
<td>55%</td>
<td>32</td>
<td>80%</td>
<td>23</td>
<td>57.5%</td>
</tr>
<tr>
<td>PEARL</td>
<td>14</td>
<td>35%</td>
<td>3</td>
<td>7.5%</td>
<td>2</td>
<td>5%</td>
</tr>
<tr>
<td>DISC</td>
<td>1</td>
<td>2.5%</td>
<td>1</td>
<td>2.5%</td>
<td>4</td>
<td>10%</td>
</tr>
<tr>
<td>EGG</td>
<td>1</td>
<td>2.5%</td>
<td>0</td>
<td>0%</td>
<td>4</td>
<td>10%</td>
</tr>
<tr>
<td>RECTANGLE</td>
<td>0</td>
<td>0%</td>
<td>1</td>
<td>2.5%</td>
<td>2</td>
<td>5%</td>
</tr>
<tr>
<td>SHELL</td>
<td>1</td>
<td>2.5%</td>
<td>1</td>
<td>2.5%</td>
<td>0</td>
<td>0%</td>
</tr>
<tr>
<td>HEART</td>
<td>1</td>
<td>2.5%</td>
<td>0</td>
<td>0%</td>
<td>0</td>
<td>0%</td>
</tr>
<tr>
<td>CONCH</td>
<td>0</td>
<td>0%</td>
<td>1</td>
<td>2.5%</td>
<td>1</td>
<td>2.5%</td>
</tr>
<tr>
<td>LEAF</td>
<td>0</td>
<td>0%</td>
<td>1</td>
<td>2.5%</td>
<td>1</td>
<td>2.5%</td>
</tr>
<tr>
<td>MOUNTAIN</td>
<td>0</td>
<td>0%</td>
<td>0</td>
<td>0%</td>
<td>1</td>
<td>2.5%</td>
</tr>
<tr>
<td>SIEVE</td>
<td>0</td>
<td>0%</td>
<td>0</td>
<td>0%</td>
<td>1</td>
<td>2.5%</td>
</tr>
<tr>
<td>SEED</td>
<td>0</td>
<td>0%</td>
<td>0</td>
<td>0%</td>
<td>1</td>
<td>2.5%</td>
</tr>
<tr>
<td>TOTAL</td>
<td>40</td>
<td>100%</td>
<td>40</td>
<td>100%</td>
<td>40</td>
<td>100%</td>
</tr>
</tbody>
</table>
OBSERVATION:

Among 40 cases, in 55% of cases the shape of the Neikkuri in first minute was coin shape, 35% of cases had pearl, 2.5% of cases had disc, egg, shell, heart.

In third minutes observation, 80% of cases had coin shape, 7.5% of cases had pearl, 2.5% of cases had disc, rectangle, shell, conch and leaf.

In seventh minute observation, 57.5% of cases had coin shape, 5% of cases had pearl, 10% of cases had disc and egg, 5% of cases had rectangle, 2.5% of cases had conch, leaf, mountain, sieve and seed.

INFERENCE:

In most of the cases, the shape of the Neikkuri observed in first minute, third minutes and seventh minute were of coin and pearl shapes.
## 8.A.12. DIFFERENT PATTERNS OF NEIKKURI: THIRD DAY

<table>
<thead>
<tr>
<th>DAY 3</th>
<th>FIRST MINUTE</th>
<th>THIRD MINUTE</th>
<th>SEVENTH MINUTE</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>NO OF CASES</td>
<td>PERCENTAGE</td>
<td>NO OF CASES</td>
</tr>
<tr>
<td>COIN</td>
<td>27</td>
<td>67.5%</td>
<td>28</td>
</tr>
<tr>
<td>PEARL</td>
<td>11</td>
<td>27.5%</td>
<td>6</td>
</tr>
<tr>
<td>DISC</td>
<td>1</td>
<td>2.5%</td>
<td>3</td>
</tr>
<tr>
<td>CIRCULAR</td>
<td>1</td>
<td>2.5%</td>
<td>2</td>
</tr>
<tr>
<td>EGG</td>
<td>0</td>
<td>0%</td>
<td>1</td>
</tr>
<tr>
<td>EMBRYO</td>
<td>0</td>
<td>0%</td>
<td>0</td>
</tr>
<tr>
<td>MITRE</td>
<td>0</td>
<td>0%</td>
<td>0</td>
</tr>
<tr>
<td>RECTANGLE</td>
<td>0</td>
<td>0%</td>
<td>0</td>
</tr>
<tr>
<td>TOTAL</td>
<td>40</td>
<td>100%</td>
<td>40</td>
</tr>
</tbody>
</table>

**OBSERVATION:**
Among 40 cases, in 67.5% of cases the shape of the Neikkuri in first minute was coin shape, 27.5% of cases had pearl, 2.5% of cases had disc and circular.
In third minute observation, 70% of cases had coin shape, 15% of cases had pearl, 7.5% of cases had disc, 5% of cases had circular and 2.5% of cases had egg.

In seventh minute observation, 62.5% of cases had coin shape, 12.5% of cases had pearl, 5% of cases had disc, 10% of cases had circular, 2.5% of cases had egg, embryo, mitre.

**INFORMATION:**

In most of the cases, the shape of the Neikkuri observed in first minute, third minute and seventh minute were of coin and pearl shapes.

### 8.A.13. DISSEMINATION DYNAMICS OF OIL DROP:

<table>
<thead>
<tr>
<th>SPREADING</th>
<th>FIRST DAY</th>
<th>SECOND DAY</th>
<th>THIRD DAY</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>NO OF CASES</td>
<td>PERCENTAGE</td>
<td>NO OF CASES</td>
</tr>
<tr>
<td>SLOW</td>
<td>35</td>
<td>87.5%</td>
<td>35</td>
</tr>
<tr>
<td>FAST</td>
<td>5</td>
<td>12.5%</td>
<td>5</td>
</tr>
<tr>
<td>TOTAL</td>
<td>40</td>
<td>100%</td>
<td>40</td>
</tr>
</tbody>
</table>
OBSERVATION:

Among 40 cases, the spreading nature of the urine in the first day, 87.5% had slow spreading and 12.5% had fast spreading. In the second day, 87.5% had slow spreading, and 12.5% had fast spreading. In the third day, 90% had slow spreading, and 10% had fast spreading.

INFERENCE:

In most of the cases the dissemination dynamics of oil drop observed were slowly spreading. It indicates good prognosis.

8.A.14. NEIKKURI SHAPE ACCORDING TO RA FACTOR – FIRST MINUTE:

<table>
<thead>
<tr>
<th>FIRST MINUTE</th>
<th>RA POSITIVE</th>
<th>RA NEGATIVE</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>NO OF CASES</td>
<td>PERCENTAGE</td>
</tr>
<tr>
<td>COIN</td>
<td>50</td>
<td>64.1%</td>
</tr>
<tr>
<td>PEARL</td>
<td>23</td>
<td>29.5%</td>
</tr>
<tr>
<td>DISC</td>
<td>3</td>
<td>3.8%</td>
</tr>
<tr>
<td>CIRCULAR</td>
<td>0</td>
<td>0%</td>
</tr>
<tr>
<td>HEART</td>
<td>0</td>
<td>0%</td>
</tr>
<tr>
<td>SHELL</td>
<td>1</td>
<td>1.3%</td>
</tr>
<tr>
<td>EGG</td>
<td>1</td>
<td>1.3%</td>
</tr>
<tr>
<td></td>
<td>78</td>
<td>100%</td>
</tr>
</tbody>
</table>
OBSERVATION:

In the first minute, the shape of the Neikkuri in the RA POSITIVE patients, 64.1% of cases had coin shape, 29.5% of cases had pearl shape, 3.8% of cases had disc shape, 1.3% of cases had shell and egg shape.

In the RA NEGATIVE patients, 59.5% of cases had coin shape, 33.3% of cases had pearl shape, 2.4% of cases had disc, circular and heart shape.

INFERENGE:

The shape of the Neikkuri in first minute is equally observed in RA POSITIVE and NEGATIVE patients.

8.A.15. NEIKKURI SHAPE ACCORDING TO RA FACTOR – THIRD MINUTE:

<table>
<thead>
<tr>
<th>THIRD MINUTE</th>
<th>RA POSITIVE</th>
<th>RA NEGATIVE</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>NO. OF CASES</td>
<td>PERCENTAGE</td>
</tr>
<tr>
<td>COIN</td>
<td>56</td>
<td>71.8%</td>
</tr>
<tr>
<td>PEARL</td>
<td>9</td>
<td>11.5%</td>
</tr>
<tr>
<td>DISC</td>
<td>5</td>
<td>6.4%</td>
</tr>
<tr>
<td>RECTANGLE</td>
<td>1</td>
<td>1.3%</td>
</tr>
<tr>
<td>CIRCULAR</td>
<td>2</td>
<td>2.6%</td>
</tr>
<tr>
<td>MITRE</td>
<td>1</td>
<td>1.3%</td>
</tr>
<tr>
<td>LEAF</td>
<td>1</td>
<td>1.3%</td>
</tr>
<tr>
<td>SIEVE</td>
<td>1</td>
<td>1.3%</td>
</tr>
<tr>
<td></td>
<td>RA POSITIVE</td>
<td>RA NEGATIVE</td>
</tr>
<tr>
<td>--------</td>
<td>-------------</td>
<td>-------------</td>
</tr>
<tr>
<td>SHELL</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>EGG</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>CONCH</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>TOTAL</td>
<td>78</td>
<td>42</td>
</tr>
</tbody>
</table>

OBSERVATION:

In the third minute, the shape of the Neikkuri in the RA POSITIVE patients, 71.8% of cases had coin shape, 11.5% of cases had pearl shape, 6.4% of cases had disc shape, 2.6% of cases had circular shape, and 1.3% of cases had rectangle and mitre, leaf, sieve, shell and egg shape.

In the RA NEGATIVE patients, 78.6% of cases had coin shape, 7.1% of cases had pearl and disc shape, 2.4% of cases had circular, mitre and conch shape.

INFECTION:

The shape of the Neikkuri in third minute is equally observed in RA POSITIVE and NEGATIVE patients.
8.A.16. NEIKKURI SHAPE ACCORDING TO RA FACTOR – SEVENTH MINUTE:

<table>
<thead>
<tr>
<th>SEVENTH MINUTE</th>
<th>RA POSITIVE</th>
<th>RA NEGATIVE</th>
</tr>
</thead>
<tbody>
<tr>
<td>NO. OF CASES</td>
<td>PERCENTAGE</td>
<td>NO. OF CASES</td>
</tr>
<tr>
<td>COIN</td>
<td>46</td>
<td>59.0%</td>
</tr>
<tr>
<td>PEARL</td>
<td>8</td>
<td>10.3%</td>
</tr>
<tr>
<td>DISC</td>
<td>4</td>
<td>5.1%</td>
</tr>
<tr>
<td>RECTANGLE</td>
<td>5</td>
<td>6.4%</td>
</tr>
<tr>
<td>CIRCULAR</td>
<td>6</td>
<td>7.7%</td>
</tr>
<tr>
<td>MITRE</td>
<td>1</td>
<td>1.3%</td>
</tr>
<tr>
<td>BUTTERFLY</td>
<td>1</td>
<td>1.3%</td>
</tr>
<tr>
<td>LEAF</td>
<td>1</td>
<td>1.3%</td>
</tr>
<tr>
<td>SIEVE</td>
<td>2</td>
<td>2.6%</td>
</tr>
<tr>
<td>SEED</td>
<td>0</td>
<td>0%</td>
</tr>
<tr>
<td>MOUNTAIN</td>
<td>1</td>
<td>1.3%</td>
</tr>
<tr>
<td>EGG</td>
<td>3</td>
<td>3.8%</td>
</tr>
<tr>
<td>CONCH</td>
<td>0</td>
<td>0%</td>
</tr>
<tr>
<td>PEAR</td>
<td>0</td>
<td>0%</td>
</tr>
<tr>
<td>EMBRYO</td>
<td>0</td>
<td>0%</td>
</tr>
<tr>
<td>TOTAL</td>
<td>78</td>
<td>100%</td>
</tr>
</tbody>
</table>
**OBSERVATION:**

In the seventh minute, the shape of the Neikkuri in the RA POSITIVE patients, 59% of cases had coin shape, 10.3% of cases had pearl shape, 5.1% of cases had disc shape, 7.7% of cases had circular shape, 6.4% of cases had rectangle, 1.3% of cases had mitre, butterfly, mountain and leaf shape, 2.6% of cases had sieve, 3.8% of cases had egg shape.

In the RA NEGATIVE patients, 66.7% of cases had coin shape, 16.7% of cases had disc shape, 2.4% of cases had circular, seed, pear, embryo and conch shape, 4.8% of cases had egg shape.

**INFECTION:**

The shape of the Neikkuri in the seventh minute is equally observed in RA POSITIVE and NEGATIVE patients.

**8.A.17. FIRST MINUTE NEIKKURI SHAPE OF THREE CONSECUTIVE DAYS:**

<table>
<thead>
<tr>
<th></th>
<th>FIRST DAY</th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>NO. OF CASES</td>
<td>PERCENTAGE</td>
<td>NO. OF CASES</td>
<td>PERCENTAGE</td>
<td>NO. OF CASES</td>
<td>PERCENTAGE</td>
</tr>
<tr>
<td>COIN</td>
<td>26</td>
<td>65%</td>
<td>22</td>
<td>55%</td>
<td>27</td>
<td>67.5%</td>
</tr>
<tr>
<td>PEARL</td>
<td>12</td>
<td>30%</td>
<td>14</td>
<td>35%</td>
<td>11</td>
<td>27.5%</td>
</tr>
<tr>
<td>DISC</td>
<td>2</td>
<td>5%</td>
<td>1</td>
<td>2.5%</td>
<td>1</td>
<td>2.5%</td>
</tr>
<tr>
<td>CIRCULAR</td>
<td>0</td>
<td>0%</td>
<td>0</td>
<td>0%</td>
<td>1</td>
<td>2.5%</td>
</tr>
<tr>
<td>HEART</td>
<td>0</td>
<td>0%</td>
<td>1</td>
<td>2.5%</td>
<td>0</td>
<td>0%</td>
</tr>
<tr>
<td>SHELL</td>
<td>0</td>
<td>0%</td>
<td>1</td>
<td>2.5%</td>
<td>0</td>
<td>0%</td>
</tr>
<tr>
<td>EGG</td>
<td>0</td>
<td>0%</td>
<td>1</td>
<td>2.5%</td>
<td>0</td>
<td>0%</td>
</tr>
<tr>
<td>TOTAL</td>
<td>40</td>
<td>100%</td>
<td>40</td>
<td>100%</td>
<td>40</td>
<td>100%</td>
</tr>
</tbody>
</table>
**OBSERVATION:**

In the first minute, the shape of the Neikkuri in the first day, 65% of cases had coin shape, 30% of cases had pearl shape, 5% of cases had disc shape.

In the second day, 55% of cases had coin shape, 35% of cases had pearl shape, 2.5% of cases had disc, heart, shell and egg shape.

In the third day, 67.5% of cases had coin shape, 27.5% of cases had pearl shape, 2.5% of cases had disc and circular shape.

**INFERENCE:**

The shapes of Neikkuri were observed to be the same on all the three consecutive days.
### 8.A.18. THIRD MINUTE NEIKKURI SHAPE OF THREE CONSECUTIVE DAYS:

<table>
<thead>
<tr>
<th></th>
<th>FIRST DAY</th>
<th></th>
<th>SECOND DAY</th>
<th></th>
<th>THIRD DAY</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>NO OF CASES</td>
<td>PERCENTAGE</td>
<td>NO OF CASES</td>
<td>PERCENTAGE</td>
<td>NO OF CASES</td>
<td>PERCENTAGE</td>
</tr>
<tr>
<td>COIN</td>
<td>29</td>
<td>72.5%</td>
<td>32</td>
<td>80%</td>
<td>28</td>
<td>70%</td>
</tr>
<tr>
<td>PEARL</td>
<td>3</td>
<td>7.5%</td>
<td>3</td>
<td>7.5%</td>
<td>6</td>
<td>15%</td>
</tr>
<tr>
<td>DISC</td>
<td>4</td>
<td>10%</td>
<td>1</td>
<td>2.5%</td>
<td>3</td>
<td>7.5%</td>
</tr>
<tr>
<td>RECTANGLE</td>
<td>0</td>
<td>0%</td>
<td>1</td>
<td>2.5%</td>
<td>0</td>
<td>0%</td>
</tr>
<tr>
<td>CIRCULAR</td>
<td>1</td>
<td>2.5%</td>
<td>0</td>
<td>0%</td>
<td>2</td>
<td>5%</td>
</tr>
<tr>
<td>MITRE</td>
<td>2</td>
<td>5.0%</td>
<td>0</td>
<td>0%</td>
<td>0</td>
<td>0%</td>
</tr>
<tr>
<td>LEAF</td>
<td>0</td>
<td>0%</td>
<td>1</td>
<td>2.5%</td>
<td>0</td>
<td>0%</td>
</tr>
<tr>
<td>SIEVE</td>
<td>1</td>
<td>2.5%</td>
<td>0</td>
<td>0%</td>
<td>0</td>
<td>0%</td>
</tr>
<tr>
<td>SHELL</td>
<td>0</td>
<td>0%</td>
<td>1</td>
<td>2.5%</td>
<td>0</td>
<td>0%</td>
</tr>
<tr>
<td>EGG</td>
<td>0</td>
<td>0%</td>
<td>0</td>
<td>0%</td>
<td>1</td>
<td>2.5%</td>
</tr>
<tr>
<td>CONCH</td>
<td>0</td>
<td>0%</td>
<td>1</td>
<td>2.5%</td>
<td>0</td>
<td>0%</td>
</tr>
<tr>
<td>TOTAL</td>
<td>40</td>
<td>100%</td>
<td>40</td>
<td>100%</td>
<td>40</td>
<td>100%</td>
</tr>
</tbody>
</table>

**OBSERVATION:**

In the third minute, the shape of the Neikkuri in the first day, 72.5% of cases had coin shape, 7.5% of cases had pearl shape, 10% of cases had disc shape, 5% of cases had mitre shape, 2.5% circular and sieve shape.
In the second day, 80% of cases had coin shape, 7.5% of cases had pearl shape, 2.5% of cases had disc, rectangle, leaf and shell shape.

In the third day, 70% of cases had coin shape, 15% of cases had pearl shape, 7.5% of cases had disc, 5% of cases had circular shape and 2.5% of cases had egg shape.

**INFERENCE:**

The shapes of Neikkuri were observed to be the same on all the three consecutive days.

**8.A.19. SEVENTH MINUTE NEIKKURI SHAPE OF THREE CONSECUTIVE DAYS:**

<table>
<thead>
<tr>
<th></th>
<th>FIRST DAY</th>
<th></th>
<th>SECOND DAY</th>
<th></th>
<th>THIRD DAY</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>NO. OF CASES</td>
<td>PERCENTAGE</td>
<td>NO. OF CASES</td>
<td>PERCENTAGE</td>
<td>NO. OF CASES</td>
<td>PERCENTAGE</td>
</tr>
<tr>
<td>COIN</td>
<td>26</td>
<td>65%</td>
<td>23</td>
<td>57.5%</td>
<td>25</td>
<td>62.5%</td>
</tr>
<tr>
<td>PEARL</td>
<td>1</td>
<td>2.5%</td>
<td>2</td>
<td>5.0%</td>
<td>5</td>
<td>12.5%</td>
</tr>
<tr>
<td>DISC</td>
<td>5</td>
<td>12.5%</td>
<td>4</td>
<td>10.0%</td>
<td>2</td>
<td>5.0%</td>
</tr>
<tr>
<td>RECTANGLE</td>
<td>2</td>
<td>5.0%</td>
<td>2</td>
<td>5.0%</td>
<td>1</td>
<td>2.5%</td>
</tr>
<tr>
<td>CIRCULAR</td>
<td>3</td>
<td>7.5%</td>
<td>0</td>
<td>0%</td>
<td>4</td>
<td>10.0%</td>
</tr>
<tr>
<td>MITRE</td>
<td>0</td>
<td>0%</td>
<td>0</td>
<td>0%</td>
<td>1</td>
<td>2.5%</td>
</tr>
<tr>
<td>BUTTERFLY</td>
<td>1</td>
<td>2.5%</td>
<td>0</td>
<td>0%</td>
<td>0</td>
<td>0%</td>
</tr>
<tr>
<td>LEAF</td>
<td>0</td>
<td>0%</td>
<td>1</td>
<td>2.5%</td>
<td>0</td>
<td>0%</td>
</tr>
<tr>
<td>SIEVE</td>
<td>0</td>
<td>0%</td>
<td>1</td>
<td>2.5%</td>
<td>0</td>
<td>0%</td>
</tr>
<tr>
<td>SEED</td>
<td>1</td>
<td>2.5%</td>
<td>1</td>
<td>2.5%</td>
<td>0</td>
<td>0%</td>
</tr>
<tr>
<td>MOUNTAIN</td>
<td>0</td>
<td>0%</td>
<td>1</td>
<td>2.5%</td>
<td>0</td>
<td>0%</td>
</tr>
<tr>
<td>EGG</td>
<td>0</td>
<td>0%</td>
<td>4</td>
<td>10.0%</td>
<td>1</td>
<td>2.5%</td>
</tr>
<tr>
<td>CONCH</td>
<td>0</td>
<td>0%</td>
<td>1</td>
<td>2.5%</td>
<td>0</td>
<td>0%</td>
</tr>
<tr>
<td>PEAR</td>
<td>1</td>
<td>2.5%</td>
<td>0</td>
<td>0%</td>
<td>0</td>
<td>0%</td>
</tr>
<tr>
<td>EMBRYOem</td>
<td>0</td>
<td>0%</td>
<td>0</td>
<td>0%</td>
<td>1</td>
<td>2.5%</td>
</tr>
<tr>
<td>TOTAL</td>
<td>40</td>
<td>100%</td>
<td>40</td>
<td>100%</td>
<td>40</td>
<td>100%</td>
</tr>
</tbody>
</table>
OBSERVATION:

In the seventh minute, the shape of the Neikkuri in the first day, 65% of cases had coin shape, 2.5% of cases had pearl shape, 12.5% of cases had disc shape, 5% of cases had rectangle shape, 7.5% circular shape, 2.5% of cases had butterfly, seed and pear shape.

In the second day, 57.5% of cases had coin shape, 5% of cases had pearl shape, 10% of cases had disc and egg shape, 5% of cases had rectangle, 2.5% of cases had leaf, sieve, seed and conch shape.

In the third day, 62.5% of cases had coin shape, 12.5% of cases had pearl shape, 5% of cases had disc, 10% of cases had circular shape and 2.5% of cases had egg, rectangle, mitre and embryo shape.

INFERENCE:

The shapes of Neikkuri were observed to be the same on all the three consecutive days.
8.A.20. COIN SHAPE PATIENTS VS CONTROL:

<table>
<thead>
<tr>
<th>COIN SHAPE</th>
<th>FIRST MINUTE</th>
<th>THIRD MINUTE</th>
<th>SEVENTH MINUTE</th>
</tr>
</thead>
<tbody>
<tr>
<td>RA POSITIVE</td>
<td>64.1%</td>
<td>71.8%</td>
<td>71.8%</td>
</tr>
<tr>
<td>RA NEGATIVE</td>
<td>59.5%</td>
<td>78.6%</td>
<td>78.6%</td>
</tr>
<tr>
<td>CONTROL</td>
<td>96.7%</td>
<td>80%</td>
<td>50%</td>
</tr>
</tbody>
</table>

**OBSERVATION:**

In the RA POSITIVE patients, the shape of the Neikkuri in the first minute, 64.1% of cases had coin shape, 71.8% of cases had coin shape in third minute, and 59% of cases had coin shape in seventh minute.

In the RA NEGATIVE patients, 59.5% of cases had coin shape in the first minute, 78.6% of cases had coin shape in third minute, and 66.7% of cases had coin shape in seventh minute.

In the healthy volunteers, 96.7% of cases had coin shape in the first minute, 80% of cases had coin shape in third minute, and 50% of cases had coin shape in seventh minute.
INFERENGE:

The coin shaped of the Neikkuri in all minutes is equally observed in RA POSITIVE, NEGATIVE patients and healthy volunteers.

8.B.HEALTHY VOLUNTEERS

8.B.1.COLOUR OF URINE:

<table>
<thead>
<tr>
<th>COLOUR</th>
<th>FIRST DAY</th>
<th></th>
<th>SECOND DAY</th>
<th></th>
<th>THIRD DAY</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>NO OF CASES</td>
<td>PERCENTAGE</td>
<td>NO OF CASES</td>
<td>PERCENTAGE</td>
<td>NO OF CASES</td>
<td>PERCENTAGE</td>
</tr>
<tr>
<td>PALE YELLOW</td>
<td>9</td>
<td>90%</td>
<td>10</td>
<td>100%</td>
<td>9</td>
<td>90%</td>
</tr>
<tr>
<td>DARK YELLOW</td>
<td>1</td>
<td>10%</td>
<td>0</td>
<td>0%</td>
<td>1</td>
<td>10%</td>
</tr>
<tr>
<td>TOTAL</td>
<td>10</td>
<td>100%</td>
<td>10</td>
<td>100%</td>
<td>10</td>
<td>100%</td>
</tr>
</tbody>
</table>

OBSERVATION:

Among 10 cases, the colour of the urine had 90% pale yellow colour, 10% of cases had dark yellow colour in first day and third day. 100% of cases had pale yellow colour.
INFORMATION:

In many of the cases, the colour of the urine observed was pale yellow.

8.B.2. ODOUR OF URINE:

<table>
<thead>
<tr>
<th>ODOUR</th>
<th>FIRST DAY</th>
<th>PERCENTAGE</th>
<th>SECOND DAY</th>
<th>PERCENTAGE</th>
<th>THIRD DAY</th>
<th>PERCENTAGE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Aromatic</td>
<td>10</td>
<td>100%</td>
<td>10</td>
<td>100%</td>
<td>10</td>
<td>100%</td>
</tr>
<tr>
<td>Ammoniacal</td>
<td>0</td>
<td>0%</td>
<td>0</td>
<td>0%</td>
<td>0</td>
<td>0%</td>
</tr>
<tr>
<td>Total</td>
<td>10</td>
<td>100%</td>
<td>10</td>
<td>100%</td>
<td>10</td>
<td>100%</td>
</tr>
</tbody>
</table>

OBSERVATION:

Among 10 cases, the odour of the urine 100% had aromatic odour in three days.

INFORMATION:

In all of the cases, the odour of the urine observed was of aromatic odour. The odour obtained was normal.
8.B.3. SPECIFIC GRAVITY:

<table>
<thead>
<tr>
<th></th>
<th>FIRST DAY</th>
<th></th>
<th>SECOND DAY</th>
<th></th>
<th>THIRD DAY</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>NO. OF CASES</td>
<td>PERCENTAGE</td>
<td>NO. OF CASES</td>
<td>PERCENTAGE</td>
<td>NO. OF CASES</td>
<td>PERCENTAGE</td>
</tr>
<tr>
<td>1.003-1.010</td>
<td>2</td>
<td>20%</td>
<td>1</td>
<td>10%</td>
<td>1</td>
<td>10%</td>
</tr>
<tr>
<td>1.011-1.015</td>
<td>3</td>
<td>30%</td>
<td>4</td>
<td>40%</td>
<td>5</td>
<td>50%</td>
</tr>
<tr>
<td>1.016-1.020</td>
<td>4</td>
<td>40%</td>
<td>4</td>
<td>40%</td>
<td>2</td>
<td>20%</td>
</tr>
<tr>
<td>1.021-1.025</td>
<td>1</td>
<td>10%</td>
<td>1</td>
<td>10%</td>
<td>2</td>
<td>20%</td>
</tr>
<tr>
<td>TOTAL</td>
<td>10</td>
<td>100%</td>
<td>10</td>
<td>100%</td>
<td>10</td>
<td>100%</td>
</tr>
</tbody>
</table>

OBSERVATION:

Among 10 cases, the Specific gravity of the urine in the first day, 20% had Specific gravity between 1.003-1.010, 30% had Specific gravity between 1.011-1.015, 40% had Specific gravity between 1.015-1.020 and 10% had Specific gravity between 1.021-1.025.

Among 10 cases, the Specific gravity of the urine in the second day, 10% had Specific gravity between 1.003-1.010, 40% had Specific gravity between 1.011-1.015, 40% had Specific gravity between 1.015-1.020 and 10% had Specific gravity between 1.021-1.025.
Among 10 cases, the Specific gravity of the urine in the third day, 10% had Specific gravity between 1.003-1.010, 50% had Specific gravity between 1.011-1.015, 20% had Specific gravity between 1.015-1.020 and 20% had Specific gravity between 1.021-1.025.

**INFEERENCE:**

In most of the cases, the Specific gravity of the urine observed were of 1.010–1.020. The result obtained was normal

**8.B.4. FROTH:**

<table>
<thead>
<tr>
<th>FROTH</th>
<th>FIRST DAY</th>
<th>SECOND DAY</th>
<th>THIRD DAY</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>NO OF CASES</td>
<td>PERCENTAGE</td>
<td>NO OF CASES</td>
</tr>
<tr>
<td>ABSENT</td>
<td>10</td>
<td>100%</td>
<td>10</td>
</tr>
<tr>
<td>PRESENT</td>
<td>0</td>
<td>0%</td>
<td>0</td>
</tr>
<tr>
<td>TOTAL</td>
<td>10</td>
<td>100%</td>
<td>10</td>
</tr>
</tbody>
</table>
OBSERVATION:
Among 10 cases the froth of the urine is absent in 100% in three days.

INFEERENCE:
In most of the cases, the froth is absent in the urine. The result which is obtained was normal.

8.B.5. VOLUME OF URINE:

<table>
<thead>
<tr>
<th></th>
<th>FIRST DAY</th>
<th>SECOND DAY</th>
<th>THIRD DAY</th>
</tr>
</thead>
<tbody>
<tr>
<td>NO OF CASES</td>
<td>PERCENTAGE</td>
<td>NO OF CASES</td>
<td>PERCENTAGE</td>
</tr>
<tr>
<td>500ML -1000ML</td>
<td>1</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>1100ML -1500ML</td>
<td>9</td>
<td>10</td>
<td>10</td>
</tr>
<tr>
<td>1600ML - 2000ML</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>TOTAL</td>
<td>10</td>
<td>10</td>
<td>10</td>
</tr>
</tbody>
</table>

OBSERVATION:
Among 10 cases 90% of cases passed 1100ml -1500ml per day, 10% of cases passed 500ml-1000ml in first day. 100% of cases passed 1100ml -1500ml in the second and third day.
INFERENCE:

In all of the cases, the volumes of the urine passed per day were 1100ml - 1500ml.

8.B.6. PH VALUE:

<table>
<thead>
<tr>
<th>PH</th>
<th>NO OF CASES</th>
<th>PERCENTAGE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Below 6</td>
<td>9</td>
<td>90%</td>
</tr>
<tr>
<td>6.1-7</td>
<td>1</td>
<td>10%</td>
</tr>
<tr>
<td>Above 7</td>
<td>0</td>
<td>0%</td>
</tr>
<tr>
<td>TOTAL</td>
<td>10</td>
<td>100%</td>
</tr>
</tbody>
</table>

OBSERVATION:

Among 10 cases, 90% of cases had PH below 6, 10% of cases had pH between 6.1-7.

INFERENCE:

In most of the cases, the PH of the urine observed was of below 6. The result which obtained was normal.
## 8.B.7. NEIJKURI: FIRST DAY

<table>
<thead>
<tr>
<th>First Day</th>
<th>First Minute</th>
<th>Third Minute</th>
<th>Seventh Minute</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>No of Cases</td>
<td>No of Cases</td>
<td>No of Cases</td>
</tr>
<tr>
<td>Coin</td>
<td>10</td>
<td>9</td>
<td>7</td>
</tr>
<tr>
<td>Circular</td>
<td>0</td>
<td>0</td>
<td>3</td>
</tr>
<tr>
<td>Egg</td>
<td>0</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>Total</td>
<td>10</td>
<td>10</td>
<td>10</td>
</tr>
</tbody>
</table>

### Observation:

Among 10 cases, the shape of the Neikkuri in first minute, 100% of cases had coin shape. In third minute, 90% of cases had coin shape, 10% of cases had egg shape. In seventh minute, 70% of cases had coin shape, 30% of cases had circular shape.

### Inference:

In most of the cases, the shape of the Neikkuri observed in first minute, third minute and seventh minute were of coin and circular shapes.
8.B.8. NEIKKURI: SECOND DAY

<table>
<thead>
<tr>
<th>SECOND DAY</th>
<th>FIRST MINUTE</th>
<th>THIRD MINUTE</th>
<th>SEVENTH MINUTE</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>NO OF CASES</td>
<td>PERCENTAGE</td>
<td>NO OF CASES</td>
</tr>
<tr>
<td>COIN</td>
<td>10</td>
<td>100%</td>
<td>7</td>
</tr>
<tr>
<td>CIRCULAR</td>
<td>0</td>
<td>0%</td>
<td>3</td>
</tr>
<tr>
<td>TOTAL</td>
<td>10</td>
<td>100%</td>
<td>10</td>
</tr>
</tbody>
</table>

OBSERVATION:

Among 10 cases, the shape of the Neikkuri in first minute, 100% of cases had coin shape. In third minute, 70% of cases had coin shape, 30% of cases had circular shape. In seventh minute, 40% of cases had coin shape, 60% of cases had circular shape.

INFERENCE:

In most of the cases, the shape of the Neikkuri observed in first minute, third minute and seventh minute were of coin and circular shapes.
### 8.B.9. NEIKKURI: THIRD DAY

<table>
<thead>
<tr>
<th>Third Day</th>
<th>First Minute</th>
<th>Third Minute</th>
<th>Seventh Minute</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>No of Cases</td>
<td>Percentage</td>
<td>No of Cases</td>
</tr>
<tr>
<td>Coin</td>
<td>9</td>
<td>90%</td>
<td>8</td>
</tr>
<tr>
<td>Circular</td>
<td>0</td>
<td>0%</td>
<td>0</td>
</tr>
<tr>
<td>Jasmine Bud</td>
<td>1</td>
<td>10%</td>
<td>1</td>
</tr>
<tr>
<td>Egg</td>
<td>0</td>
<td>0%</td>
<td>0</td>
</tr>
<tr>
<td>Lute</td>
<td>0</td>
<td>0%</td>
<td>1</td>
</tr>
<tr>
<td>Ring</td>
<td>0</td>
<td>0%</td>
<td>0</td>
</tr>
<tr>
<td>Total</td>
<td>10</td>
<td>100%</td>
<td>10</td>
</tr>
</tbody>
</table>

**OBSERVATION:**

Among 10 cases, the shape of the Neikkuri in first minute, 90% of cases had coin shape and 10% of cases had jasmine bud shape. In third minute, 80% of cases had coin shape, 10% of cases had jasmine bud and egg shape. In seventh minute, 40% of cases had coin shape, 20% of cases had circular, ring shape, 10% of cases had jasmine bud, lute shape.

**INFERENCE:**

In most of the cases, the shape of the Neikkuri observed in first minute, third minute and seventh minute were of coin and circular shapes.
<table>
<thead>
<tr>
<th>S.NO</th>
<th>IP NO</th>
<th>AGE/SEX</th>
<th>HB</th>
<th>TRBC</th>
<th>TC</th>
<th>DC</th>
<th>PLT</th>
<th>ESR</th>
<th>SEROLOGY</th>
<th>MOTION</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>N</td>
<td>L</td>
<td>E</td>
<td></td>
<td></td>
<td></td>
<td>RA CRP ASO OVA CYST OCCULT BLOOD</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>30</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>3832</td>
<td>52/F</td>
<td>11.4</td>
<td>4.1</td>
<td>7100</td>
<td>68</td>
<td>30</td>
<td>2.6</td>
<td>10 10</td>
<td>NEGATIVE   NEGATIVE  NEGATIVE  NIL  NIL  ABSENT</td>
</tr>
<tr>
<td>2</td>
<td>4879</td>
<td>41/M</td>
<td>13.8</td>
<td>4.1</td>
<td>9100</td>
<td>60</td>
<td>35</td>
<td>3.3</td>
<td>6   14</td>
<td>POSITIVE   NEGATIVE  NEGATIVE  NIL  NIL  ABSENT</td>
</tr>
<tr>
<td>3</td>
<td>3931</td>
<td>56/F</td>
<td>13.2</td>
<td>4.6</td>
<td>8600</td>
<td>60</td>
<td>34</td>
<td>6.1</td>
<td>8   18</td>
<td>POSITIVE   POSITIVE  NEGATIVE  NIL  NIL  ABSENT</td>
</tr>
<tr>
<td>4</td>
<td>3924</td>
<td>45/F</td>
<td>12.1</td>
<td>4.7</td>
<td>8000</td>
<td>70</td>
<td>27</td>
<td>3.4</td>
<td>22  44</td>
<td>POSITIVE   POSITIVE  NEGATIVE  NIL  NIL  ABSENT</td>
</tr>
<tr>
<td>5</td>
<td>3849</td>
<td>24/F</td>
<td>10.1</td>
<td>4</td>
<td>9800</td>
<td>67</td>
<td>30</td>
<td>3.5</td>
<td>38  126</td>
<td>POSITIVE   POSITIVE  NEGATIVE  NIL  NIL  ABSENT</td>
</tr>
<tr>
<td>6</td>
<td>3871</td>
<td>57/F</td>
<td>12.6</td>
<td>4.7</td>
<td>5900</td>
<td>51</td>
<td>43</td>
<td>6.3</td>
<td>2  6</td>
<td>NEGATIVE   POSITIVE  NEGATIVE  NIL  NIL  ABSENT</td>
</tr>
<tr>
<td>7</td>
<td>3954</td>
<td>52/F</td>
<td>10.4</td>
<td>4.7</td>
<td>5900</td>
<td>60</td>
<td>36</td>
<td>3.2</td>
<td>32  68</td>
<td>POSITIVE   POSITIVE  NEGATIVE  NIL  NIL  ABSENT</td>
</tr>
<tr>
<td>8</td>
<td>4001</td>
<td>47/F</td>
<td>11.1</td>
<td>3.6</td>
<td>7000</td>
<td>73</td>
<td>22</td>
<td>5</td>
<td>3.6</td>
<td>42  94</td>
</tr>
<tr>
<td>9</td>
<td>3998</td>
<td>52/F</td>
<td>12.8</td>
<td>5.3</td>
<td>5100</td>
<td>52</td>
<td>41</td>
<td>1.4</td>
<td>3.2</td>
<td>26  54</td>
</tr>
<tr>
<td>10</td>
<td>4980</td>
<td>40/M</td>
<td>12.6</td>
<td>4.3</td>
<td>9100</td>
<td>42</td>
<td>30</td>
<td>2.6</td>
<td>3.9</td>
<td>4  8</td>
</tr>
<tr>
<td>11</td>
<td>4010</td>
<td>40/F</td>
<td>12.8</td>
<td>4.6</td>
<td>7200</td>
<td>55</td>
<td>40</td>
<td>5</td>
<td>3.9</td>
<td>20 48</td>
</tr>
<tr>
<td>12</td>
<td>5018</td>
<td>23/M</td>
<td>15.6</td>
<td>5.3</td>
<td>10700</td>
<td>76</td>
<td>19</td>
<td>5</td>
<td>2.3</td>
<td>18  40</td>
</tr>
<tr>
<td>13</td>
<td>4031</td>
<td>50/F</td>
<td>11.3</td>
<td>3.8</td>
<td>6800</td>
<td>60</td>
<td>32</td>
<td>8</td>
<td>1.8</td>
<td>2  8</td>
</tr>
<tr>
<td>14</td>
<td>4032</td>
<td>60/F</td>
<td>12.9</td>
<td>4.3</td>
<td>5600</td>
<td>65</td>
<td>23</td>
<td>4</td>
<td>2.6</td>
<td>4  10</td>
</tr>
<tr>
<td>15</td>
<td>5019</td>
<td>42/M</td>
<td>16.7</td>
<td>5.2</td>
<td>8600</td>
<td>58</td>
<td>39</td>
<td>5</td>
<td>2.7</td>
<td>2  4</td>
</tr>
<tr>
<td>16</td>
<td>4084</td>
<td>42/F</td>
<td>12.8</td>
<td>4.6</td>
<td>9900</td>
<td>67</td>
<td>30</td>
<td>3</td>
<td>2.9</td>
<td>8  18</td>
</tr>
<tr>
<td>17</td>
<td>4057</td>
<td>56/F</td>
<td>10.7</td>
<td>4.4</td>
<td>5500</td>
<td>40</td>
<td>49</td>
<td>11</td>
<td>2.8</td>
<td>2  4</td>
</tr>
<tr>
<td>18</td>
<td>4117</td>
<td>29/F</td>
<td>11.2</td>
<td>4.2</td>
<td>8000</td>
<td>61</td>
<td>31</td>
<td>3</td>
<td>3.1</td>
<td>2  20</td>
</tr>
<tr>
<td>19</td>
<td>4090</td>
<td>49/F</td>
<td>12.7</td>
<td>4.4</td>
<td>9200</td>
<td>71</td>
<td>24</td>
<td>5</td>
<td>3.9</td>
<td>8  18</td>
</tr>
<tr>
<td>20</td>
<td>4098</td>
<td>36/F</td>
<td>11.1</td>
<td>4</td>
<td>7100</td>
<td>69</td>
<td>25</td>
<td>5</td>
<td>3.5</td>
<td>20 48</td>
</tr>
<tr>
<td>S.NO</td>
<td>IP NO</td>
<td>AGE/SEX</td>
<td>HB</td>
<td>TRBC</td>
<td>TC</td>
<td>DC</td>
<td>PLT</td>
<td>ESR</td>
<td>SEROLOGY</td>
<td>MOTION</td>
</tr>
<tr>
<td>------</td>
<td>-------</td>
<td>---------</td>
<td>-----</td>
<td>------</td>
<td>-----</td>
<td>-----</td>
<td>-----</td>
<td>-----</td>
<td>----------</td>
<td>--------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>21</td>
<td>4081</td>
<td>39/F</td>
<td>13.5</td>
<td>5.1</td>
<td>8600</td>
<td>39</td>
<td>64</td>
<td>29</td>
<td>2  12</td>
<td>RA</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>CRP</td>
</tr>
<tr>
<td>22</td>
<td>4136</td>
<td>54/F</td>
<td>13.7</td>
<td>4.6</td>
<td>6800</td>
<td>30</td>
<td>30</td>
<td>2  8</td>
<td>18</td>
<td>NEGATIVE</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>NEGATIVE</td>
</tr>
<tr>
<td>23</td>
<td>4111</td>
<td>39/F</td>
<td>14.3</td>
<td>4.9</td>
<td>7000</td>
<td>52</td>
<td>18</td>
<td>2.5</td>
<td>2  4</td>
<td>NEGATIVE</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>POSITIVE</td>
</tr>
<tr>
<td>24</td>
<td>4081</td>
<td>35/F</td>
<td>11.9</td>
<td>4.7</td>
<td>7100</td>
<td>28</td>
<td>18</td>
<td>2.6</td>
<td>10  60</td>
<td>NEGATIVE</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>POSITIVE</td>
</tr>
<tr>
<td>25</td>
<td>4080</td>
<td>33/F</td>
<td>9.9</td>
<td>3.6</td>
<td>9800</td>
<td>16</td>
<td>1</td>
<td>2.3</td>
<td>40 126</td>
<td>NEGATIVE</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>POSITIVE</td>
</tr>
<tr>
<td>26</td>
<td>4166</td>
<td>25/F</td>
<td>11.5</td>
<td>4.3</td>
<td>10700</td>
<td>25</td>
<td>3</td>
<td>2.7</td>
<td>18  54</td>
<td>NEGATIVE</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>NEGATIVE</td>
</tr>
<tr>
<td>27</td>
<td>4173</td>
<td>46/F</td>
<td>11.9</td>
<td>4.3</td>
<td>6900</td>
<td>33</td>
<td>5</td>
<td>3</td>
<td>4  8</td>
<td>NEGATIVE</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>POSITIVE</td>
</tr>
<tr>
<td>28</td>
<td>4183</td>
<td>53/F</td>
<td>11.9</td>
<td>4.4</td>
<td>6800</td>
<td>25</td>
<td>5</td>
<td>2.6</td>
<td>20 48</td>
<td>NEGATIVE</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>NEGATIVE</td>
</tr>
<tr>
<td>29</td>
<td>4098</td>
<td>40/F</td>
<td>10.8</td>
<td>4.3</td>
<td>9900</td>
<td>25</td>
<td>2</td>
<td>4.5</td>
<td>38 110</td>
<td>NEGATIVE</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>POSITIVE</td>
</tr>
<tr>
<td>30</td>
<td>4179</td>
<td>57/F</td>
<td>13.7</td>
<td>4.4</td>
<td>8100</td>
<td>49</td>
<td>13</td>
<td>2.6</td>
<td>10 30</td>
<td>NEGATIVE</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>POSITIVE</td>
</tr>
<tr>
<td>31</td>
<td>5118</td>
<td>47/M</td>
<td>12.4</td>
<td>3.9</td>
<td>10600</td>
<td>23</td>
<td>5</td>
<td>5.2</td>
<td>30 120</td>
<td>NEGATIVE</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>POSITIVE</td>
</tr>
<tr>
<td>32</td>
<td>4249</td>
<td>50/F</td>
<td>9.2</td>
<td>4.9</td>
<td>9000</td>
<td>45</td>
<td>5</td>
<td>3.3</td>
<td>4  12</td>
<td>NEGATIVE</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>POSITIVE</td>
</tr>
<tr>
<td>33</td>
<td>4253</td>
<td>37/F</td>
<td>9</td>
<td>49</td>
<td>8900</td>
<td>22</td>
<td>4</td>
<td>4.2</td>
<td>4  10</td>
<td>NEGATIVE</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>POSITIVE</td>
</tr>
<tr>
<td>34</td>
<td>4259</td>
<td>52/F</td>
<td>10</td>
<td>3.5</td>
<td>3100</td>
<td>24</td>
<td>6</td>
<td>3.2</td>
<td>5  10</td>
<td>NEGATIVE</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>POSITIVE</td>
</tr>
<tr>
<td>35</td>
<td>4302</td>
<td>42/F</td>
<td>9</td>
<td>4</td>
<td>10100</td>
<td>26</td>
<td>4</td>
<td>2.8</td>
<td>4  8</td>
<td>NEGATIVE</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>POSITIVE</td>
</tr>
<tr>
<td>36</td>
<td>4298</td>
<td>36/F</td>
<td>8.5</td>
<td>3.8</td>
<td>6500</td>
<td>27</td>
<td>7</td>
<td>2.7</td>
<td>30 60</td>
<td>NEGATIVE</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>POSITIVE</td>
</tr>
<tr>
<td>37</td>
<td>4289</td>
<td>50/F</td>
<td>10</td>
<td>4.5</td>
<td>7100</td>
<td>34</td>
<td>6</td>
<td>2.6</td>
<td>4  10</td>
<td>NEGATIVE</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>POSITIVE</td>
</tr>
<tr>
<td>38</td>
<td>5279</td>
<td>19/M</td>
<td>9</td>
<td>5.1</td>
<td>6300</td>
<td>21</td>
<td>5</td>
<td>3.5</td>
<td>8  18</td>
<td>NEGATIVE</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>POSITIVE</td>
</tr>
<tr>
<td>39</td>
<td>4359</td>
<td>42/F</td>
<td>10.5</td>
<td>4.5</td>
<td>13600</td>
<td>20</td>
<td>5</td>
<td>3.2</td>
<td>22 56</td>
<td>NEGATIVE</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>POSITIVE</td>
</tr>
<tr>
<td>40</td>
<td>4379</td>
<td>52/F</td>
<td>8.7</td>
<td>4</td>
<td>8000</td>
<td>26</td>
<td>4</td>
<td>2.5</td>
<td>56 120</td>
<td>NEGATIVE</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>POSITIVE</td>
</tr>
</tbody>
</table>
### TABLE 3: UTHIRA VATHA SURONITHAM PATIENTS - LAB INVESTIGATIONS

<table>
<thead>
<tr>
<th>S.NO</th>
<th>IP NO</th>
<th>AGE/SEX</th>
<th>SUGAR</th>
<th>CHOLESTEROL</th>
<th>URIC ACID</th>
<th>UREA</th>
<th>CREATININE</th>
<th>SGOT</th>
<th>SGPT</th>
<th>ALP</th>
<th>PROTEIN</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>F</td>
<td>PP</td>
<td>TOTAL</td>
<td>HDL</td>
<td>LDL</td>
<td>VLDL</td>
<td>TGL</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>3832</td>
<td>52/F</td>
<td>88</td>
<td>96</td>
<td>189</td>
<td>34</td>
<td>129</td>
<td>26</td>
<td>129</td>
<td>5.9</td>
<td>18</td>
</tr>
<tr>
<td>2</td>
<td>4879</td>
<td>41/M</td>
<td>78</td>
<td>146</td>
<td>198</td>
<td>35</td>
<td>123</td>
<td>40</td>
<td>201</td>
<td>4</td>
<td>22</td>
</tr>
<tr>
<td>3</td>
<td>3931</td>
<td>56/F</td>
<td>94</td>
<td>133</td>
<td>163</td>
<td>31</td>
<td>131</td>
<td>21</td>
<td>108</td>
<td>5</td>
<td>17</td>
</tr>
<tr>
<td>4</td>
<td>3924</td>
<td>45/F</td>
<td>86</td>
<td>198</td>
<td>152</td>
<td>30</td>
<td>51</td>
<td>71</td>
<td>411</td>
<td>4.7</td>
<td>14</td>
</tr>
<tr>
<td>5</td>
<td>3849</td>
<td>24/F</td>
<td>68</td>
<td>127</td>
<td>178</td>
<td>28</td>
<td>135</td>
<td>52</td>
<td>125</td>
<td>5.2</td>
<td>14</td>
</tr>
<tr>
<td>6</td>
<td>3871</td>
<td>57/F</td>
<td>95</td>
<td>112</td>
<td>185</td>
<td>32</td>
<td>126</td>
<td>21</td>
<td>105</td>
<td>38</td>
<td>21</td>
</tr>
<tr>
<td>7</td>
<td>3954</td>
<td>52/F</td>
<td>76</td>
<td>104</td>
<td>112</td>
<td>30</td>
<td>62</td>
<td>26</td>
<td>131</td>
<td>5.5</td>
<td>15</td>
</tr>
<tr>
<td>8</td>
<td>4001</td>
<td>47/F</td>
<td>100</td>
<td>132</td>
<td>161</td>
<td>30</td>
<td>90</td>
<td>42</td>
<td>212</td>
<td>6</td>
<td>20</td>
</tr>
<tr>
<td>9</td>
<td>3998</td>
<td>52/F</td>
<td>92</td>
<td>135</td>
<td>192</td>
<td>22</td>
<td>52</td>
<td>23</td>
<td>116</td>
<td>3</td>
<td>15</td>
</tr>
<tr>
<td>10</td>
<td>4980</td>
<td>40/M</td>
<td>92</td>
<td>107</td>
<td>136</td>
<td>30</td>
<td>52</td>
<td>24</td>
<td>121</td>
<td>4.9</td>
<td>24</td>
</tr>
<tr>
<td>11</td>
<td>4010</td>
<td>40/F</td>
<td>87</td>
<td>106</td>
<td>161</td>
<td>30</td>
<td>102</td>
<td>36</td>
<td>182</td>
<td>5.2</td>
<td>16</td>
</tr>
<tr>
<td>12</td>
<td>5018</td>
<td>23/M</td>
<td>98</td>
<td>106</td>
<td>90</td>
<td>22</td>
<td>50</td>
<td>15</td>
<td>77</td>
<td>6</td>
<td>14</td>
</tr>
<tr>
<td>13</td>
<td>4031</td>
<td>50/F</td>
<td>90</td>
<td>125</td>
<td>154</td>
<td>34</td>
<td>92</td>
<td>23</td>
<td>116</td>
<td>4.2</td>
<td>14</td>
</tr>
<tr>
<td>14</td>
<td>4032</td>
<td>60/F</td>
<td>97</td>
<td>108</td>
<td>154</td>
<td>24</td>
<td>106</td>
<td>16</td>
<td>83</td>
<td>4.5</td>
<td>25</td>
</tr>
<tr>
<td>15</td>
<td>5019</td>
<td>42/M</td>
<td>87</td>
<td>101</td>
<td>141</td>
<td>30</td>
<td>124</td>
<td>14</td>
<td>70</td>
<td>4.3</td>
<td>14</td>
</tr>
<tr>
<td>16</td>
<td>4084</td>
<td>42/F</td>
<td>105</td>
<td>134</td>
<td>169</td>
<td>34</td>
<td>119</td>
<td>21</td>
<td>138</td>
<td>3</td>
<td>17</td>
</tr>
<tr>
<td>17</td>
<td>4057</td>
<td>56/F</td>
<td>107</td>
<td>140</td>
<td>162</td>
<td>30</td>
<td>110</td>
<td>25</td>
<td>128</td>
<td>32</td>
<td>20</td>
</tr>
<tr>
<td>18</td>
<td>4117</td>
<td>29/F</td>
<td>86</td>
<td>107</td>
<td>169</td>
<td>30</td>
<td>125</td>
<td>12</td>
<td>61</td>
<td>6.4</td>
<td>24</td>
</tr>
<tr>
<td>19</td>
<td>4090</td>
<td>49/F</td>
<td>79</td>
<td>134</td>
<td>226</td>
<td>45</td>
<td>151</td>
<td>36</td>
<td>184</td>
<td>52</td>
<td>15</td>
</tr>
<tr>
<td>20</td>
<td>4098</td>
<td>36/F</td>
<td>88</td>
<td>102</td>
<td>149</td>
<td>30</td>
<td>98</td>
<td>23</td>
<td>117</td>
<td>4.1</td>
<td>16</td>
</tr>
<tr>
<td>S.NO</td>
<td>IP NO</td>
<td>AGE/SEX</td>
<td>SUGAR</td>
<td>CHOLESTEROL</td>
<td>URIC ACID</td>
<td>UREA</td>
<td>CREATININE</td>
<td>SGOT</td>
<td>SGPT</td>
<td>ALP</td>
<td>PROTEIN</td>
</tr>
<tr>
<td>------</td>
<td>-------</td>
<td>---------</td>
<td>-------</td>
<td>-------------</td>
<td>-----------</td>
<td>------</td>
<td>------------</td>
<td>------</td>
<td>------</td>
<td>-----</td>
<td>---------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>F</td>
<td>PP</td>
<td>TOTAL</td>
<td>HDL</td>
<td>LDL</td>
<td>VLDL</td>
<td>TGL</td>
<td></td>
<td></td>
</tr>
<tr>
<td>21</td>
<td>4081</td>
<td>39/F</td>
<td>115</td>
<td>164</td>
<td>179</td>
<td>38</td>
<td>102</td>
<td>19</td>
<td>95</td>
<td>7.5</td>
<td>14</td>
</tr>
<tr>
<td>22</td>
<td>4136</td>
<td>54/F</td>
<td>100</td>
<td>127</td>
<td>180</td>
<td>36</td>
<td>121</td>
<td>26</td>
<td>132</td>
<td>5.3</td>
<td>20</td>
</tr>
<tr>
<td>23</td>
<td>4111</td>
<td>39/F</td>
<td>116</td>
<td>163</td>
<td>137</td>
<td>30</td>
<td>134</td>
<td>17</td>
<td>85</td>
<td>3.4</td>
<td>15</td>
</tr>
<tr>
<td>24</td>
<td>4081</td>
<td>35/F</td>
<td>102</td>
<td>135</td>
<td>189</td>
<td>39</td>
<td>110</td>
<td>40</td>
<td>135</td>
<td>35</td>
<td>14</td>
</tr>
<tr>
<td>25</td>
<td>4080</td>
<td>33/F</td>
<td>84</td>
<td>111</td>
<td>102</td>
<td>17</td>
<td>67</td>
<td>44</td>
<td>221</td>
<td>3</td>
<td>15</td>
</tr>
<tr>
<td>26</td>
<td>4166</td>
<td>25/F</td>
<td>94</td>
<td>125</td>
<td>105</td>
<td>26</td>
<td>52</td>
<td>16</td>
<td>80</td>
<td>3.7</td>
<td>14</td>
</tr>
<tr>
<td>27</td>
<td>4173</td>
<td>46/F</td>
<td>133</td>
<td>152</td>
<td>173</td>
<td>34</td>
<td>137</td>
<td>40</td>
<td>197</td>
<td>5</td>
<td>17</td>
</tr>
<tr>
<td>28</td>
<td>4183</td>
<td>53/F</td>
<td>93</td>
<td>103</td>
<td>117</td>
<td>29</td>
<td>64</td>
<td>33</td>
<td>165</td>
<td>3</td>
<td>14</td>
</tr>
<tr>
<td>29</td>
<td>4098</td>
<td>40/F</td>
<td>96</td>
<td>126</td>
<td>177</td>
<td>34</td>
<td>80</td>
<td>28</td>
<td>144</td>
<td>5</td>
<td>14</td>
</tr>
<tr>
<td>30</td>
<td>4179</td>
<td>57/F</td>
<td>84</td>
<td>110</td>
<td>145</td>
<td>41</td>
<td>78</td>
<td>22</td>
<td>110</td>
<td>4</td>
<td>26</td>
</tr>
<tr>
<td>31</td>
<td>5118</td>
<td>47/M</td>
<td>84</td>
<td>129</td>
<td>140</td>
<td>40</td>
<td>121</td>
<td>36</td>
<td>130</td>
<td>4.2</td>
<td>14</td>
</tr>
<tr>
<td>32</td>
<td>4249</td>
<td>50/F</td>
<td>102</td>
<td>130</td>
<td>200</td>
<td>35</td>
<td>82</td>
<td>23</td>
<td>115</td>
<td>5.7</td>
<td>23</td>
</tr>
<tr>
<td>33</td>
<td>4253</td>
<td>37/F</td>
<td>92</td>
<td>108</td>
<td>143</td>
<td>33</td>
<td>77</td>
<td>20</td>
<td>100</td>
<td>3.2</td>
<td>14</td>
</tr>
<tr>
<td>34</td>
<td>4259</td>
<td>52/F</td>
<td>80</td>
<td>104</td>
<td>121</td>
<td>28</td>
<td>66</td>
<td>32</td>
<td>164</td>
<td>3.2</td>
<td>14</td>
</tr>
<tr>
<td>35</td>
<td>4302</td>
<td>42/F</td>
<td>99</td>
<td>111</td>
<td>220</td>
<td>42</td>
<td>110</td>
<td>37</td>
<td>189</td>
<td>4.1</td>
<td>16</td>
</tr>
<tr>
<td>36</td>
<td>4298</td>
<td>36/F</td>
<td>82</td>
<td>132</td>
<td>135</td>
<td>25</td>
<td>92</td>
<td>18</td>
<td>110</td>
<td>3</td>
<td>17</td>
</tr>
<tr>
<td>37</td>
<td>4289</td>
<td>50/F</td>
<td>81</td>
<td>101</td>
<td>180</td>
<td>34</td>
<td>79</td>
<td>14</td>
<td>74</td>
<td>3.9</td>
<td>15</td>
</tr>
<tr>
<td>38</td>
<td>5279</td>
<td>19/M</td>
<td>89</td>
<td>121</td>
<td>155</td>
<td>31</td>
<td>75</td>
<td>22</td>
<td>110</td>
<td>3.9</td>
<td>15</td>
</tr>
<tr>
<td>39</td>
<td>4359</td>
<td>42/F</td>
<td>107</td>
<td>120</td>
<td>125</td>
<td>33</td>
<td>75</td>
<td>18</td>
<td>94</td>
<td>6.4</td>
<td>21</td>
</tr>
<tr>
<td>40</td>
<td>4379</td>
<td>52/F</td>
<td>85</td>
<td>103</td>
<td>154</td>
<td>35</td>
<td>99</td>
<td>20</td>
<td>115</td>
<td>4</td>
<td>26</td>
</tr>
<tr>
<td>S.NO</td>
<td>OP/IP NO</td>
<td>AGE/SEX</td>
<td>PH</td>
<td>SPECIFIC GRAVITY</td>
<td>ALBUMIN</td>
<td>SUGAR</td>
<td>ACETONE</td>
<td>BILE SALT</td>
<td>BILE PIGMENT</td>
<td>UROBILINOGEN</td>
<td>OCCULT BLOOD</td>
</tr>
<tr>
<td>------</td>
<td>----------</td>
<td>---------</td>
<td>----</td>
<td>------------------</td>
<td>---------</td>
<td>-------</td>
<td>---------</td>
<td>-----------</td>
<td>-------------</td>
<td>--------------</td>
<td>-------------</td>
</tr>
<tr>
<td>1</td>
<td>3832</td>
<td>52/F</td>
<td>5.5</td>
<td>1.010</td>
<td>NIL</td>
<td>NIL</td>
<td>ABSENT</td>
<td>NIL</td>
<td>NEGATIVE</td>
<td>NORMAL</td>
<td>ABSENT</td>
</tr>
<tr>
<td>2</td>
<td>4879</td>
<td>41/M</td>
<td>6.8</td>
<td>1.010</td>
<td>NIL</td>
<td>NIL</td>
<td>ABSENT</td>
<td>NIL</td>
<td>NEGATIVE</td>
<td>NORMAL</td>
<td>ABSENT</td>
</tr>
<tr>
<td>3</td>
<td>3931</td>
<td>56/F</td>
<td>5.8</td>
<td>1.010</td>
<td>NIL</td>
<td>NIL</td>
<td>ABSENT</td>
<td>NIL</td>
<td>NEGATIVE</td>
<td>NORMAL</td>
<td>ABSENT</td>
</tr>
<tr>
<td>4</td>
<td>3924</td>
<td>45/F</td>
<td>5.5</td>
<td>1.014</td>
<td>NIL</td>
<td>NIL</td>
<td>ABSENT</td>
<td>NIL</td>
<td>NEGATIVE</td>
<td>NORMAL</td>
<td>ABSENT</td>
</tr>
<tr>
<td>5</td>
<td>3849</td>
<td>24/F</td>
<td>6.9</td>
<td>1.012</td>
<td>NIL</td>
<td>NIL</td>
<td>ABSENT</td>
<td>NIL</td>
<td>NEGATIVE</td>
<td>NORMAL</td>
<td>ABSENT</td>
</tr>
<tr>
<td>6</td>
<td>3871</td>
<td>57/F</td>
<td>5.8</td>
<td>1.012</td>
<td>NIL</td>
<td>NIL</td>
<td>ABSENT</td>
<td>NIL</td>
<td>NEGATIVE</td>
<td>NORMAL</td>
<td>ABSENT</td>
</tr>
<tr>
<td>7</td>
<td>3954</td>
<td>52/F</td>
<td>5.4</td>
<td>1.016</td>
<td>NIL</td>
<td>NIL</td>
<td>ABSENT</td>
<td>NIL</td>
<td>NEGATIVE</td>
<td>NORMAL</td>
<td>ABSENT</td>
</tr>
<tr>
<td>8</td>
<td>4001</td>
<td>47/F</td>
<td>5.6</td>
<td>1.020</td>
<td>NIL</td>
<td>NIL</td>
<td>ABSENT</td>
<td>NIL</td>
<td>NEGATIVE</td>
<td>NORMAL</td>
<td>ABSENT</td>
</tr>
<tr>
<td>9</td>
<td>3998</td>
<td>52/F</td>
<td>5.5</td>
<td>1.030</td>
<td>NIL</td>
<td>NIL</td>
<td>ABSENT</td>
<td>NIL</td>
<td>NEGATIVE</td>
<td>NORMAL</td>
<td>ABSENT</td>
</tr>
<tr>
<td>10</td>
<td>4980</td>
<td>40/M</td>
<td>5.6</td>
<td>1.012</td>
<td>NIL</td>
<td>NIL</td>
<td>ABSENT</td>
<td>NIL</td>
<td>NEGATIVE</td>
<td>NORMAL</td>
<td>ABSENT</td>
</tr>
<tr>
<td>11</td>
<td>4010</td>
<td>40/F</td>
<td>5.4</td>
<td>1.020</td>
<td>NIL</td>
<td>NIL</td>
<td>ABSENT</td>
<td>NIL</td>
<td>NEGATIVE</td>
<td>NORMAL</td>
<td>ABSENT</td>
</tr>
<tr>
<td>12</td>
<td>5018</td>
<td>23/M</td>
<td>5.5</td>
<td>1.030</td>
<td>NIL</td>
<td>NIL</td>
<td>ABSENT</td>
<td>NIL</td>
<td>NEGATIVE</td>
<td>NORMAL</td>
<td>ABSENT</td>
</tr>
<tr>
<td>13</td>
<td>4031</td>
<td>50/F</td>
<td>6.7</td>
<td>1.020</td>
<td>NIL</td>
<td>NIL</td>
<td>ABSENT</td>
<td>NIL</td>
<td>NEGATIVE</td>
<td>NORMAL</td>
<td>ABSENT</td>
</tr>
<tr>
<td>14</td>
<td>4032</td>
<td>60/F</td>
<td>5.6</td>
<td>1.020</td>
<td>NIL</td>
<td>NIL</td>
<td>ABSENT</td>
<td>NIL</td>
<td>NEGATIVE</td>
<td>NORMAL</td>
<td>ABSENT</td>
</tr>
<tr>
<td>15</td>
<td>5019</td>
<td>42/M</td>
<td>6.5</td>
<td>1.014</td>
<td>NIL</td>
<td>NIL</td>
<td>ABSENT</td>
<td>NIL</td>
<td>NEGATIVE</td>
<td>NORMAL</td>
<td>ABSENT</td>
</tr>
<tr>
<td>16</td>
<td>4084</td>
<td>42/F</td>
<td>5.5</td>
<td>1.020</td>
<td>NIL</td>
<td>NIL</td>
<td>ABSENT</td>
<td>NIL</td>
<td>NEGATIVE</td>
<td>NORMAL</td>
<td>ABSENT</td>
</tr>
<tr>
<td>17</td>
<td>4057</td>
<td>56/F</td>
<td>5.3</td>
<td>1.012</td>
<td>NIL</td>
<td>NIL</td>
<td>ABSENT</td>
<td>NIL</td>
<td>NEGATIVE</td>
<td>NORMAL</td>
<td>ABSENT</td>
</tr>
<tr>
<td>18</td>
<td>4117</td>
<td>29/F</td>
<td>5.5</td>
<td>1.026</td>
<td>NIL</td>
<td>NIL</td>
<td>ABSENT</td>
<td>NIL</td>
<td>NEGATIVE</td>
<td>NORMAL</td>
<td>ABSENT</td>
</tr>
<tr>
<td>19</td>
<td>4090</td>
<td>49/F</td>
<td>6</td>
<td>1.006</td>
<td>NIL</td>
<td>NIL</td>
<td>ABSENT</td>
<td>NIL</td>
<td>NEGATIVE</td>
<td>NORMAL</td>
<td>ABSENT</td>
</tr>
<tr>
<td>20</td>
<td>4098</td>
<td>36/F</td>
<td>6.3</td>
<td>1.016</td>
<td>NIL</td>
<td>NIL</td>
<td>ABSENT</td>
<td>NIL</td>
<td>NEGATIVE</td>
<td>NORMAL</td>
<td>ABSENT</td>
</tr>
</tbody>
</table>
TABLE 6: UTHIRA VATHA SURONITHAM PATIENTS - LAB INVESTIGATIONS

<table>
<thead>
<tr>
<th>S.NO</th>
<th>OP/IP NO</th>
<th>AGE/SEX</th>
<th>PH</th>
<th>SPECIFIC GRAVITY</th>
<th>ALBUMIN</th>
<th>SUGAR</th>
<th>ACETONE</th>
<th>BILE SALT</th>
<th>BILE PIGMENT</th>
<th>UROBILINOGEN</th>
<th>OCCULT BLOOD</th>
<th>DEPOSITS</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>PUS</td>
</tr>
<tr>
<td>21</td>
<td>4081</td>
<td>39/F</td>
<td>5.6</td>
<td>1.016</td>
<td>NIL</td>
<td>NIL</td>
<td>ABSENT</td>
<td>NIL</td>
<td>NEGATIVE</td>
<td>NORMAL</td>
<td>ABSENT</td>
<td>2-4</td>
</tr>
<tr>
<td>22</td>
<td>4136</td>
<td>54/F</td>
<td>5.5</td>
<td>1.012</td>
<td>NIL</td>
<td>NIL</td>
<td>ABSENT</td>
<td>NIL</td>
<td>NEGATIVE</td>
<td>NORMAL</td>
<td>ABSENT</td>
<td>1-2</td>
</tr>
<tr>
<td>23</td>
<td>4111</td>
<td>39/F</td>
<td>6.3</td>
<td>1.012</td>
<td>NIL</td>
<td>NIL</td>
<td>ABSENT</td>
<td>NIL</td>
<td>NEGATIVE</td>
<td>NORMAL</td>
<td>ABSENT</td>
<td>1-2</td>
</tr>
<tr>
<td>24</td>
<td>4081</td>
<td>35/F</td>
<td>6.3</td>
<td>1.008</td>
<td>NIL</td>
<td>NIL</td>
<td>ABSENT</td>
<td>NIL</td>
<td>NEGATIVE</td>
<td>NORMAL</td>
<td>ABSENT</td>
<td>2-4</td>
</tr>
<tr>
<td>25</td>
<td>4080</td>
<td>33/F</td>
<td>6.9</td>
<td>1.008</td>
<td>NIL</td>
<td>NIL</td>
<td>ABSENT</td>
<td>NIL</td>
<td>NEGATIVE</td>
<td>NORMAL</td>
<td>ABSENT</td>
<td>4-5</td>
</tr>
<tr>
<td>26</td>
<td>4166</td>
<td>25/F</td>
<td>7.3</td>
<td>1.012</td>
<td>NIL</td>
<td>NIL</td>
<td>ABSENT</td>
<td>NIL</td>
<td>NEGATIVE</td>
<td>NORMAL</td>
<td>ABSENT</td>
<td>4-5</td>
</tr>
<tr>
<td>27</td>
<td>4173</td>
<td>46/F</td>
<td>6.5</td>
<td>1.012</td>
<td>NIL</td>
<td>NIL</td>
<td>ABSENT</td>
<td>NIL</td>
<td>NEGATIVE</td>
<td>NORMAL</td>
<td>ABSENT</td>
<td>1-2</td>
</tr>
<tr>
<td>28</td>
<td>4183</td>
<td>53/F</td>
<td>5.6</td>
<td>1.010</td>
<td>NIL</td>
<td>NIL</td>
<td>ABSENT</td>
<td>NIL</td>
<td>NEGATIVE</td>
<td>NORMAL</td>
<td>ABSENT</td>
<td>1-2</td>
</tr>
<tr>
<td>29</td>
<td>4098</td>
<td>40/F</td>
<td>6.2</td>
<td>1.014</td>
<td>NIL</td>
<td>NIL</td>
<td>ABSENT</td>
<td>NIL</td>
<td>NEGATIVE</td>
<td>NORMAL</td>
<td>ABSENT</td>
<td>3-4</td>
</tr>
<tr>
<td>30</td>
<td>4179</td>
<td>57/F</td>
<td>6.5</td>
<td>1.018</td>
<td>NIL</td>
<td>NIL</td>
<td>ABSENT</td>
<td>NIL</td>
<td>NEGATIVE</td>
<td>NORMAL</td>
<td>ABSENT</td>
<td>2-3</td>
</tr>
<tr>
<td>31</td>
<td>5118</td>
<td>47/M</td>
<td>6.6</td>
<td>1.010</td>
<td>NIL</td>
<td>NIL</td>
<td>ABSENT</td>
<td>NIL</td>
<td>NEGATIVE</td>
<td>NORMAL</td>
<td>ABSENT</td>
<td>2-4</td>
</tr>
<tr>
<td>32</td>
<td>4249</td>
<td>50/F</td>
<td>6.2</td>
<td>1.010</td>
<td>NIL</td>
<td>NIL</td>
<td>ABSENT</td>
<td>NIL</td>
<td>NEGATIVE</td>
<td>NORMAL</td>
<td>ABSENT</td>
<td>1-2</td>
</tr>
<tr>
<td>33</td>
<td>4253</td>
<td>37/F</td>
<td>5.7</td>
<td>1.008</td>
<td>NIL</td>
<td>NIL</td>
<td>ABSENT</td>
<td>NIL</td>
<td>NEGATIVE</td>
<td>NORMAL</td>
<td>ABSENT</td>
<td>8-10</td>
</tr>
<tr>
<td>34</td>
<td>4259</td>
<td>52/F</td>
<td>6.9</td>
<td>1.006</td>
<td>NIL</td>
<td>NIL</td>
<td>ABSENT</td>
<td>NIL</td>
<td>NEGATIVE</td>
<td>NORMAL</td>
<td>ABSENT</td>
<td>1-2</td>
</tr>
<tr>
<td>35</td>
<td>4302</td>
<td>42/F</td>
<td>5.8</td>
<td>1.008</td>
<td>NIL</td>
<td>NIL</td>
<td>ABSENT</td>
<td>NIL</td>
<td>NEGATIVE</td>
<td>NORMAL</td>
<td>ABSENT</td>
<td>2-4</td>
</tr>
<tr>
<td>36</td>
<td>4298</td>
<td>36/F</td>
<td>6.4</td>
<td>1.010</td>
<td>NIL</td>
<td>NIL</td>
<td>ABSENT</td>
<td>NIL</td>
<td>NEGATIVE</td>
<td>NORMAL</td>
<td>ABSENT</td>
<td>1-2</td>
</tr>
<tr>
<td>37</td>
<td>4289</td>
<td>50/F</td>
<td>6.2</td>
<td>1.012</td>
<td>NIL</td>
<td>NIL</td>
<td>ABSENT</td>
<td>NIL</td>
<td>NEGATIVE</td>
<td>NORMAL</td>
<td>ABSENT</td>
<td>4-5</td>
</tr>
<tr>
<td>38</td>
<td>5279</td>
<td>19/M</td>
<td>5.3</td>
<td>1.012</td>
<td>NIL</td>
<td>NIL</td>
<td>ABSENT</td>
<td>NIL</td>
<td>NEGATIVE</td>
<td>NORMAL</td>
<td>ABSENT</td>
<td>4-8</td>
</tr>
<tr>
<td>39</td>
<td>4359</td>
<td>42/F</td>
<td>6.2</td>
<td>1.016</td>
<td>NIL</td>
<td>NIL</td>
<td>ABSENT</td>
<td>NIL</td>
<td>NEGATIVE</td>
<td>NORMAL</td>
<td>ABSENT</td>
<td>4-5</td>
</tr>
<tr>
<td>40</td>
<td>4379</td>
<td>52/F</td>
<td>6.1</td>
<td>1.012</td>
<td>NIL</td>
<td>NIL</td>
<td>ABSENT</td>
<td>NIL</td>
<td>NEGATIVE</td>
<td>NORMAL</td>
<td>ABSENT</td>
<td>4-5</td>
</tr>
</tbody>
</table>

166
<table>
<thead>
<tr>
<th>S.NO</th>
<th>OP/IP NO</th>
<th>AGE/SEX</th>
<th>COLOUR(NIRAM)</th>
<th>SPECIFIC GRAVITY(AEDAI)</th>
<th>ODOUR(MANAM)</th>
<th>FROTH(NURAI)</th>
<th>ENJAL VOLUME</th>
<th>DEPOSITS(PUS,EPI CELL)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>3832</td>
<td>52/F</td>
<td>PALE YELLOW</td>
<td>1.010</td>
<td>AROMATIC</td>
<td>PRESENT</td>
<td>1.3L</td>
<td>10-15</td>
</tr>
<tr>
<td>2</td>
<td>4879</td>
<td>41/M</td>
<td>PALE YELLOW</td>
<td>1.010</td>
<td>AROMATIC</td>
<td>CLEAR</td>
<td>1.5L</td>
<td>2-3</td>
</tr>
<tr>
<td>3</td>
<td>3931</td>
<td>56/F</td>
<td>PALE YELLOW</td>
<td>1.010</td>
<td>AROMATIC</td>
<td>CLEAR</td>
<td>1.2L</td>
<td>2-3</td>
</tr>
<tr>
<td>4</td>
<td>3924</td>
<td>45/F</td>
<td>PALE YELLOW</td>
<td>1.014</td>
<td>AROMATIC</td>
<td>CLEAR</td>
<td>1.2L</td>
<td>1-2</td>
</tr>
<tr>
<td>5</td>
<td>3849</td>
<td>24/F</td>
<td>PALE YELLOW</td>
<td>1.012</td>
<td>AROMATIC</td>
<td>CLEAR</td>
<td>1.5L</td>
<td>2-4</td>
</tr>
<tr>
<td>6</td>
<td>3871</td>
<td>57/F</td>
<td>COLOURLESS</td>
<td>1.012</td>
<td>AROMATIC</td>
<td>CLEAR</td>
<td>1.4L</td>
<td>2-4</td>
</tr>
<tr>
<td>7</td>
<td>3954</td>
<td>52/F</td>
<td>PALE YELLOW</td>
<td>1.016</td>
<td>AMMONIAL</td>
<td>CLEAR</td>
<td>1.3L</td>
<td>3-6</td>
</tr>
<tr>
<td>8</td>
<td>4001</td>
<td>47/F</td>
<td>DARK YELLOW</td>
<td>1.020</td>
<td>AROMATIC</td>
<td>CLEAR</td>
<td>1.3L</td>
<td>3-4</td>
</tr>
<tr>
<td>9</td>
<td>3998</td>
<td>52/F</td>
<td>PALE YELLOW</td>
<td>1.030</td>
<td>AROMATIC</td>
<td>CLEAR</td>
<td>1.4L</td>
<td>3-4</td>
</tr>
<tr>
<td>10</td>
<td>4980</td>
<td>40/M</td>
<td>PALE YELLOW</td>
<td>1.012</td>
<td>AROMATIC</td>
<td>CLEAR</td>
<td>1.5L</td>
<td>2-3</td>
</tr>
<tr>
<td>11</td>
<td>4010</td>
<td>40/F</td>
<td>PALE YELLOW</td>
<td>1.020</td>
<td>AROMATIC</td>
<td>CLEAR</td>
<td>1.3L</td>
<td>2-4</td>
</tr>
<tr>
<td>12</td>
<td>5018</td>
<td>23/M</td>
<td>PALE YELLOW</td>
<td>1.030</td>
<td>AROMATIC</td>
<td>CLEAR</td>
<td>1.4L</td>
<td>2-3</td>
</tr>
<tr>
<td>13</td>
<td>4031</td>
<td>50/F</td>
<td>PALE YELLOW</td>
<td>1.020</td>
<td>AROMATIC</td>
<td>CLEAR</td>
<td>1.2L</td>
<td>2-6</td>
</tr>
<tr>
<td>14</td>
<td>4032</td>
<td>60/F</td>
<td>PALE YELLOW</td>
<td>1.020</td>
<td>AROMATIC</td>
<td>CLEAR</td>
<td>1.3L</td>
<td>1-2</td>
</tr>
<tr>
<td>15</td>
<td>5019</td>
<td>42/M</td>
<td>PALE YELLOW</td>
<td>1.014</td>
<td>AROMATIC</td>
<td>CLEAR</td>
<td>1.6L</td>
<td>2-4</td>
</tr>
<tr>
<td>16</td>
<td>4084</td>
<td>42/F</td>
<td>PALE YELLOW</td>
<td>1.020</td>
<td>AROMATIC</td>
<td>CLEAR</td>
<td>1.1L</td>
<td>1-2</td>
</tr>
<tr>
<td>17</td>
<td>4057</td>
<td>56/F</td>
<td>COLOURLESS</td>
<td>1.012</td>
<td>AROMATIC</td>
<td>CLEAR</td>
<td>1.3L</td>
<td>1-2</td>
</tr>
<tr>
<td>18</td>
<td>4117</td>
<td>29/F</td>
<td>DARK YELLOW</td>
<td>1.026</td>
<td>AMMONIAL</td>
<td>CLEAR</td>
<td>1.6L</td>
<td>2-3</td>
</tr>
<tr>
<td>19</td>
<td>4090</td>
<td>49/F</td>
<td>PALE YELLOW</td>
<td>1.006</td>
<td>AROMATIC</td>
<td>CLEAR</td>
<td>1.2L</td>
<td>3-6</td>
</tr>
<tr>
<td>20</td>
<td>4098</td>
<td>36/F</td>
<td>DARK YELLOW</td>
<td>1.016</td>
<td>AROMATIC</td>
<td>CLEAR</td>
<td>1.4L</td>
<td>1-2</td>
</tr>
<tr>
<td>S.NO</td>
<td>OP/IP NO</td>
<td>AGE/SEX</td>
<td>COLOUR(NIRAM)</td>
<td>SPECIFIC GRAVITY(AEDAI)</td>
<td>ODOUR(MANAM)</td>
<td>FROTH(NURAI)</td>
<td>ENJAL VOLUME</td>
<td>DEPOSITS(PUS, EPI CELL)</td>
</tr>
<tr>
<td>------</td>
<td>----------</td>
<td>---------</td>
<td>---------------</td>
<td>--------------------------</td>
<td>--------------</td>
<td>--------------</td>
<td>--------------</td>
<td>-------------------------</td>
</tr>
<tr>
<td>21</td>
<td>4081</td>
<td>39/F</td>
<td>DARK YELLOW</td>
<td>1.016</td>
<td>AROMATIC</td>
<td>CLEAR</td>
<td>1.4L</td>
<td>2-4</td>
</tr>
<tr>
<td>22</td>
<td>4136</td>
<td>54/F</td>
<td>COLOURLESS</td>
<td>1.012</td>
<td>AROMATIC</td>
<td>CLEAR</td>
<td>1.5L</td>
<td>1-2 2-4</td>
</tr>
<tr>
<td>23</td>
<td>4111</td>
<td>39/F</td>
<td>DARK YELLOW</td>
<td>1.012</td>
<td>AROMATIC</td>
<td>CLEAR</td>
<td>1.3L</td>
<td>1-2 2-4</td>
</tr>
<tr>
<td>24</td>
<td>4081</td>
<td>35/F</td>
<td>COLOURLESS</td>
<td>1.008</td>
<td>AROMATIC</td>
<td>CLEAR</td>
<td>1.4L</td>
<td>2-4</td>
</tr>
<tr>
<td>25</td>
<td>4080</td>
<td>33/F</td>
<td>PALE YELLOW</td>
<td>1.008</td>
<td>AROMATIC</td>
<td>CLEAR</td>
<td>1.2L</td>
<td>4-5 4-5</td>
</tr>
<tr>
<td>26</td>
<td>4166</td>
<td>25/F</td>
<td>PALE YELLOW</td>
<td>1.012</td>
<td>AROMATIC</td>
<td>CLEAR</td>
<td>1.4L</td>
<td>4-5 8-10</td>
</tr>
<tr>
<td>27</td>
<td>4173</td>
<td>46/F</td>
<td>PALE YELLOW</td>
<td>1.012</td>
<td>AROMATIC</td>
<td>CLEAR</td>
<td>1.4L</td>
<td>1-2 1-2</td>
</tr>
<tr>
<td>28</td>
<td>4183</td>
<td>53/F</td>
<td>PALE YELLOW</td>
<td>1.010</td>
<td>AROMATIC</td>
<td>CLEAR</td>
<td>1.2L</td>
<td>1-2 2-3</td>
</tr>
<tr>
<td>29</td>
<td>4098</td>
<td>40/F</td>
<td>PALE YELLOW</td>
<td>1.014</td>
<td>AROMATIC</td>
<td>CLEAR</td>
<td>1.3L</td>
<td>3-4 PLENTY</td>
</tr>
<tr>
<td>30</td>
<td>4179</td>
<td>57/F</td>
<td>DARK YELLOW</td>
<td>1.018</td>
<td>AROMATIC</td>
<td>CLEAR</td>
<td>1.4L</td>
<td>2-3 1-2</td>
</tr>
<tr>
<td>31</td>
<td>5118</td>
<td>47/M</td>
<td>PALE YELLOW</td>
<td>1.010</td>
<td>AROMATIC</td>
<td>CLEAR</td>
<td>1.2L</td>
<td>2-4 2-4</td>
</tr>
<tr>
<td>32</td>
<td>4249</td>
<td>50/F</td>
<td>PALE YELLOW</td>
<td>1.010</td>
<td>AROMATIC</td>
<td>CLEAR</td>
<td>1.4L</td>
<td>1-2 2-4</td>
</tr>
<tr>
<td>33</td>
<td>4253</td>
<td>37/F</td>
<td>PALE YELLOW</td>
<td>1.008</td>
<td>AROMATIC</td>
<td>CLEAR</td>
<td>1.4L</td>
<td>8-10 8-10</td>
</tr>
<tr>
<td>34</td>
<td>4259</td>
<td>52/F</td>
<td>PALE YELLOW</td>
<td>1.006</td>
<td>AROMATIC</td>
<td>CLEAR</td>
<td>1.3L</td>
<td>1-2 2-4</td>
</tr>
<tr>
<td>35</td>
<td>4302</td>
<td>42/F</td>
<td>PALE YELLOW</td>
<td>1.008</td>
<td>AROMATIC</td>
<td>CLEAR</td>
<td>1.5L</td>
<td>2-4 2-4</td>
</tr>
<tr>
<td>36</td>
<td>4298</td>
<td>36/F</td>
<td>PALE YELLOW</td>
<td>1.010</td>
<td>AROMATIC</td>
<td>CLEAR</td>
<td>1.2L</td>
<td>1-2 3-5</td>
</tr>
<tr>
<td>37</td>
<td>4289</td>
<td>50/F</td>
<td>PALE YELLOW</td>
<td>1.012</td>
<td>AROMATIC</td>
<td>CLEAR</td>
<td>1.3L</td>
<td>4-5 5-10</td>
</tr>
<tr>
<td>38</td>
<td>5279</td>
<td>19/M</td>
<td>DARK YELLOW</td>
<td>1.012</td>
<td>AROMATIC</td>
<td>CLEAR</td>
<td>1.4L</td>
<td>4-8 3-6</td>
</tr>
<tr>
<td>39</td>
<td>4359</td>
<td>42/F</td>
<td>PALE YELLOW</td>
<td>1.016</td>
<td>AROMATIC</td>
<td>CLEAR</td>
<td>1.3L</td>
<td>4-5 4-6</td>
</tr>
<tr>
<td>40</td>
<td>4379</td>
<td>52/F</td>
<td>PALE YELLOW</td>
<td>1.012</td>
<td>AROMATIC</td>
<td>CLEAR</td>
<td>1.4L</td>
<td>2-3 5-6</td>
</tr>
<tr>
<td>S.NO</td>
<td>OP/IP NO</td>
<td>AGE/SEX</td>
<td>COLOUR(NIRAM)</td>
<td>SPECIFIC GRAVITY(AEDAI)</td>
<td>ODOR(MANAM)</td>
<td>FROTH(NURAI)</td>
<td>ENJAL</td>
<td></td>
</tr>
<tr>
<td>------</td>
<td>----------</td>
<td>---------</td>
<td>---------------</td>
<td>-------------------------</td>
<td>-------------</td>
<td>--------------</td>
<td>-------</td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>3832</td>
<td>52/F</td>
<td>PALE YELLOW</td>
<td>1.010</td>
<td>AROMATIC</td>
<td>PRESENT</td>
<td>1.4L</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>4879</td>
<td>41/M</td>
<td>PALE YELLOW</td>
<td>1.012</td>
<td>AROMATIC</td>
<td>CLEAR</td>
<td>1.3L</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>3931</td>
<td>56/F</td>
<td>PALE YELLOW</td>
<td>1.014</td>
<td>AROMATIC</td>
<td>CLEAR</td>
<td>1.3L</td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>3924</td>
<td>45/F</td>
<td>PALE YELLOW</td>
<td>1.014</td>
<td>AROMATIC</td>
<td>CLEAR</td>
<td>1.2L</td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>3849</td>
<td>24/F</td>
<td>PALE YELLOW</td>
<td>1.012</td>
<td>AROMATIC</td>
<td>CLOUDY</td>
<td>1.3L</td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>3871</td>
<td>57/F</td>
<td>PALE YELLOW</td>
<td>1.012</td>
<td>AROMATIC</td>
<td>PRESENT</td>
<td>1.3L</td>
<td></td>
</tr>
<tr>
<td>7</td>
<td>3954</td>
<td>52/F</td>
<td>PALE YELLOW</td>
<td>1.020</td>
<td>AMMONIAL</td>
<td>CLEAR</td>
<td>1.3L</td>
<td></td>
</tr>
<tr>
<td>8</td>
<td>4001</td>
<td>47/F</td>
<td>PALE YELLOW</td>
<td>1.016</td>
<td>AROMATIC</td>
<td>CLEAR</td>
<td>1.4L</td>
<td></td>
</tr>
<tr>
<td>9</td>
<td>3998</td>
<td>52/F</td>
<td>PALE YELLOW</td>
<td>1.024</td>
<td>AROMATIC</td>
<td>CLEAR</td>
<td>1.4L</td>
<td></td>
</tr>
<tr>
<td>10</td>
<td>4980</td>
<td>40/M</td>
<td>PALE YELLOW</td>
<td>1.012</td>
<td>AROMATIC</td>
<td>CLEAR</td>
<td>1.5L</td>
<td></td>
</tr>
<tr>
<td>11</td>
<td>4010</td>
<td>40/F</td>
<td>DARK YELLOW</td>
<td>1.030</td>
<td>AROMATIC</td>
<td>CLEAR</td>
<td>1.3L</td>
<td></td>
</tr>
<tr>
<td>12</td>
<td>5018</td>
<td>23/M</td>
<td>DARK YELLOW</td>
<td>1.024</td>
<td>AROMATIC</td>
<td>CLEAR</td>
<td>1.4L</td>
<td></td>
</tr>
<tr>
<td>13</td>
<td>4031</td>
<td>50/F</td>
<td>PALE YELLOW</td>
<td>1.012</td>
<td>AROMATIC</td>
<td>CLEAR</td>
<td>1.3L</td>
<td></td>
</tr>
<tr>
<td>14</td>
<td>4032</td>
<td>60/F</td>
<td>PALE YELLOW</td>
<td>1.012</td>
<td>AROMATIC</td>
<td>CLEAR</td>
<td>1.3L</td>
<td></td>
</tr>
<tr>
<td>15</td>
<td>5019</td>
<td>42/M</td>
<td>DARK YELLOW</td>
<td>1.020</td>
<td>AROMATIC</td>
<td>PRESENT</td>
<td>1.3L</td>
<td></td>
</tr>
<tr>
<td>16</td>
<td>4084</td>
<td>42/F</td>
<td>PALE YELLOW</td>
<td>1.020</td>
<td>AROMATIC</td>
<td>CLEAR</td>
<td>1.2L</td>
<td></td>
</tr>
<tr>
<td>17</td>
<td>4057</td>
<td>56/F</td>
<td>COLOURLESS</td>
<td>1.008</td>
<td>AROMATIC</td>
<td>CLEAR</td>
<td>1.3L</td>
<td></td>
</tr>
<tr>
<td>18</td>
<td>4117</td>
<td>29/F</td>
<td>DARK YELLOW</td>
<td>1.018</td>
<td>AROMATIC</td>
<td>CLEAR</td>
<td>1.3L</td>
<td></td>
</tr>
<tr>
<td>19</td>
<td>4090</td>
<td>49/F</td>
<td>PALE YELLOW</td>
<td>1.010</td>
<td>AROMATIC</td>
<td>CLEAR</td>
<td>1.4L</td>
<td></td>
</tr>
<tr>
<td>20</td>
<td>4098</td>
<td>36/F</td>
<td>DARK YELLOW</td>
<td>1.010</td>
<td>AROMATIC</td>
<td>CLEAR</td>
<td>1.3L</td>
<td></td>
</tr>
<tr>
<td>S.NO</td>
<td>OP/IP NO</td>
<td>AGE/SEX</td>
<td>COLOUR(NIRAM)</td>
<td>SPECIFIC GRAVITY(AEDAI)</td>
<td>ODOUR(MANAM)</td>
<td>FROTH(NURAI)</td>
<td>ENJAL</td>
<td></td>
</tr>
<tr>
<td>------</td>
<td>----------</td>
<td>---------</td>
<td>---------------------</td>
<td>-------------------------</td>
<td>-------------</td>
<td>--------------</td>
<td>-------</td>
<td></td>
</tr>
<tr>
<td>21</td>
<td>4081</td>
<td>39/F</td>
<td>DARK YELLOW</td>
<td>1.014</td>
<td>AROMATIC</td>
<td>CLEAR</td>
<td>1.5L</td>
<td></td>
</tr>
<tr>
<td>22</td>
<td>4136</td>
<td>54/F</td>
<td>COLOURLESS</td>
<td>1.014</td>
<td>AROMATIC</td>
<td>CLEAR</td>
<td>1.4L</td>
<td></td>
</tr>
<tr>
<td>23</td>
<td>4111</td>
<td>39/F</td>
<td>DARK YELLOW</td>
<td>1.022</td>
<td>AROMATIC</td>
<td>CLEAR</td>
<td>1.3L</td>
<td></td>
</tr>
<tr>
<td>24</td>
<td>4081</td>
<td>35/F</td>
<td>COLOURLESS</td>
<td>1.010</td>
<td>AROMATIC</td>
<td>CLEAR</td>
<td>1.4L</td>
<td></td>
</tr>
<tr>
<td>25</td>
<td>4080</td>
<td>33/F</td>
<td>PALE YELLOW</td>
<td>1.010</td>
<td>AROMATIC</td>
<td>CLEAR</td>
<td>1.5L</td>
<td></td>
</tr>
<tr>
<td>26</td>
<td>4166</td>
<td>25/F</td>
<td>PALE YELLOW</td>
<td>1.014</td>
<td>AROMATIC</td>
<td>CLEAR</td>
<td>1.6L</td>
<td></td>
</tr>
<tr>
<td>27</td>
<td>4173</td>
<td>46/F</td>
<td>PALE YELLOW</td>
<td>1.012</td>
<td>AROMATIC</td>
<td>CLEAR</td>
<td>1.2L</td>
<td></td>
</tr>
<tr>
<td>28</td>
<td>4183</td>
<td>53/F</td>
<td>PALE YELLOW</td>
<td>1.012</td>
<td>AROMATIC</td>
<td>CLEAR</td>
<td>1.3L</td>
<td></td>
</tr>
<tr>
<td>29</td>
<td>4098</td>
<td>40/F</td>
<td>PALE YELLOW</td>
<td>1.012</td>
<td>AROMATIC</td>
<td>CLEAR</td>
<td>1.5L</td>
<td></td>
</tr>
<tr>
<td>30</td>
<td>4179</td>
<td>57/F</td>
<td>PALE YELLOW</td>
<td>1.010</td>
<td>AROMATIC</td>
<td>CLEAR</td>
<td>1.2L</td>
<td></td>
</tr>
<tr>
<td>31</td>
<td>5118</td>
<td>47/M</td>
<td>PALE YELLOW</td>
<td>1.010</td>
<td>AROMATIC</td>
<td>CLEAR</td>
<td>1.3L</td>
<td></td>
</tr>
<tr>
<td>32</td>
<td>4249</td>
<td>50/F</td>
<td>PALE YELLOW</td>
<td>1.012</td>
<td>AROMATIC</td>
<td>CLEAR</td>
<td>1.3L</td>
<td></td>
</tr>
<tr>
<td>33</td>
<td>4253</td>
<td>37/F</td>
<td>PALE YELLOW</td>
<td>1.010</td>
<td>AROMATIC</td>
<td>CLEAR</td>
<td>1.4L</td>
<td></td>
</tr>
<tr>
<td>34</td>
<td>4259</td>
<td>52/F</td>
<td>PALE YELLOW</td>
<td>1.010</td>
<td>AROMATIC</td>
<td>CLEAR</td>
<td>1.5L</td>
<td></td>
</tr>
<tr>
<td>35</td>
<td>4302</td>
<td>42/F</td>
<td>PALE YELLOW</td>
<td>1.010</td>
<td>AROMATIC</td>
<td>CLEAR</td>
<td>1.4L</td>
<td></td>
</tr>
<tr>
<td>36</td>
<td>4298</td>
<td>36/F</td>
<td>PALE YELLOW</td>
<td>1.012</td>
<td>AROMATIC</td>
<td>CLEAR</td>
<td>1.2L</td>
<td></td>
</tr>
<tr>
<td>37</td>
<td>4289</td>
<td>50/F</td>
<td>PALE YELLOW</td>
<td>1.014</td>
<td>AROMATIC</td>
<td>CLEAR</td>
<td>1.3L</td>
<td></td>
</tr>
<tr>
<td>38</td>
<td>5279</td>
<td>19/M</td>
<td>DARK YELLOW</td>
<td>1.014</td>
<td>AROMATIC</td>
<td>CLEAR</td>
<td>1.5L</td>
<td></td>
</tr>
<tr>
<td>39</td>
<td>4359</td>
<td>42/F</td>
<td>PALE YELLOW</td>
<td>1.012</td>
<td>AROMATIC</td>
<td>CLEAR</td>
<td>1.5L</td>
<td></td>
</tr>
<tr>
<td>40</td>
<td>4379</td>
<td>52/F</td>
<td>PALE YELLOW</td>
<td>1.010</td>
<td>AROMATIC</td>
<td>CLEAR</td>
<td>1.4L</td>
<td></td>
</tr>
<tr>
<td>S.NO</td>
<td>OP/IP NO</td>
<td>AGE/SEX</td>
<td>COLOUR(NIRAM)</td>
<td>SPECIFIC GRAVITY(AEDAI)</td>
<td>ODOUR(MANAM)</td>
<td>FROTH(NURAI)</td>
<td>ENJAL</td>
<td></td>
</tr>
<tr>
<td>------</td>
<td>----------</td>
<td>---------</td>
<td>---------------------</td>
<td>--------------------------</td>
<td>----------------</td>
<td>--------------</td>
<td>-------</td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>3832</td>
<td>52/F</td>
<td>PALE YELOW</td>
<td>1.010</td>
<td>AROMATIC</td>
<td>CLEAR</td>
<td>1.5L</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>4879</td>
<td>41/M</td>
<td>PALE YELOW</td>
<td>1.010</td>
<td>AROMATIC</td>
<td>CLEAR</td>
<td>1.4L</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>3931</td>
<td>56/F</td>
<td>PALE YELOW</td>
<td>1.012</td>
<td>AROMATIC</td>
<td>CLEAR</td>
<td>1.3L</td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>3924</td>
<td>45/F</td>
<td>PALE YELOW</td>
<td>1.012</td>
<td>AROMATIC</td>
<td>CLEAR</td>
<td>1.3L</td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>3849</td>
<td>24/F</td>
<td>PALE YELOW</td>
<td>1.012</td>
<td>AMMONIAL</td>
<td>CLOUDY</td>
<td>1.6L</td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>3871</td>
<td>57/F</td>
<td>PALE YELOW</td>
<td>1.010</td>
<td>AROMATIC</td>
<td>CLEAR</td>
<td>1.4L</td>
<td></td>
</tr>
<tr>
<td>7</td>
<td>3954</td>
<td>52/F</td>
<td>PALE YELOW</td>
<td>1.014</td>
<td>AROMATIC</td>
<td>CLEAR</td>
<td>1.3L</td>
<td></td>
</tr>
<tr>
<td>8</td>
<td>4001</td>
<td>47/F</td>
<td>PALE YELOW</td>
<td>1.014</td>
<td>AROMATIC</td>
<td>CLEAR</td>
<td>1.2L</td>
<td></td>
</tr>
<tr>
<td>9</td>
<td>3998</td>
<td>52/F</td>
<td>PALE YELOW</td>
<td>1.022</td>
<td>AROMATIC</td>
<td>CLEAR</td>
<td>1.6L</td>
<td></td>
</tr>
<tr>
<td>10</td>
<td>4980</td>
<td>40/M</td>
<td>PALE YELOW</td>
<td>1.010</td>
<td>AROMATIC</td>
<td>CLEAR</td>
<td>1.4L</td>
<td></td>
</tr>
<tr>
<td>11</td>
<td>4010</td>
<td>40/F</td>
<td>DARK YELLOW</td>
<td>1.020</td>
<td>AROMATIC</td>
<td>CLEAR</td>
<td>1.3L</td>
<td></td>
</tr>
<tr>
<td>12</td>
<td>5018</td>
<td>23/M</td>
<td>PALE YELOW</td>
<td>1.008</td>
<td>AROMATIC</td>
<td>CLEAR</td>
<td>1.4L</td>
<td></td>
</tr>
<tr>
<td>13</td>
<td>4031</td>
<td>50/F</td>
<td>PALE YELOW</td>
<td>1.014</td>
<td>AROMATIC</td>
<td>CLEAR</td>
<td>1.6L</td>
<td></td>
</tr>
<tr>
<td>14</td>
<td>4032</td>
<td>60/F</td>
<td>PALE YELOW</td>
<td>1.012</td>
<td>AROMATIC</td>
<td>CLEAR</td>
<td>1.5L</td>
<td></td>
</tr>
<tr>
<td>15</td>
<td>5019</td>
<td>42/M</td>
<td>PALE YELOW</td>
<td>1.014</td>
<td>AROMATIC</td>
<td>CLEAR</td>
<td>1.4L</td>
<td></td>
</tr>
<tr>
<td>16</td>
<td>4084</td>
<td>42/F</td>
<td>PALE YELOW</td>
<td>1.016</td>
<td>AROMATIC</td>
<td>CLEAR</td>
<td>1.3L</td>
<td></td>
</tr>
<tr>
<td>17</td>
<td>4057</td>
<td>56/F</td>
<td>COLOURLESS</td>
<td>1.010</td>
<td>AROMATIC</td>
<td>CLEAR</td>
<td>1.3L</td>
<td></td>
</tr>
<tr>
<td>18</td>
<td>4117</td>
<td>29/F</td>
<td>DARK YELLOW</td>
<td>1.016</td>
<td>AROMATIC</td>
<td>CLEAR</td>
<td>1.2L</td>
<td></td>
</tr>
<tr>
<td>19</td>
<td>4090</td>
<td>49/F</td>
<td>COLOURLESS</td>
<td>1.006</td>
<td>AROMATIC</td>
<td>CLEAR</td>
<td>1.3L</td>
<td></td>
</tr>
<tr>
<td>20</td>
<td>4098</td>
<td>36/F</td>
<td>DARK YELLOW</td>
<td>1.010</td>
<td>AROMATIC</td>
<td>CLEAR</td>
<td>1.3L</td>
<td></td>
</tr>
<tr>
<td>S.NO</td>
<td>OP/IP NO</td>
<td>AGE/SEX</td>
<td>COLOUR(NIRAM)</td>
<td>SPECIFIC GRAVITY(AEDAI)</td>
<td>ODOUR(MANAM)</td>
<td>FROTH(NURAI)</td>
<td>ENJAL</td>
<td></td>
</tr>
<tr>
<td>------</td>
<td>----------</td>
<td>---------</td>
<td>-------------------</td>
<td>-------------------------</td>
<td>--------------</td>
<td>--------------</td>
<td>-------</td>
<td></td>
</tr>
<tr>
<td>21</td>
<td>4081</td>
<td>39/F</td>
<td>DARK YELLOW</td>
<td>1.012</td>
<td>AROMATIC</td>
<td>CLEAR</td>
<td>1L</td>
<td></td>
</tr>
<tr>
<td>22</td>
<td>4136</td>
<td>54/F</td>
<td>PALE YELLOW</td>
<td>1.014</td>
<td>AROMATIC</td>
<td>CLEAR</td>
<td>1.4L</td>
<td></td>
</tr>
<tr>
<td>23</td>
<td>4111</td>
<td>39/F</td>
<td>DARK YELLOW</td>
<td>1.012</td>
<td>AROMATIC</td>
<td>CLEAR</td>
<td>1.2L</td>
<td></td>
</tr>
<tr>
<td>24</td>
<td>4081</td>
<td>35/F</td>
<td>COLOURLESS</td>
<td>1.008</td>
<td>AROMATIC</td>
<td>CLEAR</td>
<td>1.4L</td>
<td></td>
</tr>
<tr>
<td>25</td>
<td>4080</td>
<td>33/F</td>
<td>PALE YELLOW</td>
<td>1.010</td>
<td>AROMATIC</td>
<td>CLEAR</td>
<td>1.3L</td>
<td></td>
</tr>
<tr>
<td>26</td>
<td>4166</td>
<td>25/F</td>
<td>PALE YELLOW</td>
<td>1.014</td>
<td>AROMATIC</td>
<td>CLEAR</td>
<td>1L</td>
<td></td>
</tr>
<tr>
<td>27</td>
<td>4173</td>
<td>46/F</td>
<td>PALE YELLOW</td>
<td>1.014</td>
<td>AROMATIC</td>
<td>CLEAR</td>
<td>1.3L</td>
<td></td>
</tr>
<tr>
<td>28</td>
<td>4183</td>
<td>53/F</td>
<td>COLOURLESS</td>
<td>1.008</td>
<td>AROMATIC</td>
<td>CLEAR</td>
<td>1.4L</td>
<td></td>
</tr>
<tr>
<td>29</td>
<td>4098</td>
<td>40/F</td>
<td>DARK YELLOW</td>
<td>1.020</td>
<td>AROMATIC</td>
<td>CLEAR</td>
<td>1.4L</td>
<td></td>
</tr>
<tr>
<td>30</td>
<td>4179</td>
<td>57/F</td>
<td>PALE YELLOW</td>
<td>1.018</td>
<td>AROMATIC</td>
<td>CLEAR</td>
<td>1.3L</td>
<td></td>
</tr>
<tr>
<td>31</td>
<td>5118</td>
<td>47/M</td>
<td>PALE YELLOW</td>
<td>1.010</td>
<td>AROMATIC</td>
<td>CLEAR</td>
<td>1.4L</td>
<td></td>
</tr>
<tr>
<td>32</td>
<td>4249</td>
<td>50/F</td>
<td>PALE YELLOW</td>
<td>1.010</td>
<td>AROMATIC</td>
<td>CLEAR</td>
<td>1.5L</td>
<td></td>
</tr>
<tr>
<td>33</td>
<td>4253</td>
<td>37/F</td>
<td>PALE YELLOW</td>
<td>1.010</td>
<td>AROMATIC</td>
<td>CLEAR</td>
<td>1.2L</td>
<td></td>
</tr>
<tr>
<td>34</td>
<td>4259</td>
<td>52/F</td>
<td>PALE YELLOW</td>
<td>1.010</td>
<td>AROMATIC</td>
<td>CLEAR</td>
<td>1.4L</td>
<td></td>
</tr>
<tr>
<td>35</td>
<td>4302</td>
<td>42/F</td>
<td>PALE YELLOW</td>
<td>1.008</td>
<td>AROMATIC</td>
<td>CLEAR</td>
<td>1.3L</td>
<td></td>
</tr>
<tr>
<td>36</td>
<td>4298</td>
<td>36/F</td>
<td>PALE YELLOW</td>
<td>1.014</td>
<td>AROMATIC</td>
<td>CLEAR</td>
<td>1.3L</td>
<td></td>
</tr>
<tr>
<td>37</td>
<td>4289</td>
<td>50/F</td>
<td>PALE YELLOW</td>
<td>1.012</td>
<td>AROMATIC</td>
<td>CLEAR</td>
<td>1.5L</td>
<td></td>
</tr>
<tr>
<td>38</td>
<td>5279</td>
<td>19/M</td>
<td>DARK YELLOW</td>
<td>1.012</td>
<td>AROMATIC</td>
<td>CLEAR</td>
<td>1.4L</td>
<td></td>
</tr>
<tr>
<td>39</td>
<td>4359</td>
<td>42/F</td>
<td>PALE YELLOW</td>
<td>1.014</td>
<td>AROMATIC</td>
<td>CLEAR</td>
<td>1.3L</td>
<td></td>
</tr>
<tr>
<td>40</td>
<td>4379</td>
<td>52/F</td>
<td>PALE YELLOW</td>
<td>1.010</td>
<td>AROMATIC</td>
<td>CLEAR</td>
<td>1.4L</td>
<td></td>
</tr>
<tr>
<td>S.NO</td>
<td>OP/IP NO</td>
<td>AGE/SEX</td>
<td>FIRST MINUTE</td>
<td>THIRD MINUTE</td>
<td>SEVENTH MINUTE</td>
<td>SPREADING</td>
<td></td>
<td></td>
</tr>
<tr>
<td>------</td>
<td>----------</td>
<td>---------</td>
<td>--------------</td>
<td>--------------</td>
<td>----------------</td>
<td>-----------</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>3832</td>
<td>52/F</td>
<td>COIN</td>
<td>COIN</td>
<td>COIN</td>
<td>SLOW</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>4879</td>
<td>41/M</td>
<td>COIN</td>
<td>DISC</td>
<td>CIRCULAR</td>
<td>SLOW</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>3931</td>
<td>56/F</td>
<td>COIN</td>
<td>DISC</td>
<td>RECTANGLE</td>
<td>SLOW</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>3924</td>
<td>45/F</td>
<td>COIN</td>
<td>COIN</td>
<td>COIN</td>
<td>SLOW</td>
<td></td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>3849</td>
<td>24/F</td>
<td>COIN</td>
<td>COIN</td>
<td>COIN</td>
<td>SLOW</td>
<td></td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>3871</td>
<td>57/F</td>
<td>DISC</td>
<td>DISC</td>
<td>DISC</td>
<td>SLOW</td>
<td></td>
<td></td>
</tr>
<tr>
<td>7</td>
<td>3954</td>
<td>52/F</td>
<td>COIN</td>
<td>CIRCULAR</td>
<td>CIRCULAR</td>
<td>FAST</td>
<td></td>
<td></td>
</tr>
<tr>
<td>8</td>
<td>4001</td>
<td>47/F</td>
<td>COIN</td>
<td>COIN</td>
<td>DISC</td>
<td>FAST</td>
<td></td>
<td></td>
</tr>
<tr>
<td>9</td>
<td>3998</td>
<td>52/F</td>
<td>COIN</td>
<td>COIN</td>
<td>COIN</td>
<td>SLOW</td>
<td></td>
<td></td>
</tr>
<tr>
<td>10</td>
<td>4980</td>
<td>40/M</td>
<td>PEARL</td>
<td>COIN</td>
<td>COIN</td>
<td>SLOW</td>
<td></td>
<td></td>
</tr>
<tr>
<td>11</td>
<td>4010</td>
<td>40/F</td>
<td>PEARL</td>
<td>PEARL</td>
<td>PEARL</td>
<td>SLOW</td>
<td></td>
<td></td>
</tr>
<tr>
<td>12</td>
<td>5018</td>
<td>23/M</td>
<td>PEARL</td>
<td>COIN</td>
<td>COIN</td>
<td>SLOW</td>
<td></td>
<td></td>
</tr>
<tr>
<td>13</td>
<td>4031</td>
<td>50/F</td>
<td>COIN</td>
<td>COIN</td>
<td>COIN</td>
<td>SLOW</td>
<td></td>
<td></td>
</tr>
<tr>
<td>14</td>
<td>4032</td>
<td>60/F</td>
<td>PEARL</td>
<td>COIN</td>
<td>COIN</td>
<td>SLOW</td>
<td></td>
<td></td>
</tr>
<tr>
<td>15</td>
<td>5019</td>
<td>42/M</td>
<td>COIN</td>
<td>MITER</td>
<td>PEARL</td>
<td>FAST</td>
<td></td>
<td></td>
</tr>
<tr>
<td>16</td>
<td>4084</td>
<td>42/F</td>
<td>COIN</td>
<td>COIN</td>
<td>COIN</td>
<td>SLOW</td>
<td></td>
<td></td>
</tr>
<tr>
<td>17</td>
<td>4057</td>
<td>56/F</td>
<td>PEARL</td>
<td>COIN</td>
<td>COIN</td>
<td>SLOW</td>
<td></td>
<td></td>
</tr>
<tr>
<td>18</td>
<td>4117</td>
<td>29/F</td>
<td>PEARL</td>
<td>PEARL</td>
<td>COIN</td>
<td>SLOW</td>
<td></td>
<td></td>
</tr>
<tr>
<td>19</td>
<td>4090</td>
<td>49/F</td>
<td>COIN</td>
<td>COIN</td>
<td>COIN</td>
<td>SLOW</td>
<td></td>
<td></td>
</tr>
<tr>
<td>20</td>
<td>4098</td>
<td>36/F</td>
<td>PEARL</td>
<td>COIN</td>
<td>COIN</td>
<td>SLOW</td>
<td></td>
<td></td>
</tr>
<tr>
<td>S.NO</td>
<td>OP/IP NO</td>
<td>AGE/SEX</td>
<td>FIRST MINUTE</td>
<td>THIRD MINUTE</td>
<td>SEVENTH MINUTE</td>
<td>SPEARDING</td>
<td></td>
<td></td>
</tr>
<tr>
<td>------</td>
<td>----------</td>
<td>---------</td>
<td>--------------</td>
<td>--------------</td>
<td>----------------</td>
<td>------------</td>
<td></td>
<td></td>
</tr>
<tr>
<td>21</td>
<td>4081</td>
<td>39/F</td>
<td>COIN</td>
<td>COIN</td>
<td>DISC</td>
<td>SLOW</td>
<td></td>
<td></td>
</tr>
<tr>
<td>22</td>
<td>4136</td>
<td>54/F</td>
<td>COIN</td>
<td>COIN</td>
<td>COIN</td>
<td>SLOW</td>
<td></td>
<td></td>
</tr>
<tr>
<td>23</td>
<td>4111</td>
<td>39/F</td>
<td>PEARL</td>
<td>COIN</td>
<td>COIN</td>
<td>SLOW</td>
<td></td>
<td></td>
</tr>
<tr>
<td>24</td>
<td>4081</td>
<td>35/F</td>
<td>PEARL</td>
<td>COIN</td>
<td>COIN</td>
<td>SLOW</td>
<td></td>
<td></td>
</tr>
<tr>
<td>25</td>
<td>4080</td>
<td>33/F</td>
<td>COIN</td>
<td>COIN</td>
<td>COIN</td>
<td>SLOW</td>
<td></td>
<td></td>
</tr>
<tr>
<td>26</td>
<td>4166</td>
<td>25/F</td>
<td>PEARL</td>
<td>PEARL</td>
<td>COIN</td>
<td>SLOW</td>
<td></td>
<td></td>
</tr>
<tr>
<td>27</td>
<td>4173</td>
<td>46/F</td>
<td>COIN</td>
<td>COIN</td>
<td>COIN</td>
<td>SLOW</td>
<td></td>
<td></td>
</tr>
<tr>
<td>28</td>
<td>4183</td>
<td>53/F</td>
<td>PEARL</td>
<td>COIN</td>
<td>COIN</td>
<td>SLOW</td>
<td></td>
<td></td>
</tr>
<tr>
<td>29</td>
<td>4098</td>
<td>40/F</td>
<td>COIN</td>
<td>COIN</td>
<td>COIN</td>
<td>SLOW</td>
<td></td>
<td></td>
</tr>
<tr>
<td>30</td>
<td>4179</td>
<td>57/F</td>
<td>DISC</td>
<td>SIEVE</td>
<td>SIEVE</td>
<td>FAST</td>
<td></td>
<td></td>
</tr>
<tr>
<td>31</td>
<td>5118</td>
<td>47/F</td>
<td>COIN</td>
<td>COIN</td>
<td>COIN</td>
<td>SLOW</td>
<td></td>
<td></td>
</tr>
<tr>
<td>32</td>
<td>4249</td>
<td>50/F</td>
<td>COIN</td>
<td>COIN</td>
<td>DISC</td>
<td>SLOW</td>
<td></td>
<td></td>
</tr>
<tr>
<td>33</td>
<td>4253</td>
<td>37/F</td>
<td>COIN</td>
<td>COIN</td>
<td>DISC</td>
<td>SLOW</td>
<td></td>
<td></td>
</tr>
<tr>
<td>34</td>
<td>4259</td>
<td>52/F</td>
<td>COIN</td>
<td>COIN</td>
<td>COIN</td>
<td>SLOW</td>
<td></td>
<td></td>
</tr>
<tr>
<td>35</td>
<td>4302</td>
<td>42/F</td>
<td>COIN</td>
<td>DISC</td>
<td>RECTANGLE</td>
<td>SLOW</td>
<td></td>
<td></td>
</tr>
<tr>
<td>36</td>
<td>4298</td>
<td>36/F</td>
<td>COIN</td>
<td>COIN</td>
<td>COIN</td>
<td>SLOW</td>
<td></td>
<td></td>
</tr>
<tr>
<td>37</td>
<td>4289</td>
<td>50/F</td>
<td>COIN</td>
<td>COIN</td>
<td>COIN</td>
<td>SLOW</td>
<td></td>
<td></td>
</tr>
<tr>
<td>38</td>
<td>5279</td>
<td>19/M</td>
<td>PEARL</td>
<td>COIN</td>
<td>COIN</td>
<td>SLOW</td>
<td></td>
<td></td>
</tr>
<tr>
<td>39</td>
<td>4359</td>
<td>42/F</td>
<td>COIN</td>
<td>MITER</td>
<td>BUTTERFLY</td>
<td>FAST</td>
<td></td>
<td></td>
</tr>
<tr>
<td>40</td>
<td>4379</td>
<td>52/F</td>
<td>COIN</td>
<td>COIN</td>
<td>CIRCULAR</td>
<td>SLOW</td>
<td></td>
<td></td>
</tr>
<tr>
<td>S.NO</td>
<td>OP/IP NO</td>
<td>AGE/SEX</td>
<td>FIRST MINUTE</td>
<td>THIRD MINUTE</td>
<td>SEVENTH MINUTE</td>
<td>SPEARDING</td>
<td></td>
<td></td>
</tr>
<tr>
<td>------</td>
<td>----------</td>
<td>---------</td>
<td>--------------</td>
<td>--------------</td>
<td>----------------</td>
<td>-----------</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>3832</td>
<td>52/F</td>
<td>COIN</td>
<td>COIN</td>
<td>COIN</td>
<td>SLOW</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>4879</td>
<td>41/M</td>
<td>DISC</td>
<td>DISC</td>
<td>MOUNTAIN</td>
<td>FAST</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>3931</td>
<td>56/F</td>
<td>COIN</td>
<td>RECTANGLE</td>
<td>RECTANGLE</td>
<td>SLOW</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>3924</td>
<td>45/F</td>
<td>SHELL</td>
<td>LEAF</td>
<td>LEAF</td>
<td>FAST</td>
<td></td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>3849</td>
<td>24/F</td>
<td>COIN</td>
<td>COIN</td>
<td>DISC</td>
<td>SLOW</td>
<td></td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>3871</td>
<td>57/F</td>
<td>COIN</td>
<td>DISC</td>
<td>SLOW</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>7</td>
<td>3954</td>
<td>52/F</td>
<td>EGG</td>
<td>SHELL</td>
<td>SIEVE</td>
<td>FAST</td>
<td></td>
<td></td>
</tr>
<tr>
<td>8</td>
<td>4001</td>
<td>47/F</td>
<td>COIN</td>
<td>COIN</td>
<td>EGG</td>
<td>SLOW</td>
<td></td>
<td></td>
</tr>
<tr>
<td>9</td>
<td>3998</td>
<td>52/F</td>
<td>COIN</td>
<td>COIN</td>
<td>SLOW</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>10</td>
<td>4980</td>
<td>40/M</td>
<td>PEARL</td>
<td>COIN</td>
<td>EGG</td>
<td>SLOW</td>
<td></td>
<td></td>
</tr>
<tr>
<td>11</td>
<td>4010</td>
<td>40/F</td>
<td>PEARL</td>
<td>PEARL</td>
<td>PEARL</td>
<td>SLOW</td>
<td></td>
<td></td>
</tr>
<tr>
<td>12</td>
<td>5018</td>
<td>23/M</td>
<td>COIN</td>
<td>COIN</td>
<td>SEED</td>
<td>SLOW</td>
<td></td>
<td></td>
</tr>
<tr>
<td>13</td>
<td>4031</td>
<td>50/F</td>
<td>PEARL</td>
<td>PEARL</td>
<td>PEARL</td>
<td>SLOW</td>
<td></td>
<td></td>
</tr>
<tr>
<td>14</td>
<td>4032</td>
<td>60/F</td>
<td>PEARL</td>
<td>COIN</td>
<td>SLOW</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>15</td>
<td>5019</td>
<td>42/M</td>
<td>HEART</td>
<td>CONCH</td>
<td>CONCH</td>
<td>FAST</td>
<td></td>
<td></td>
</tr>
<tr>
<td>16</td>
<td>4084</td>
<td>42/F</td>
<td>PEARL</td>
<td>COIN</td>
<td>SLOW</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>17</td>
<td>4057</td>
<td>56/F</td>
<td>COIN</td>
<td>COIN</td>
<td>SLOW</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>18</td>
<td>4117</td>
<td>29/F</td>
<td>COIN</td>
<td>COIN</td>
<td>SLOW</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>19</td>
<td>4090</td>
<td>49/F</td>
<td>COIN</td>
<td>COIN</td>
<td>SLOW</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>20</td>
<td>4098</td>
<td>36/F</td>
<td>COIN</td>
<td>COIN</td>
<td>SLOW</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>S.NO</td>
<td>OP/IP NO</td>
<td>AGE/SEX</td>
<td>FIRST MINUTE</td>
<td>THIRD MINUTE</td>
<td>SEVENTH MINUTE</td>
<td>SPREADING</td>
<td></td>
<td></td>
</tr>
<tr>
<td>------</td>
<td>----------</td>
<td>---------</td>
<td>--------------</td>
<td>--------------</td>
<td>----------------</td>
<td>-----------</td>
<td></td>
<td></td>
</tr>
<tr>
<td>21</td>
<td>4081</td>
<td>39/F</td>
<td>COIN</td>
<td>COIN</td>
<td>COIN</td>
<td>SLOW</td>
<td></td>
<td></td>
</tr>
<tr>
<td>22</td>
<td>4136</td>
<td>54/F</td>
<td>COIN</td>
<td>COIN</td>
<td>COIN</td>
<td>SLOW</td>
<td></td>
<td></td>
</tr>
<tr>
<td>23</td>
<td>4111</td>
<td>39/F</td>
<td>COIN</td>
<td>COIN</td>
<td>EGG</td>
<td>SLOW</td>
<td></td>
<td></td>
</tr>
<tr>
<td>24</td>
<td>4081</td>
<td>35/F</td>
<td>PEARL</td>
<td>COIN</td>
<td>COIN</td>
<td>SLOW</td>
<td></td>
<td></td>
</tr>
<tr>
<td>25</td>
<td>4080</td>
<td>33/F</td>
<td>PEARL</td>
<td>COIN</td>
<td>COIN</td>
<td>SLOW</td>
<td></td>
<td></td>
</tr>
<tr>
<td>26</td>
<td>4166</td>
<td>25/F</td>
<td>PEARL</td>
<td>PEARL</td>
<td>COIN</td>
<td>SLOW</td>
<td></td>
<td></td>
</tr>
<tr>
<td>27</td>
<td>4173</td>
<td>46/F</td>
<td>PEARL</td>
<td>COIN</td>
<td>DISC</td>
<td>SLOW</td>
<td></td>
<td></td>
</tr>
<tr>
<td>28</td>
<td>4183</td>
<td>53/F</td>
<td>PEARL</td>
<td>COIN</td>
<td>DISC</td>
<td>SLOW</td>
<td></td>
<td></td>
</tr>
<tr>
<td>29</td>
<td>4098</td>
<td>40/F</td>
<td>PEARL</td>
<td>COIN</td>
<td>COIN</td>
<td>SLOW</td>
<td></td>
<td></td>
</tr>
<tr>
<td>30</td>
<td>4179</td>
<td>57/F</td>
<td>COIN</td>
<td>COIN</td>
<td>COIN</td>
<td>SLOW</td>
<td></td>
<td></td>
</tr>
<tr>
<td>31</td>
<td>5118</td>
<td>47/F</td>
<td>COIN</td>
<td>COIN</td>
<td>COIN</td>
<td>SLOW</td>
<td></td>
<td></td>
</tr>
<tr>
<td>32</td>
<td>4249</td>
<td>50/F</td>
<td>COIN</td>
<td>COIN</td>
<td>COIN</td>
<td>SLOW</td>
<td></td>
<td></td>
</tr>
<tr>
<td>33</td>
<td>4253</td>
<td>37/F</td>
<td>PEARL</td>
<td>COIN</td>
<td>COIN</td>
<td>SLOW</td>
<td></td>
<td></td>
</tr>
<tr>
<td>34</td>
<td>4259</td>
<td>52/F</td>
<td>COIN</td>
<td>COIN</td>
<td>COIN</td>
<td>SLOW</td>
<td></td>
<td></td>
</tr>
<tr>
<td>35</td>
<td>4302</td>
<td>42/F</td>
<td>COIN</td>
<td>COIN</td>
<td>EGG</td>
<td>SLOW</td>
<td></td>
<td></td>
</tr>
<tr>
<td>36</td>
<td>4298</td>
<td>36/F</td>
<td>COIN</td>
<td>COIN</td>
<td>COIN</td>
<td>SLOW</td>
<td></td>
<td></td>
</tr>
<tr>
<td>37</td>
<td>4289</td>
<td>50/F</td>
<td>PEARL</td>
<td>COIN</td>
<td>COIN</td>
<td>SLOW</td>
<td></td>
<td></td>
</tr>
<tr>
<td>38</td>
<td>5279</td>
<td>19/M</td>
<td>COIN</td>
<td>COIN</td>
<td>COIN</td>
<td>SLOW</td>
<td></td>
<td></td>
</tr>
<tr>
<td>39</td>
<td>4359</td>
<td>42/F</td>
<td>COIN</td>
<td>COIN</td>
<td>RECTANGLE</td>
<td>FAST</td>
<td></td>
<td></td>
</tr>
<tr>
<td>40</td>
<td>4379</td>
<td>52/F</td>
<td>PEARL</td>
<td>COIN</td>
<td>COIN</td>
<td>SLOW</td>
<td></td>
<td></td>
</tr>
<tr>
<td>S.NO</td>
<td>OP/IP NO</td>
<td>AGE/SEX</td>
<td>FIRST MINUTE</td>
<td>THIRD MINUTE</td>
<td>SEVENTH MINUTE</td>
<td>SPEARDING</td>
<td></td>
<td></td>
</tr>
<tr>
<td>------</td>
<td>----------</td>
<td>---------</td>
<td>--------------</td>
<td>--------------</td>
<td>----------------</td>
<td>-----------</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>3832</td>
<td>52/F</td>
<td>COIN</td>
<td>COIN</td>
<td>COIN</td>
<td>SLOW</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>4879</td>
<td>41/M</td>
<td>DISC</td>
<td>CIRCULAR</td>
<td>CIRCULAR</td>
<td>FAST</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>3931</td>
<td>56/F</td>
<td>COIN</td>
<td>DISC</td>
<td>CIRCULAR</td>
<td>SLOW</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>3924</td>
<td>45/F</td>
<td>COIN</td>
<td>COIN</td>
<td>COIN</td>
<td>SLOW</td>
<td></td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>3849</td>
<td>24/F</td>
<td>COIN</td>
<td>COIN</td>
<td>COIN</td>
<td>SLOW</td>
<td></td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>3871</td>
<td>57/F</td>
<td>CIRCULAR</td>
<td>CIRCULAR</td>
<td>CIRCULAR</td>
<td>FAST</td>
<td></td>
<td></td>
</tr>
<tr>
<td>7</td>
<td>3954</td>
<td>52/F</td>
<td>COIN</td>
<td>COIN</td>
<td>EGG</td>
<td>SLOW</td>
<td></td>
<td></td>
</tr>
<tr>
<td>8</td>
<td>4001</td>
<td>47/F</td>
<td>COIN</td>
<td>COIN</td>
<td>COIN</td>
<td>SLOW</td>
<td></td>
<td></td>
</tr>
<tr>
<td>9</td>
<td>3998</td>
<td>52/F</td>
<td>PEARL</td>
<td>COIN</td>
<td>COIN</td>
<td>SLOW</td>
<td></td>
<td></td>
</tr>
<tr>
<td>10</td>
<td>4980</td>
<td>40/M</td>
<td>COIN</td>
<td>COIN</td>
<td>EMBRYO</td>
<td>SLOW</td>
<td></td>
<td></td>
</tr>
<tr>
<td>11</td>
<td>4010</td>
<td>40/F</td>
<td>PEARL</td>
<td>PEARL</td>
<td>PEARL</td>
<td>SLOW</td>
<td></td>
<td></td>
</tr>
<tr>
<td>12</td>
<td>5018</td>
<td>23/M</td>
<td>COIN</td>
<td>COIN</td>
<td>COIN</td>
<td>SLOW</td>
<td></td>
<td></td>
</tr>
<tr>
<td>13</td>
<td>4031</td>
<td>50/F</td>
<td>COIN</td>
<td>COIN</td>
<td>COIN</td>
<td>SLOW</td>
<td></td>
<td></td>
</tr>
<tr>
<td>14</td>
<td>4032</td>
<td>60/F</td>
<td>PEARL</td>
<td>PEARL</td>
<td>PEARL</td>
<td>SLOW</td>
<td></td>
<td></td>
</tr>
<tr>
<td>15</td>
<td>5019</td>
<td>42/M</td>
<td>COIN</td>
<td>COIN</td>
<td>COIN</td>
<td>SLOW</td>
<td></td>
<td></td>
</tr>
<tr>
<td>16</td>
<td>4084</td>
<td>42/F</td>
<td>PEARL</td>
<td>COIN</td>
<td>COIN</td>
<td>SLOW</td>
<td></td>
<td></td>
</tr>
<tr>
<td>17</td>
<td>4057</td>
<td>56/F</td>
<td>COIN</td>
<td>COIN</td>
<td>COIN</td>
<td>SLOW</td>
<td></td>
<td></td>
</tr>
<tr>
<td>18</td>
<td>4117</td>
<td>29/F</td>
<td>COIN</td>
<td>COIN</td>
<td>COIN</td>
<td>SLOW</td>
<td></td>
<td></td>
</tr>
<tr>
<td>19</td>
<td>4090</td>
<td>49/F</td>
<td>COIN</td>
<td>COIN</td>
<td>COIN</td>
<td>SLOW</td>
<td></td>
<td></td>
</tr>
<tr>
<td>20</td>
<td>4098</td>
<td>36/F</td>
<td>COIN</td>
<td>COIN</td>
<td>COIN</td>
<td>SLOW</td>
<td></td>
<td></td>
</tr>
<tr>
<td>S.NO</td>
<td>OP/IP NO</td>
<td>AGE/SEX</td>
<td>FIRST MINUTE</td>
<td>THIRD MINUTE</td>
<td>SEVENTH MINUTE</td>
<td>SPEARDING</td>
<td></td>
<td></td>
</tr>
<tr>
<td>------</td>
<td>----------</td>
<td>---------</td>
<td>--------------</td>
<td>--------------</td>
<td>----------------</td>
<td>-----------</td>
<td></td>
<td></td>
</tr>
<tr>
<td>21</td>
<td>4081</td>
<td>39/F</td>
<td>COIN</td>
<td>COIN</td>
<td>COIN</td>
<td>SLOW</td>
<td></td>
<td></td>
</tr>
<tr>
<td>22</td>
<td>4136</td>
<td>54/F</td>
<td>PEARL</td>
<td>COIN</td>
<td>COIN</td>
<td>SLOW</td>
<td></td>
<td></td>
</tr>
<tr>
<td>23</td>
<td>4111</td>
<td>39/F</td>
<td>PEARL</td>
<td>COIN</td>
<td>COIN</td>
<td>SLOW</td>
<td></td>
<td></td>
</tr>
<tr>
<td>24</td>
<td>4081</td>
<td>35/F</td>
<td>COIN</td>
<td>COIN</td>
<td>COIN</td>
<td>SLOW</td>
<td></td>
<td></td>
</tr>
<tr>
<td>25</td>
<td>4080</td>
<td>33/F</td>
<td>COIN</td>
<td>COIN</td>
<td>COIN</td>
<td>SLOW</td>
<td></td>
<td></td>
</tr>
<tr>
<td>26</td>
<td>4166</td>
<td>25/F</td>
<td>COIN</td>
<td>DISC</td>
<td>DISC</td>
<td>SLOW</td>
<td></td>
<td></td>
</tr>
<tr>
<td>27</td>
<td>4173</td>
<td>46/F</td>
<td>PEARL</td>
<td>COIN</td>
<td>COIN</td>
<td>SLOW</td>
<td></td>
<td></td>
</tr>
<tr>
<td>28</td>
<td>4183</td>
<td>53/F</td>
<td>COIN</td>
<td>DISC</td>
<td>DISC</td>
<td>SLOW</td>
<td></td>
<td></td>
</tr>
<tr>
<td>29</td>
<td>4098</td>
<td>40/F</td>
<td>COIN</td>
<td>COIN</td>
<td>COIN</td>
<td>SLOW</td>
<td></td>
<td></td>
</tr>
<tr>
<td>30</td>
<td>4179</td>
<td>57/F</td>
<td>COIN</td>
<td>COIN</td>
<td>COIN</td>
<td>SLOW</td>
<td></td>
<td></td>
</tr>
<tr>
<td>31</td>
<td>5118</td>
<td>47/F</td>
<td>PEARL</td>
<td>PEARL</td>
<td>PEARL</td>
<td>SLOW</td>
<td></td>
<td></td>
</tr>
<tr>
<td>32</td>
<td>4249</td>
<td>50/F</td>
<td>COIN</td>
<td>COIN</td>
<td>COIN</td>
<td>SLOW</td>
<td></td>
<td></td>
</tr>
<tr>
<td>33</td>
<td>4253</td>
<td>37/F</td>
<td>PEARL</td>
<td>PEARL</td>
<td>COIN</td>
<td>SLOW</td>
<td></td>
<td></td>
</tr>
<tr>
<td>34</td>
<td>4259</td>
<td>52/F</td>
<td>COIN</td>
<td>COIN</td>
<td>MITER</td>
<td>SLOW</td>
<td></td>
<td></td>
</tr>
<tr>
<td>35</td>
<td>4302</td>
<td>42/F</td>
<td>COIN</td>
<td>COIN</td>
<td>COIN</td>
<td>SLOW</td>
<td></td>
<td></td>
</tr>
<tr>
<td>36</td>
<td>4298</td>
<td>36/F</td>
<td>COIN</td>
<td>COIN</td>
<td>CIRCULAR</td>
<td>FAST</td>
<td></td>
<td></td>
</tr>
<tr>
<td>37</td>
<td>4289</td>
<td>50/F</td>
<td>PEARL</td>
<td>PEARL</td>
<td>PEARL</td>
<td>SLOW</td>
<td></td>
<td></td>
</tr>
<tr>
<td>38</td>
<td>5279</td>
<td>19/M</td>
<td>PEARL</td>
<td>PEARL</td>
<td>PEARL</td>
<td>SLOW</td>
<td></td>
<td></td>
</tr>
<tr>
<td>39</td>
<td>4359</td>
<td>42/F</td>
<td>COIN</td>
<td>EGG</td>
<td>RECTANGLE</td>
<td>FAST</td>
<td></td>
<td></td>
</tr>
<tr>
<td>40</td>
<td>4379</td>
<td>52/F</td>
<td>COIN</td>
<td>COIN</td>
<td>COIN</td>
<td>SLOW</td>
<td></td>
<td></td>
</tr>
<tr>
<td>S.NO</td>
<td>IP NO</td>
<td>AGE/SEX</td>
<td>HB</td>
<td>TRBC</td>
<td>TC</td>
<td>DC</td>
<td>PLT</td>
<td>ESR</td>
</tr>
<tr>
<td>------</td>
<td>--------</td>
<td>---------</td>
<td>-----</td>
<td>------</td>
<td>-----</td>
<td>-----</td>
<td>-----</td>
<td>-----</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>N</td>
<td>L</td>
<td>E</td>
<td>30</td>
<td>1</td>
<td>RA</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>D19928</td>
<td>25/M</td>
<td>12.3</td>
<td>4.6</td>
<td>6600</td>
<td>50</td>
<td>44</td>
<td>6</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>D19929</td>
<td>60/M</td>
<td>12.7</td>
<td>4.6</td>
<td>5700</td>
<td>55</td>
<td>40</td>
<td>5</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>D30224</td>
<td>30/M</td>
<td>13.4</td>
<td>5.2</td>
<td>6400</td>
<td>73</td>
<td>25</td>
<td>2</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>C86813</td>
<td>27/M</td>
<td>15.8</td>
<td>5.3</td>
<td>6700</td>
<td>60</td>
<td>33</td>
<td>7</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>C72223</td>
<td>37/M</td>
<td>14</td>
<td>4.5</td>
<td>5800</td>
<td>42</td>
<td>53</td>
<td>5</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>D15789</td>
<td>27/F</td>
<td>12.6</td>
<td>4.9</td>
<td>7600</td>
<td>62</td>
<td>36</td>
<td>2</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>7</td>
<td>D15797</td>
<td>24/F</td>
<td>13</td>
<td>5.1</td>
<td>9800</td>
<td>65</td>
<td>30</td>
<td>5</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>8</td>
<td>D13393</td>
<td>26/F</td>
<td>11.2</td>
<td>4.6</td>
<td>10000</td>
<td>64</td>
<td>33</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>9</td>
<td>C33345</td>
<td>38/M</td>
<td>11.5</td>
<td>4</td>
<td>7,700</td>
<td>42</td>
<td>53</td>
<td>5</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>10</td>
<td>C33793</td>
<td>37/M</td>
<td>8</td>
<td>5.1</td>
<td>3,300</td>
<td>46</td>
<td>50</td>
<td>4</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

TABLE 19: HEALTHY VOLUNTEERS LAB INVESTIGATIONS
<p>| S.NO | OP NO   | AGE/SEX | SUGAR | CHOLESTEROL | URIC ACID | UREA | CREATININE | SGOT | SGPT | ALP | PROTEIN |
|------|---------|---------|-------|-------------|-----------|------|------------|------|------|-----|---------|        | TOTAL | ALBUMIN | GLOBULIN |
|      |         |         | F     | PP          | TOTAL     | HDL  | LDL        | VLDL | TGL  |     |         |         |        |          |         |
| 1    | D19928  | 25/M    | 89    | -           | 149       | 33   | 76         | 12   | 62   | 5.1 | 27      | 0.8    | 21    | 24       | 176     | 5.5    | 3.5    | 2      |
| 2    | D19929  | 60/M    | 104   | -           | 190       | 39   | 92         | 19   | 98   | 5.6 | 27      | 0.8    | 16    | 19       | 166     | 5.6    | 3.5    | 2.1    |
| 3    | D30224  | 30/M    | 106   | -           | 225       | 40   | 106        | 23   | 118  | 6   | 21      | 0.8    | 33    | 35       | 195     | 7.5    | 5      | 2.5    |
| 4    | C86813  | 27/M    | 100   | -           | 199       | 34   | 153        | 26   | 130  | 5.2 | 14      | 0.4    | 23    | 18       | 178     | 6.4    | 4.2    | 2.2    |
| 5    | C72223  | 37/M    | 80    | -           | 170       | 36   | 87         | 39   | 198  | 4   | 19      | 0.8    | 22    | 27       | 175     | 7.5    | 4.2    | 3.3    |
| 6    | D15789  | 27/F    | 80    | -           | 161       | 35   | 82         | 21   | 107  | 5.2 | 15      | 0.5    | 10    | 12       | 188     | 6.2    | 4.8    | 1.4    |
| 7    | D15797  | 24/F    | 76    | -           | 120       | 30   | 70         | 12   | 63   | 6.5 | 17      | 0.6    | 16    | 18       | 193     | 7.2    | 3.9    | 3.3    |
| 8    | D13393  | 26/F    | 81    | -           | 120       | 30   | 70         | 12   | 62   | 6   | 14      | 0.4    | 20    | 22       | 207     | 7      | 5.1    | 1.9    |
| 9    | C33345  | 38/M    | 89    | 110         | 223       | 30   | 141        | 52   | 259  | 5.5 | 26      | 0.7    | 26    | 23       | 189     | 6.9    | 4.8    | 2.1    |
| 10   | C33793  | 37/M    | 72    | 115         | 208       | 42   | 150        | 16   | 78   | 5.4 | 30      | 0.8    | 27    | 23       | 219     | 7.8    | 4.6    | 3.2    |</p>
<table>
<thead>
<tr>
<th>S.NO</th>
<th>OP/IP NO</th>
<th>AGE/SEX</th>
<th>PH</th>
<th>SPECIFIC GRAVITY</th>
<th>ALBUMIN</th>
<th>SUGAR</th>
<th>ACETONE</th>
<th>BILE SALT</th>
<th>BILE PIGMENT</th>
<th>UROBILINOGEN</th>
<th>OCCULT BLOOD</th>
<th>DEPOSITS</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>D19928</td>
<td>25/F</td>
<td>5.4</td>
<td>1.016</td>
<td>NIL</td>
<td>NIL</td>
<td>ABSENT</td>
<td>NIL</td>
<td>NEGATIVE</td>
<td>NORMAL</td>
<td>ABSENT</td>
<td>1-2</td>
</tr>
<tr>
<td>2</td>
<td>D19929</td>
<td>60/M</td>
<td>6</td>
<td>1.018</td>
<td>NIL</td>
<td>NIL</td>
<td>ABSENT</td>
<td>NIL</td>
<td>NEGATIVE</td>
<td>NORMAL</td>
<td>ABSENT</td>
<td>2-4</td>
</tr>
<tr>
<td>3</td>
<td>D30224</td>
<td>30/M</td>
<td>5.6</td>
<td>1.012</td>
<td>NIL</td>
<td>NIL</td>
<td>ABSENT</td>
<td>NIL</td>
<td>NEGATIVE</td>
<td>NORMAL</td>
<td>ABSENT</td>
<td>2-4</td>
</tr>
<tr>
<td>4</td>
<td>C86813</td>
<td>27/M</td>
<td>4.6</td>
<td>1.014</td>
<td>NIL</td>
<td>NIL</td>
<td>ABSENT</td>
<td>NIL</td>
<td>NEGATIVE</td>
<td>NORMAL</td>
<td>ABSENT</td>
<td>3-6</td>
</tr>
<tr>
<td>5</td>
<td>C72223</td>
<td>37/M</td>
<td>4.9</td>
<td>1.010</td>
<td>NIL</td>
<td>NIL</td>
<td>ABSENT</td>
<td>NIL</td>
<td>NEGATIVE</td>
<td>NORMAL</td>
<td>ABSENT</td>
<td>1-2</td>
</tr>
<tr>
<td>6</td>
<td>D15789</td>
<td>27/F</td>
<td>5.5</td>
<td>1.012</td>
<td>NIL</td>
<td>NIL</td>
<td>ABSENT</td>
<td>NIL</td>
<td>NEGATIVE</td>
<td>NORMAL</td>
<td>ABSENT</td>
<td>2-4</td>
</tr>
<tr>
<td>7</td>
<td>D15797</td>
<td>24/F</td>
<td>6.1</td>
<td>1.022</td>
<td>NIL</td>
<td>NIL</td>
<td>ABSENT</td>
<td>NIL</td>
<td>NEGATIVE</td>
<td>NORMAL</td>
<td>ABSENT</td>
<td>1-2</td>
</tr>
<tr>
<td>8</td>
<td>D13393</td>
<td>26/F</td>
<td>4.8</td>
<td>1.016</td>
<td>NIL</td>
<td>NIL</td>
<td>ABSENT</td>
<td>NIL</td>
<td>NEGATIVE</td>
<td>NORMAL</td>
<td>ABSENT</td>
<td>4-5</td>
</tr>
<tr>
<td>9</td>
<td>C33345</td>
<td>38/M</td>
<td>5.2</td>
<td>1.010</td>
<td>NIL</td>
<td>NIL</td>
<td>ABSENT</td>
<td>NIL</td>
<td>NEGATIVE</td>
<td>NORMAL</td>
<td>ABSENT</td>
<td>4-8</td>
</tr>
<tr>
<td>10</td>
<td>C33793</td>
<td>37/M</td>
<td>5.1</td>
<td>1.018</td>
<td>NIL</td>
<td>NIL</td>
<td>ABSENT</td>
<td>NIL</td>
<td>NEGATIVE</td>
<td>NORMAL</td>
<td>ABSENT</td>
<td>4-5</td>
</tr>
</tbody>
</table>
TABLE 22: HEALTHY VOLUNTEERS NEERKKURI FIRST DAY

<table>
<thead>
<tr>
<th>S.NO</th>
<th>OP/IP NO</th>
<th>AGE/SEX</th>
<th>COLOUR(NIRAM)</th>
<th>SPECIFIC GRAVITY(AEDAI)</th>
<th>ODOUR(MANAM)</th>
<th>FROTH(NURAI)</th>
<th>ENJAL</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>D19928</td>
<td>25/M</td>
<td>PALE YELLOW</td>
<td>1.016</td>
<td>AROMATIC</td>
<td>CLEAR</td>
<td>1.1L</td>
</tr>
<tr>
<td>2</td>
<td>D19929</td>
<td>60/M</td>
<td>PALE YELLOW</td>
<td>1.018</td>
<td>AROMATIC</td>
<td>CLEAR</td>
<td>1.2L</td>
</tr>
<tr>
<td>3</td>
<td>D 30224</td>
<td>30/M</td>
<td>DARK YELLOW</td>
<td>1.012</td>
<td>AROMATIC</td>
<td>CLEAR</td>
<td>1.3L</td>
</tr>
<tr>
<td>4</td>
<td>C 86813</td>
<td>27/M</td>
<td>PALE YELLOW</td>
<td>1.014</td>
<td>AROMATIC</td>
<td>CLEAR</td>
<td>1.4L</td>
</tr>
<tr>
<td>5</td>
<td>C72223</td>
<td>37/M</td>
<td>PALE YELLOW</td>
<td>1.010</td>
<td>AROMATIC</td>
<td>CLEAR</td>
<td>1.2L</td>
</tr>
<tr>
<td>6</td>
<td>D15789</td>
<td>27/F</td>
<td>PALE YELLOW</td>
<td>1.012</td>
<td>AROMATIC</td>
<td>CLEAR</td>
<td>1.3L</td>
</tr>
<tr>
<td>7</td>
<td>D15797</td>
<td>24/F</td>
<td>PALE YELLOW</td>
<td>1.022</td>
<td>AROMATIC</td>
<td>CLEAR</td>
<td>1.3L</td>
</tr>
<tr>
<td>8</td>
<td>D13393</td>
<td>26/F</td>
<td>PALE YELLOW</td>
<td>1.016</td>
<td>AROMATIC</td>
<td>CLEAR</td>
<td>1L</td>
</tr>
<tr>
<td>9</td>
<td>C33345</td>
<td>38/M</td>
<td>PALE YELLOW</td>
<td>1.010</td>
<td>AROMATIC</td>
<td>CLEAR</td>
<td>1.4L</td>
</tr>
<tr>
<td>10</td>
<td>C33793</td>
<td>37/M</td>
<td>PALE YELLOW</td>
<td>1.018</td>
<td>AROMATIC</td>
<td>CLEAR</td>
<td>1.2L</td>
</tr>
<tr>
<td>S.NO</td>
<td>OP/IP NO</td>
<td>AGE/SEX</td>
<td>COLOUR (NIRAM)</td>
<td>SPECIFIC GRAVITY (AEDAI)</td>
<td>ODOUR (MANAM)</td>
<td>FROTH (NURAI)</td>
<td>ENJAL</td>
</tr>
<tr>
<td>------</td>
<td>----------</td>
<td>---------</td>
<td>----------------</td>
<td>--------------------------</td>
<td>---------------</td>
<td>---------------</td>
<td>-------</td>
</tr>
<tr>
<td>1</td>
<td>D19928</td>
<td>25/M</td>
<td>PALE YELLOW</td>
<td>1.012</td>
<td>AROMATIC</td>
<td>CLEAR</td>
<td>1.3L</td>
</tr>
<tr>
<td>2</td>
<td>D19929</td>
<td>60/M</td>
<td>PALE YELLOW</td>
<td>1.022</td>
<td>AROMATIC</td>
<td>CLEAR</td>
<td>1.2L</td>
</tr>
<tr>
<td>3</td>
<td>D30224</td>
<td>30/M</td>
<td>PALE YELLOW</td>
<td>1.014</td>
<td>AROMATIC</td>
<td>CLEAR</td>
<td>1.3L</td>
</tr>
<tr>
<td>4</td>
<td>C86813</td>
<td>27/M</td>
<td>PALE YELLOW</td>
<td>1.016</td>
<td>AROMATIC</td>
<td>CLEAR</td>
<td>1.4L</td>
</tr>
<tr>
<td>5</td>
<td>C72223</td>
<td>37/M</td>
<td>PALE YELLOW</td>
<td>1.012</td>
<td>AROMATIC</td>
<td>CLEAR</td>
<td>1.4L</td>
</tr>
<tr>
<td>6</td>
<td>D15789</td>
<td>27/F</td>
<td>PALE YELLOW</td>
<td>1.018</td>
<td>AROMATIC</td>
<td>CLEAR</td>
<td>1.4L</td>
</tr>
<tr>
<td>7</td>
<td>D15797</td>
<td>24/F</td>
<td>PALE YELLOW</td>
<td>1.020</td>
<td>AROMATIC</td>
<td>CLEAR</td>
<td>1.3L</td>
</tr>
<tr>
<td>8</td>
<td>D13393</td>
<td>26/F</td>
<td>PALE YELLOW</td>
<td>1.010</td>
<td>AROMATIC</td>
<td>CLEAR</td>
<td>1.4L</td>
</tr>
<tr>
<td>9</td>
<td>C33345</td>
<td>38/M</td>
<td>PALE YELLOW</td>
<td>1.012</td>
<td>AROMATIC</td>
<td>CLEAR</td>
<td>1.5L</td>
</tr>
<tr>
<td>10</td>
<td>C33793</td>
<td>37/M</td>
<td>PALE YELLOW</td>
<td>1.016</td>
<td>AROMATIC</td>
<td>CLEAR</td>
<td>1.2L</td>
</tr>
<tr>
<td>S.NO</td>
<td>OP/IP NO</td>
<td>AGE/SEX</td>
<td>COLOUR(NIRAM)</td>
<td>SPECIFIC GRAVITY (AEDAI)</td>
<td>ODOUR (MANAM)</td>
<td>FROTH (NURAI)</td>
<td>ENJAL</td>
</tr>
<tr>
<td>------</td>
<td>----------</td>
<td>---------</td>
<td>--------------</td>
<td>--------------------------</td>
<td>---------------</td>
<td>---------------</td>
<td>-------</td>
</tr>
<tr>
<td>1</td>
<td>D19928</td>
<td>25/M</td>
<td>PALE YELLOW</td>
<td>1.012</td>
<td>AROMATIC</td>
<td>CLEAR</td>
<td>1.4L</td>
</tr>
<tr>
<td>2</td>
<td>D19929</td>
<td>60/M</td>
<td>DARK YELLOW</td>
<td>1.014</td>
<td>AROMATIC</td>
<td>CLEAR</td>
<td>1.3L</td>
</tr>
<tr>
<td>3</td>
<td>D30224</td>
<td>30/M</td>
<td>PALE YELLOW</td>
<td>1.018</td>
<td>AROMATIC</td>
<td>CLEAR</td>
<td>1.5L</td>
</tr>
<tr>
<td>4</td>
<td>C86813</td>
<td>27/M</td>
<td>PALE YELLOW</td>
<td>1.022</td>
<td>AROMATIC</td>
<td>CLEAR</td>
<td>1.2L</td>
</tr>
<tr>
<td>5</td>
<td>C72223</td>
<td>37/M</td>
<td>PALE YELLOW</td>
<td>1.012</td>
<td>AROMATIC</td>
<td>CLEAR</td>
<td>1.3L</td>
</tr>
<tr>
<td>6</td>
<td>D15789</td>
<td>27/ F</td>
<td>PALE YELLOW</td>
<td>1.010</td>
<td>AROMATIC</td>
<td>CLEAR</td>
<td>1.3L</td>
</tr>
<tr>
<td>7</td>
<td>D15797</td>
<td>24/ F</td>
<td>PALE YELLOW</td>
<td>1.020</td>
<td>AROMATIC</td>
<td>CLEAR</td>
<td>1.5L</td>
</tr>
<tr>
<td>8</td>
<td>D13393</td>
<td>26/ F</td>
<td>PALE YELLOW</td>
<td>1.014</td>
<td>AROMATIC</td>
<td>CLEAR</td>
<td>1.4L</td>
</tr>
<tr>
<td>9</td>
<td>C33345</td>
<td>38/M</td>
<td>PALE YELLOW</td>
<td>1.014</td>
<td>AROMATIC</td>
<td>CLEAR</td>
<td>1.3L</td>
</tr>
<tr>
<td>10</td>
<td>C33793</td>
<td>37/M</td>
<td>PALE YELLOW</td>
<td>1.022</td>
<td>AROMATIC</td>
<td>CLEAR</td>
<td>1.4L</td>
</tr>
</tbody>
</table>
TABLE 25: HEALTHY VOLUNTEERS NEIKKURI – FIRST DAY

<table>
<thead>
<tr>
<th>S.NO</th>
<th>OP/IP NO</th>
<th>AGE/SEX</th>
<th>FIRST MINUTE</th>
<th>THIRD MINUTE</th>
<th>SEVENTH MINUTE</th>
<th>SPREADING</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>D19928</td>
<td>25/M</td>
<td>COIN</td>
<td>COIN</td>
<td>COIN</td>
<td>SLOW</td>
</tr>
<tr>
<td>2</td>
<td>D19929</td>
<td>60/M</td>
<td>COIN</td>
<td>COIN</td>
<td>COIN</td>
<td>SLOW</td>
</tr>
<tr>
<td>3</td>
<td>D30224</td>
<td>30/M</td>
<td>COIN</td>
<td>COIN</td>
<td>COIN</td>
<td>SLOW</td>
</tr>
<tr>
<td>4</td>
<td>C86813</td>
<td>27/M</td>
<td>COIN</td>
<td>COIN</td>
<td>COIN</td>
<td>SLOW</td>
</tr>
<tr>
<td>5</td>
<td>C72223</td>
<td>37/M</td>
<td>COIN</td>
<td>COIN</td>
<td>COIN</td>
<td>SLOW</td>
</tr>
<tr>
<td>6</td>
<td>D15789</td>
<td>27/F</td>
<td>COIN</td>
<td>COIN</td>
<td>COIN</td>
<td>SLOW</td>
</tr>
<tr>
<td>7</td>
<td>D15797</td>
<td>24/F</td>
<td>COIN</td>
<td>COIN</td>
<td>COIN</td>
<td>SLOW</td>
</tr>
<tr>
<td>8</td>
<td>D13393</td>
<td>26/F</td>
<td>COIN</td>
<td>COIN</td>
<td>CIRCULAR</td>
<td>SLOW</td>
</tr>
<tr>
<td>9</td>
<td>C33345</td>
<td>38/M</td>
<td>COIN</td>
<td>EGG</td>
<td>CIRCULAR</td>
<td>SLOW</td>
</tr>
<tr>
<td>10</td>
<td>C33793</td>
<td>37/M</td>
<td>COIN</td>
<td>COIN</td>
<td>CIRCULAR</td>
<td>SLOW</td>
</tr>
<tr>
<td>S.NO</td>
<td>OP/IP NO</td>
<td>AGE/SEX</td>
<td>FIRST MINUTE</td>
<td>THIRD MINUTE</td>
<td>SEVENTH MINUTE</td>
<td>SPREADING</td>
</tr>
<tr>
<td>------</td>
<td>----------</td>
<td>---------</td>
<td>--------------</td>
<td>--------------</td>
<td>----------------</td>
<td>----------</td>
</tr>
<tr>
<td>1</td>
<td>D19928</td>
<td>25/M</td>
<td>COIN</td>
<td>COIN</td>
<td>CIRCULAR</td>
<td>SLOW</td>
</tr>
<tr>
<td>2</td>
<td>D19929</td>
<td>60/M</td>
<td>COIN</td>
<td>COIN</td>
<td>COIN</td>
<td>SLOW</td>
</tr>
<tr>
<td>3</td>
<td>C30224</td>
<td>30/M</td>
<td>COIN</td>
<td>CIRCULAR</td>
<td>CIRCULAR</td>
<td>SLOW</td>
</tr>
<tr>
<td>4</td>
<td>C86813</td>
<td>27/M</td>
<td>COIN</td>
<td>COIN</td>
<td>COIN</td>
<td>SLOW</td>
</tr>
<tr>
<td>5</td>
<td>C72223</td>
<td>37/M</td>
<td>COIN</td>
<td>COIN</td>
<td>CIRCULAR</td>
<td>SLOW</td>
</tr>
<tr>
<td>6</td>
<td>D15789</td>
<td>27/F</td>
<td>COIN</td>
<td>COIN</td>
<td>COIN</td>
<td>SLOW</td>
</tr>
<tr>
<td>7</td>
<td>D15797</td>
<td>24/F</td>
<td>COIN</td>
<td>COIN</td>
<td>COIN</td>
<td>SLOW</td>
</tr>
<tr>
<td>8</td>
<td>D13393</td>
<td>26/F</td>
<td>COIN</td>
<td>CIRCULAR</td>
<td>CIRCULAR</td>
<td>SLOW</td>
</tr>
<tr>
<td>9</td>
<td>C33345</td>
<td>38/M</td>
<td>COIN</td>
<td>COIN</td>
<td>CIRCULAR</td>
<td>SLOW</td>
</tr>
<tr>
<td>10</td>
<td>C33793</td>
<td>37/M</td>
<td>COIN</td>
<td>CIRCULAR</td>
<td>CIRCULAR</td>
<td>SLOW</td>
</tr>
<tr>
<td>S.NO</td>
<td>OP/IP NO</td>
<td>AGE/SEX</td>
<td>FIRST MINUTE</td>
<td>THIRD MINUTE</td>
<td>SEVENTH MINUTE</td>
<td>SPREADING</td>
</tr>
<tr>
<td>------</td>
<td>----------</td>
<td>---------</td>
<td>--------------</td>
<td>--------------</td>
<td>----------------</td>
<td>-----------</td>
</tr>
<tr>
<td>1</td>
<td>D19928</td>
<td>25/M</td>
<td>JASMINE BUD</td>
<td>JASMINE BUD</td>
<td>LUTE</td>
<td>SLOW</td>
</tr>
<tr>
<td>2</td>
<td>D19929</td>
<td>60/M</td>
<td>COIN</td>
<td>COIN</td>
<td>COIN</td>
<td>SLOW</td>
</tr>
<tr>
<td>3</td>
<td>D30224</td>
<td>30/M</td>
<td>COIN</td>
<td>COIN</td>
<td>COIN</td>
<td>SLOW</td>
</tr>
<tr>
<td>4</td>
<td>C86813</td>
<td>27/M</td>
<td>COIN</td>
<td>COIN</td>
<td>COIN</td>
<td>SLOW</td>
</tr>
<tr>
<td>5</td>
<td>C72223</td>
<td>37/M</td>
<td>COIN</td>
<td>COIN</td>
<td>RING</td>
<td>SLOW</td>
</tr>
<tr>
<td>6</td>
<td>D15789</td>
<td>27/ F</td>
<td>COIN</td>
<td>COIN</td>
<td>COIN</td>
<td>SLOW</td>
</tr>
<tr>
<td>7</td>
<td>D15797</td>
<td>24/ F</td>
<td>COIN</td>
<td>COIN</td>
<td>JASMINE BUD</td>
<td>SLOW</td>
</tr>
<tr>
<td>8</td>
<td>D13393</td>
<td>26/ F</td>
<td>COIN</td>
<td>COIN</td>
<td>CIRCULAR</td>
<td>SLOW</td>
</tr>
<tr>
<td>9</td>
<td>C33345</td>
<td>38/M</td>
<td>COIN</td>
<td>EGG</td>
<td>RING</td>
<td>SLOW</td>
</tr>
<tr>
<td>10</td>
<td>C33793</td>
<td>37/M</td>
<td>COIN</td>
<td>COIN</td>
<td>CIRCULAR</td>
<td>SLOW</td>
</tr>
</tbody>
</table>
UTHIRAVATHASURONITHAM PATIENT

1. IP NO: 3832  52/F

DAY - 1
MINUTE-1   SHAPE: COIN

THIRD MINUTE   SHAPE: COIN

SEVENTH MINUTE   SHAPE: COIN

DAY - 2
FIRST MINUTE   SHAPE: COIN

THIRD MINUTE   SHAPE: COIN

SEVENTH MINUTE   SHAPE: COIN
DAY - 3
FIRST MINUTE    SHAPE: COIN

THIRD MINUTE    SHAPE: COIN

SEVENTH MINUTE  SHAPE: COIN

DAY - 1
FIRST MINUTE    SHAPE: COIN

THIRD MINUTE    SHAPE: DISC

SEVENTH MINUTE  SHAPE: CIRCULAR
DAY - 2
FIRST MINUTE SHAPE: DISC
THIRD MINUTE SHAPE: DISC
SEVENTH SHAPE: MOUNTAIN

DAY - 3
FIRST MINUTE SHAPE: DISC
THIRD MINUTE SHAPE: CIRCULAR
SEVENTH MINUTE SHAPE: CIRCULAR
DAY- 1
FIRST MINUTE SHAPE: COIN

THIRD MINUTE SHAPE: DISC

SEVENTH SHAPE: RECTANGLE

DAY- 2
FIRST MINUTE SHAPE: COIN

THIRD MINUTE SHAPE: RECTANGLE

SEVENTH MINUTE SHAPE: RECTANGLE
DAY - 3
FIRST MINUTE      SHAPE: COIN

THIRD MINUTE      SHAPE: DISC

SEVENTH MINUTE    SHAPE: CIRCULAR

DAY - 1
FIRST MINUTE      SHAPE: COIN

THIRD MINUTE      SHAPE: COIN

SEVENTH MINUTE    SHAPE: COIN

4. IP NO: 3924 45/F
DAY - 2
FIRST MINUTE     SHAPE: SHELL
THIRD MINUTE     SHAPE: LEAF
SEVENTH MINUTE   SHAPE: LEAF

DAY - 3
FIRST MINUTE     SHAPE: COIN
THIRD MINUTE     SHAPE: COIN
SEVENTH MINUTE   SHAPE: COIN
5. IP NO: 3849 25/F
   DAY - 2
   FIRST MINUTE SHAPE: COIN
   THIRD MINUTE SHAPE: COIN
   SEVENTH MINUTE SHAPE: DISC

6. IP NO: 3871 57/F
   DAY - 1
   FIRST MINUTE SHAPE: DISC
   THIRD MINUTE SHAPE: DISC
   SEVENTH MINUTE SHAPE: DISC
DAY - 2
FIRST MINUTE  SHAPE: COIN
THIRD MINUTE  SHAPE: COIN
SEVENTH MINUTE  SHAPE: DISC

DAY - 3
FIRST MINUTE  SHAPE: CIRCULAR
THIRD MINUTE  SHAPE: CIRCULAR
SEVENTH MINUTE  SHAPE: CIRCULAR
7. IP NO: 3954 52/F

**DAY- 1**

FIRST MINUTE SHAPE: COIN

THIRD MINUTE SHAPE: CIRCULAR

SEVENTH MINUTE SHAPE: CIRCULAR

**DAY- 2**

FIRST MINUTE SHAPE: EGG

THIRD MINUTE SHAPE: SHELL

SEVENTH MINUTE SHAPE: SIEVE
DAY- 3
FIRST MINUTE SHAPE: COIN

THIRD MINUTE SHAPE: COIN

SEVENTH MINUTE SHAPE: EGG

DAY- 1
FIRST MINUTE SHAPE: COIN

THIRD MINUTE SHAPE: COIN

SEVENTH MINUTE SHAPE: DISC

8.IP NO:4001 47/F
DAY - 2
FIRST MINUTE SHAPE: COIN
THIRD MINUTE SHAPE: COIN
SEVENTH MINUTE SHAPE: EGG

DAY - 3
FIRST MINUTE SHAPE: COIN
THIRD MINUTE SHAPE: COIN
SEVENTH MINUTE SHAPE: COIN

9. IP NO:3998 52/F

DAY- 1

FIRST MINUTE SHAPE: COIN

THIRD MINUTE SHAPE: COIN

SEVENTH MINUTE SHAPE: COIN

DAY- 2

FIRST MINUTE SHAPE: COIN

THIRD MINUTE SHAPE: COIN

SEVENTH MINUTE SHAPE: COIN
DAY - 3
FIRST MINUTE SHAPE: PEARL
THIRD MINUTE SHAPE: COIN
SEVENTH MINUTE SHAPE: COIN

DAY - 1
FIRST MINUTE SHAPE: PEARL
THIRD MINUTE SHAPE: COIN
SEVENTH MINUTE SHAPE: COIN

10. IP NO: 4980 40/M
DAY- 2
FIRST MINUTE SHAPE: PEARL
THIRD MINUTE SHAPE: COIN
SEVENTH MINUTE SHAPE: EGG

DAY- 3
FIRST MINUTE SHAPE: COIN
THIRD MINUTE SHAPE: COIN
SEVENTH MINUTE SHAPE: EMBRYO
11. IP NO: 4010 40/F

DAY- 1

FIRST MINUTE SHAPE: PEARL

THIRD MINUTE SHAPE: PEARL

SEVENTH MINUTE SHAPE: PEARL

DAY- 2

FIRST MINUTE SHAPE: PEARL

THIRD MINUTE SHAPE: PEARL

SEVENTH MINUTE SHAPE: PEARL
DAY- 3

FIRST MINUTE SHAPE: PEARL

THIRD MINUTE SHAPE: PEARL

SEVENTH MINUTE SHAPE: PEARL

DAY- 1

FIRST MINUTE SHAPE: PEARL

THIRD MINUTE SHAPE: COIN

SEVENTH MINUTE SHAPE: COIN

12. IP NO: 5018 23/M
DAY - 2
FIRST MINUTE  SHAPE: COIN
THIRD MINUTE  SHAPE: COIN
SEVENTH MINUTE SHAPE: SEED

DAY - 3
FIRST MINUTE  SHAPE: COIN
THIRD MINUTE  SHAPE: COIN
SEVENTH MINUTE SHAPE: COIN
13. IP NO: 4031 50/F

**DAY- 1**

FIRST MINUTE SHAPE: COIN

THIRD MINUTE SHAPE: COIN

SEVENTH MINUTE SHAPE: COIN

**DAY- 2**

FIRST MINUTE SHAPE: PEARL

THIRD MINUTE SHAPE: PEARL

SEVENTH MINUTE SHAPE: PEARL
DAY - 3
FIRST MINUTE SHAPE: COIN

THIRD MINUTE SHAPE: COIN

SEVENTH MINUTE SHAPE: COIN

DAY - 1
FIRST MINUTE SHAPE: PEARL

THIRD MINUTE SHAPE: COIN

SEVENTH MINUTE SHAPE: COIN

14. IP NO: 4032 60/F
DAY - 2

FIRST MINUTE
SHAPE: PEARL

THIRD MINUTE
SHAPE: COIN

SEVENTH MINUTE
SHAPE: COIN

DAY - 3

FIRST MINUTE
SHAPE: PEARL

THIRD MINUTE
SHAPE: PEARL

SEVENTH MINUTE
SHAPE: PEARL
15. IP NO: 5019 42/M

**DAY - 1**

**FIRST MINUTE** SHAPE: COIN

**THIRD MINUTE** SHAPE: MITER

**SEVENTH MINUTE** SHAPE: pear

**DAY - 2**

**FIRST MINUTE** SHAPE: HEART

**THIRD MINUTE** SHAPE: CONCH

**SEVENTH MINUTE** SHAPE: CONCH
DAY - 3
FIRST MINUTE  SHAPE: COIN
THIRD MINUTE  SHAPE: COIN
SEVENTH MINUTE SHAPE: COIN

DAY - 1
FIRST MINUTE  SHAPE: COIN
THIRD MINUTE  SHAPE: COIN
SEVENTH MINUTE SHAPE: COIN

16. IP NO: 4084 42/F
DAY - 2
FIRST MINUTE SHAPE: PEARL
THIRD MINUTE SHAPE: COIN
SEVENTH MINUTE SHAPE: COIN

DAY - 3
FIRST MINUTE SHAPE: PEARL
THIRD MINUTE SHAPE: COIN
SEVENTH MINUTE SHAPE: COIN

211
17. IP NO: 4057 56/F

DAY - 1

FIRST MINUTE SHAPE: PEARL

THIRD MINUTE SHAPE: COIN

SEVENTH MINUTE SHAPE: COIN

DAY - 2

FIRST MINUTE SHAPE: COIN

THIRD MINUTE SHAPE: COIN

SEVENTH MINUTE SHAPE: COIN
DAY - 3

FIRST MINUTE  SHAPE: COIN

THIRD MINUTE  SHAPE: COIN

SEVENTH MINUTE SHAPE: COIN

DAY - 1

FIRST MINUTE  SHAPE: PEARL

THIRD MINUTE  SHAPE: PEARL

SEVENTH MINUTE SHAPE: COIN

18 IP NO: 4117 29/F
<table>
<thead>
<tr>
<th>Day</th>
<th>First Minute Shape</th>
<th>Third Minute Shape</th>
<th>Seventh Minute Shape</th>
</tr>
</thead>
<tbody>
<tr>
<td>Day 2</td>
<td>Coin</td>
<td>Coin</td>
<td>Coin</td>
</tr>
<tr>
<td>Day 3</td>
<td>Coin</td>
<td>Coin</td>
<td>Coin</td>
</tr>
</tbody>
</table>
19. IP NO: 4090 49/F

DAY- 1

FIRST MINUTE SHAPE: COIN

THIRD MINUTE SHAPE: COIN

SEVENTH MINUTE SHAPE: COIN

DAY- 2

FIRST MINUTE SHAPE: COIN

THIRD MINUTE SHAPE: COIN

SEVENTH MINUTE SHAPE: COIN
DAY - 3
FIRST MINUTE SHAPE: COIN

THIRD MINUTE SHAPE: COIN

SEVENTH MINUTE SHAPE: COIN

DAY - 1
FIRST MINUTE SHAPE: PEARL

THIRD MINUTE SHAPE: COIN

SEVENTH MINUTE SHAPE: COIN

20. IP NO: 4098 36/F
DAY- 2

FIRST MINUTE SHAPE: COIN

THIRD MINUTE SHAPE: COIN

SEVENTH MINUTE SHAPE: COIN

DAY- 3

FIRST MINUTE SHAPE: COIN

THIRD MINUTE SHAPE: COIN

SEVENTH MINUTE SHAPE: COIN
21. IP NO: 4081 39/F

**DAY- 1**

**FIRST MINUTE** SHAPE: COIN

**THIRD MINUTE** SHAPE: COIN

**SEVENTH MINUTE** SHAPE: DISC


**DAY- 2**

**FIRST MINUTE** SHAPE: COIN

**THIRD MINUTE** SHAPE: COIN

**SEVENTH MINUTE** SHAPE: COIN
DAY- 3
FIRST MINUTE SHAPE: COIN
THIRD MINUTE SHAPE: COIN
SEVENTH MINUTE SHAPE: COIN

DAY- 1
FIRST MINUTE SHAPE: COIN
THIRD MINUTE SHAPE: COIN
SEVENTH MINUTE SHAPE: COIN

22. IP NO: 4136 54/F
DAY- 2
FIRST MINUTE SHAPE: COIN

DAY- 3
FIRST MINUTE SHAPE: PEARL

THIRD MINUTE SHAPE: COIN

SEVENTH MINUTE SHAPE: COIN
23. IP NO: 4111 39/F

DAY- 1

FIRST MINUTE       SHAPE: PEARL

THIRD MINUTE      SHAPE: PEARL

SEVENTH MINUTE    SHAPE: COIN

DAY- 2

FIRST MINUTE       SHAPE: COIN

THIRD MINUTE      SHAPE: COIN

SEVENTH MINUTE    SHAPE: EGG
DAY-3
FIRST MINUTE SHAPE: PEARL
THIRD MINUTE SHAPE: COIN
SEVENTH MINUTE SHAPE: COIN

DAY-1
FIRST MINUTE SHAPE: PEARL
THIRD MINUTE SHAPE: COIN
SEVENTH MINUTE SHAPE: COIN

24. IP NO: 4081 35/F
DAY- 2
FIRST MINUTE SHAPE: PEARL
THIRD MINUTE SHAPE: COIN
SEVENTH MINUTE SHAPE: COIN

DAY- 3
FIRST MINUTE SHAPE: COIN
THIRD MINUTE SHAPE: COIN
SEVENTH MINUTE SHAPE: COIN
25. IP NO: 4080 33/F

DAY - 1
FIRST MINUTE SHAPE: COIN
THIRD MINUTE SHAPE: COIN
SEVENTH MINUTE SHAPE: COIN

DAY - 2
FIRST MINUTE SHAPE: PEARL
THIRD MINUTE SHAPE: COIN
SEVENTH MINUTE SHAPE: COIN
DAY- 3

FIRST MINUTE SHAPE: COIN

THIRD MINUTE SHAPE: COIN

MINUTE 7 SHAPE: COIN

DAY- 1

FIRST MINUTE SHAPE: PEARL

THIRD MINUTE SHAPE: PEARL

SEVENTH MINUTE SHAPE: COIN

26. IP NO: 4166 25/F
27. IP NO: 4173 46/F

**DAY- 1**

**FIRST MINUTE**    SHAPE: COIN  

**THIRD MINUTE**    SHAPE: COIN  

**SEVENTH MINUTE**  SHAPE: COIN

**DAY- 2**

**FIRST MINUTE**    SHAPE: PEARL  

**THIRD MINUTE**    SHAPE: COIN  

**SEVENTH MINUTE**  SHAPE: DISC
DAY - 3
FIRST MINUTE  SHAPE: PEARL
THIRD MINUTE  SHAPE: COIN
SEVENTH MINUTE SHAPE: COIN

DAY - 1
FIRST MINUTE  SHAPE: PEARL
THIRD MINUTE  SHAPE: COIN
SEVENTH MINUTE SHAPE: COIN

28. IP NO: 4183 53/F
DAY - 2
FIRST MINUTE SHAPE: PEARL

THIRD MINUTE SHAPE: COIN

SEVENTH MINUTE SHAPE: DISC

DAY - 3
FIRST MINUTE SHAPE: COIN

THIRD MINUTE SHAPE: DISC

SEVENTH MINUTE SHAPE: DISC
29. IP NO: 4098 40/F

DAY - 1

FIRST MINUTE SHAPE: COIN

THIRD MINUTE SHAPE: COIN

SEVENTH MINUTE SHAPE: COIN

DAY - 2

FIRST MINUTE SHAPE: PEARL

THIRD MINUTE SHAPE: COIN

SEVENTH MINUTE SHAPE: COIN
DAY - 3
FIRST MINUTE SHAPE: COIN
THIRD MINUTE SHAPE: COIN
SEVENTH MINUTE SHAPE: COIN

DAY - 1
FIRST MINUTE SHAPE: DISC
THIRD MINUTE SHAPE: SIEVE
SEVENTH MINUTE SHAPE: SIEVE
DAY - 2
FIRST MINUTE SHAPE: COIN
THIRD MINUTE SHAPE: COIN
SEVENTH MINUTE SHAPE: COIN

DAY - 3
FIRST MINUTE SHAPE: COIN
THIRD MINUTE SHAPE: COIN
SEVENTH MINUTE SHAPE: COIN
31. IP NO: 5118 47/M

DAY- 1

FIRST MINUTE  SHAPE: COIN

THIRD MINUTE  SHAPE: COIN

SEVENTH MINUTE  SHAPE: COIN

DAY- 2

FIRST MINUTE  SHAPE: COIN

THIRD MINUTE  SHAPE: COIN

SEVENTH MINUTE  SHAPE: COIN
DAY- 3
FIRST MINUTE SHAPE: PEARL
THIRD MINUTE SHAPE: PEARL
SEVENTH MINUTE SHAPE: PEARL

DAY- 1
FIRST MINUTE SHAPE: COIN
THIRD MINUTE SHAPE: COIN
SEVENTH MINUTE SHAPE: DISC

32. IP NO: 4249 50/F
DAY- 2

FIRST MINUTE  SHAPE: COIN

THIRD MINUTE  SHAPE: COIN

SEVENTH MINUTE SHAPE: COIN

DAY- 3

FIRST MINUTE  SHAPE: COIN

THIRD MINUTE  SHAPE: COIN

SEVENTH MINUTE SHAPE: COIN
33 IP NO: 4253 37/F

**DAY- 1**

FIRST MINUTE    SHAPE: COIN

THIRD MINUTE    SHAPE: COIN

SEVENTH MINUTE  SHAPE: DISC

**DAY- 2**

FIRST MINUTE    SHAPE: PEARL

THIRD MINUTE    SHAPE: COIN

SEVENTH MINUTE  SHAPE: COIN
DAY-3
FIRST MINUTE SHAPE: PEARL
THIRD MINUTE SHAPE: PEARL
SEVENTH MINUTE SHAPE: COIN

DAY-1
FIRST MINUTE SHAPE: COIN
THIRD MINUTE SHAPE: COIN
SEVENTH MINUTE SHAPE: COIN
DAY - 2

FIRST MINUTE  SHAPE: COIN

THIRD MINUTE  SHAPE: COIN

SEVENTH MINUTE SHAPE: COIN

DAY - 3

FIRST MINUTE  SHAPE: COIN

THIRD MINUTE  SHAPE: COIN

SEVENTH MINUTE SHAPE: MITLER
35. IP NO: 4302 42/F

DAY - 1
FIRST MINUTE SHAPE: COIN
THIRD MINUTE SHAPE: DISC
SEVENTH SHAPE: RECTANGLE

DAY - 2
FIRST MINUTE SHAPE: COIN
THIRD MINUTE SHAPE: COIN
SEVENTH MINUTE SHAPE: EGG
DAY - 3
FIRST MINUTE  SHAPE: COIN
THIRD MINUTE  SHAPE: COIN
SEVENTH MINUTE SHAPE: COIN

DAY - 1
FIRST MINUTE  SHAPE: COIN
THIRD MINUTE  SHAPE: COIN
SEVENTH MINUTE SHAPE: COIN

36. IP NO: 4298
<table>
<thead>
<tr>
<th>Day</th>
<th>First Minute</th>
<th>Shape</th>
<th>Third Minute</th>
<th>Shape</th>
<th>Seventh Minute</th>
<th>Shape</th>
</tr>
</thead>
<tbody>
<tr>
<td>2</td>
<td>Coin</td>
<td>Coin</td>
<td>Coin</td>
<td>Coin</td>
<td>Coin</td>
<td>Circular</td>
</tr>
<tr>
<td>3</td>
<td>Coin</td>
<td>Coin</td>
<td>Coin</td>
<td>Coin</td>
<td>Coin</td>
<td>Circular</td>
</tr>
</tbody>
</table>
Day-1
First minute: Shape: Coin
Third minute: Shape: Coin
Seventh minute: Shape: Coin

Day-2
First minute: Shape: Pearl
Third minute: Shape: Coin
Seventh minute: Shape: Coin

IP No: 4289 50/F
DAY- 3
FIRST MINUTE SHAPE: PEARL

THIRD MINUTE SHAPE: PEARL

SEVENTH MINUTE SHAPE: PEARL

DAY- 1
FIRST MINUTE SHAPE: PEARL

THIRD MINUTE SHAPE: COIN

SEVENTH MINUTE SHAPE: COIN

38. IP NO 5279 19/M:
DAY - 2
FIRST MINUTE SHAPE: COIN

DAY - 3
FIRST MINUTE SHAPE: PEARL

THIRD MINUTE SHAPE: COIN

THIRD MINUTE SHAPE: PEARL

SEVENTH MINUTE SHAPE: COIN

SEVENTH MINUTE SHAPE: PEARL
39. IP NO: 4359 42/F

DAY-1
FIRST MINUTE SHAPE: COIN
THIRD MINUTE SHAPE: MITLER
SEVENTH SHAPE: BUTTERFLY

DAY-2
FIRST MINUTE SHAPE: COIN
THIRD MINUTE SHAPE: COIN
SEVENTH SHAPE: RECTANGLE
DAY - 3
FIRST MINUTE      SHAPE: COIN

THIRD MINUTE      SHAPE: EGG

SEVENTH           SHAPE: RECTANGLE

40. IP NO: 4379 52/F
DAY - 1
FIRST MINUTE      SHAPE: COIN

THIRD MINUTE      SHAPE: COIN

SEVENTH           SHAPE: CIRCULAR
DAY - 2

FIRST MINUTE  SHAPE: PEARL

THIRD MINUTE  SHAPE: COIN

SEVENTH MINUTE  SHAPE: COIN

DAY - 3

FIRST MINUTE  SHAPE: COIN

THIRD MINUTE  SHAPE: COIN

SEVENTH MINUTE  SHAPE: COIN
HEALTHY VOLUNTEERS

1. OPD NO: D19928  25/M

DAY - 1 : FIRST MINUTE
SHAPE: COIN

DAY - 2 : FIRST MINUTE
SHAPE: COIN

DAY - 1 : THIRD MINUTE
SHAPE: COIN

DAY - 2 : THIRD MINUTE
SHAPE: COIN

DAY - 1 : SEVENTH MINUTE
SHAPE: COIN

DAY - 2 : SEVENTH MINUTE
SHAPE: CIRCULAR
DAY - 3 : FIRST MINUTE
SHAPE : JASMINE BUD

DAY - 3 : 3 MINUTES
SHAPE : JASMINE BUD

DAY - 3 : 7 MINUTES
SHAPE : LUTE

DAY - 1 : FIRST MINUTE
SHAPE : COIN

DAY - 1 : THIRD MINUTE
SHAPE : COIN

DAY - 1 : SEVENTH MINUTE
SHAPE : COIN

2. OPD NO: D19929 60/M
DAY - 2 : FIRST MINUTE
SHAPE : COIN

DAY - 3 : FIRST MINUTE
SHAPE : COIN

DAY - 2 : THIRD MINUTE
SHAPE : COIN

DAY - 3 : THIRD MINUTE
SHAPE : COIN

DAY - 2 : SEVENTH MINUTE
SHAPE : COIN

DAY - 3 : SEVENTH MINUTE
SHAPE : COIN
3. OPD NO: D30224 30/M

DAY - 1: FIRST MINUTE
SHAPE: COIN

DAY - 1: THIRD MINUTE
SHAPE: COIN

DAY - 1: SEVENTH MINUTE
SHAPE: COIN

DAY - 2: FIRST MINUTE
SHAPE: COIN

DAY - 2: THIRD MINUTE
SHAPE: CIRCULAR

DAY - 2: SEVENTH MINUTE
SHAPE: CIRCULAR
4. OPD NO: C 86813  27/M

**DAY - 3 : 1 MINUTE**
SHAPE : COIN

**DAY - 3 : THIRD MINUTE**
SHAPE : COIN

**DAY - 3 : 7MINUTES**
SHAPE : COIN

**DAY - 1 : FIRST MINUTE**
SHAPE : COIN

**DAY - 1 : THIRD MINUTE**
SHAPE : COIN

**DAY - 1 : 7MINUTES**
SHAPE : COIN
DAY - 2: 1 MINUTE
SHAPE : COIN

DAY - 2: 3 MINUTES
SHAPE : COIN

DAY - 2: SEVENTH MINUTE
SHAPE : COIN

DAY 3: 1 MINUTE
SHAPE : COIN

DAY - 3: THIRD MINUTE
SHAPE : COIN

DAY - 3: SEVENTH MINUTE
SHAPE : COIN
5. OPD NO: C72223 37/M

**DAY - 1:** FIRST MINUTE
SHAPE: COIN

**DAY - 1:** THIRD MINUTE
SHAPE: COIN

**DAY - 1:** SEVENTH MINUTE
SHAPE: COIN

**DAY - 2:** FIRST MINUTE
SHAPE: COIN

**DAY - 2:** THIRD MINUTE
SHAPE: COIN

**DAY - 2:** SEVENTH MINUTE
SHAPE: CIRCULAR
6.O.P. NO: D15789  27/F

DAY - 3 : FIRST MINUTE
SHAPE : COIN

DAY - 1 : FIRST MINUTE
SHAPE : COIN

DAY - 3 : THIRD MINUTE
SHAPE : COIN

DAY - 1 : THIRD MINUTE
SHAPE : COIN

DAY - 3 : SEVENTH MINUTE
SHAPE : RING

DAY - 1 : SEVENTH MINUTE
SHAPE : COIN
DAY - 2 : FIRST MINUTE
SHAPE : COIN

DAY - 3 : FIRST MINUTE
SHAPE : COIN

DAY - 2 : THIRD MINUTE
SHAPE : COIN

DAY - 3 : THIRD MINUTE
SHAPE : COIN

DAY - 2 : SEVENTH MINUTE
SHAPE : COIN

DAY - 3 : SEVENTH MINUTE
SHAPE : COIN
7. O.P.NO: D15797  24/ F

DAY - 1 : FIRST MINUTE
SHAPE : COIN

DAY - 1 : THIRD MINUTE
SHAPE : COIN

DAY - 1 : SEVENTH MINUTE
SHAPE : COIN

DAY - 2 : FIRST MINUTE
SHAPE : COIN

DAY2 : THIRD MINUTE
SHAPE : COIN

DAY - 2 : SEVENTH MINUTE
SHAPE : COIN

257
8. O.P. NO: D13393 26/ F

**DAY - 3 : FIRST MINUTE**
SHAPE : COIN

**DAY - 3 : THIRD MINUTE**
SHAPE : COIN

**DAY - 3 : SEVENTH MINUTE**
SHAPE : JASMINE BUD

**DAY - 1 : FIRST MINUTE**
SHAPE : COIN

**DAY - 1 : THIRD MINUTE**
SHAPE : COIN

**DAY - 1 : SEVENTH MINUTE**
SHAPE : CIRCULAR
DAY - 2: FIRST MINUTE
SHAPE: COIN

DAY - 3: FIRST MINUTE
SHAPE: COIN

DAY - 2: THIRD MINUTE
SHAPE: CIRCULAR

DAY - 3: THIRD MINUTE
SHAPE: COIN

DAY - 2: SEVENTH MINUTE
SHAPE: OVAL

DAY 3: SEVENTH MINUTE
SHAPE: CIRCULAR
9. O.P. NO: C33345 38/M

DAY - 1 : 1
SHAPE : COIN

DAY - 1 : THIRD MINUTE
SHAPE : EGG

DAY - 1: SEVENTH MINUTE
SHAPE : CIRCULAR

DAY - 2 : 1 MINUTES
SHAPE : COIN

DAY - 2 : THIRD MINUTE
SHAPE : COIN

DAY - 2 : SEVENTH MINUTE
SHAPE : CIRCULAR
DAY - 3 : FIRST MINUTE
SHAPE : COIN

DAY - 3 : THIRD MINUTE
SHAPE : EGG

DAY - 3 : SEVENTH MINUTE
SHAPE : RING

DAY - 1 : 1 MINUTES
SHAPE : COIN

DAY - 1 : THIRD MINUTE
SHAPE : COIN

DAY - 1 : 7 MINUTES
SHAPE : CIRCULAR

10.OPD NO: C33793  37/M

261
DAY - 2 : FIRST MINUTE  
SHAPE : COIN

DAY - 2 : THIRD MINUTE  
SHAPE : CIRCULAR

DAY - 2 : SEVENTH MINUTE  
SHAPE : CIRCULAR

DAY - 3 : FIRST MINUTE  
SHAPE : COIN

DAY - 3 : THIRD MINUTE  
SHAPE : COIN

DAY - 3 : SEVENTH MINUTE  
SHAPE : CIRCULAR
9. DISCUSSION

In Siddha system of medicine Neerkkuri and Neikkuri are important diagnostic tools to elucidate the diagnosis and prognosis of disease. It is an excellent method to know the prognosis of the disease.

Out of the 80 cases screened, 40 diagnosed cases were selected from the inpatient department and 20 normal subjects were screened, 10 normal subjects will be selected from this study of Neerkkuri and Neikkuri, Urine analysis.

Many of cases affected (57.5%) in the study were of 31-50 yrs. As per Siddha text Senneer is affected which initiates Pitha humour.

In the study Females (87.5%) are more affected than Males. Though Uthira Vatha suronitham is a generally suppose to be a Vatha disorder in a initial stages, the suronitham which is the component of seven Udal Thathukal is most likely to be affected. This suronitham pertaining to be female sex. Explain the incidence of disease three times more in them.

Many of the cases had Pitham (35%) and Vathapitham(20%). Though Uthira Vatha suronitham is a Vatha disorder, blood is involved and affected in this disease. Blood is one of the Pitha components. Therefore, during pulse reading in many cases Pitha Nadi was predominantly felt.

In many of the cases, the colour of the urine observed were Pale yellow colour (75%, 72.5% and 72.5%) in three days. The colour obtained was normal.

Among 40 cases, the odour of the urine observed were aromatic odour (95%, 97.5% and 97.5%) in three days. The odour obtained was normal.

In many of the cases, the specific gravity of the urine observed was 1.010 – 1.020 in three days. The results obtained were normal.

In most of the cases, the froth is absent in the urine in three consecutive days. The result which is obtained was normal.

In most of the cases, the volume of the urine passed per day was 1100ml - 1500ml (95%, 97.5% and 87.5%). The result which is obtained was normal.
In most of the cases, the PH values (52.5%) of the urine observed were between 5.1-6. The result which obtained was normal.

In many of the cases in the first day, the shape of the Neikkuri observed in first minute, third minute and seventh minute were of coin (65%, 72.5% and 65%) and pearl (30%, 7.5% and 2.5%) shapes. In the second day, the shape of the Neikkuri observed in first minute, third minute and seventh minute were of coin (55%, 80% and 57.5%) and pearl (35%, 7.5% and 5%) shapes.

In many of the cases in the third day, the shape of the Neikkuri observed in first minute, third minute and seventh minute were of coin (67.5%, 70% and 62.5%) and pearl (27.5%, 15% and 12.5%) shapes. Blood is considered to be seat of Pitha humour and Kaba humour. According to Siddha literature, since there are symptoms of manifestations, this disorder placed under Vatha group of disease. But when considering the pathophysiology, it is the blood and suronitham (Female reproductive body constituent) which get affected for which reasons the humour, Pitham and Kabam which manifested in the Neikkuri examination and Nadi Naadi.

In many of the cases the dissemination dynamics of oil drop observed were slow spreading (87.5%, 87.5% and 90%) in consecutive three days. It indicates good prognosis. When more solutes are mixed in the urine, specific gravity tends to increase and surface tension is likely to decrease. When the urine is more diluted, the specific gravity decrease and surface tension leads to increase. Therefore, the oil drop is more likely to spread to fast.

The coin shaped Neikkuri appeared in first, third and seventh minutes were of 64%, 71%, and 59% respectively for RA positive patients. Coin shape appeared in first, third and seventh minutes were of 59%, 78%, and 66% respectively for RA negative patients. From the above study, it was clearly evident that coin shape appears in most of the RA positive and negative patients. Thus, the shape of the Neikkuri doesn’t depend upon the RA factor.

The coin shape appeared in first, third and seventh minutes were of 65%, 72%, and 65% respectively for first day. The coin shape appeared in first, third and seventh minutes were of 55%, 80%, and 57% respectively for the second day. The coin shape appeared in first, third and seventh minutes were of 67%, 70%, and 62% respectively for third day. From the above study, it is clearly evident that there was no variation of Neikkuri shapes observed on the three consecutive days.
HEALTHY VOLUNTEERS:

In many of the cases, the colour of the urine observed was pale yellow colour (90%, 100% and 90%) in three days. The colour obtained was normal. In all of the cases, the odour of the urine observed was of aromatic odour (100%). The odour obtained was normal.

In many of the cases, the Specific gravity of the urine observed were of 1.010 – 1.020 in consecutive three days. The result obtained was normal. In many of the cases, the froth is absent in the urine. The result which is obtained was normal.

In all of the cases, the volumes of the urine passed per day were 1100ml - 1500ml(90%, 100% and 100%). In most of the cases, the PH of the urine observed was of below 6 (90%). The result which obtained was normal.

In most of the cases, the shape of the Neikkuri observed in first minute, third minute and seventh minute were of coin (100%, 90% and 70%) and circular shapes. In many of the cases, the shape of the Neikkuri observed in first minute, third minute and seventh minute were of coin (100%, 70% and 40%) and circular shapes(0%, 30% and 60%).

In many of the cases, the shape of the Neikkuri observed in first minute, third minute and seventh minute were of coin (90%, 80% and 40%) and circular shapes.
10. CONCLUSION

Uthiravatha suronitham is one of the Vatha disease propounded by Sage Yugi. It affects all the major and minor joints, which could be easily diagnosed by eight fold examination. Neerkkuri, Neikkuri are couple of the special diagnostic and prognostic tools to elucidate the disease Uthiravatha suronitham.

Based on the Neerkkuri examination done in this study, no specific association could be found out between the test results and diagnosis. There results were more of non-specific in character.

In many of the cases coin shaped Neikkuri was observed as finding, this showed the involvement of Pitham and Kabam humors in the pathogenesis of Uthiravatha suronitham. So, study recommendation could be made from the results of the study to choose drugs which good correct the vitiation in the above humors.

From the study, no association could be made between the chronicity, severity, sero positivity, deformity and shapes of the Neikkuri patterns observed; as there were no specific patterns of Neikkuri showed up in this study.

According to Siddha literature, predominant involvement of Kabam and Pitham humour is consider to be favourable prognostic factor. Here in this study, many patients had coin shaped Neikkuri which is a manifestation of Kabapitha involvement, those patients can be said to have a less severe course of diseases and amenability to treatment.

This study may throw new lights to Standardize the Neerkkuri and Neikkuri and provide a lead to carry out further researches in Neerkkuri and Neikkuri by the upcoming generation.
**BIBLIOGRAPHY**

**SIDDHA BOOKS**

- Dr.M.Shanmugavelu - NoinaadalNoimudhal Naadal-part-II-3rd edition-2003
- Theraiyar Neerkuri Neikuri Vaithiyam - First edition – 2000
- Yugimuni vaithiya kaviyam
- Angathi patham
- Thirumoolar karukadai vaithiyam- 600
- Agasthiyar Kanma Kaandam
- Agathiyar 2000
- Agathiyar vaithiya chindhamani venba 4000
- Yugi Vaithya Chindhamani
- Theraiyar vaagadam
- Dhanvandri Vaithiyam
- Pathinen siddhargal naadi sasthiram
- Tamil vaithiya sathagam
- 4448 viyathigal
- Theraiyar Aruliya seitha siruneerkuri sothanai
- Siddha Maruthuvanga Churukkam
- Maan Murukkiyam
- Theraiyar Aruliya Neerkuri Neikuri Chaththirangalin Moolam
MODERN BOOKS:
- Ramnik Sood - MLT (Medical Laboratory Technology) Methods and Interpretations - Fifth edition 1999
- Mary Lee - Basic Skills in Interpreting Laboratory Data - Fourth edition
- C.Guyton, John e.hall - Guyton’s Text Book Medical Physiology - 10th edition 2002
- Sir Stanley Davidson - Davidson’s principles and practice of medicines 20th edition
- Michael swash - Hutchson’s Clinical Methods – 21st edition
- Sembulingam and Prema Sembulingam’s Essentials of Physiology.
- Robins and cotran-Pathologic basis of disease-Seventh edition.
- Inderbir Singh-Human Embryology-Eighth edition
- Grays anatomy- dr henry gray –Thirty ninth edition
- Textbook of Medicine, Krishnadas
PROFORMA

Form –I  SCREENING AND SELECTION PROFORMA
Form –IA  HISTORY PROFORMA
Form –II  CLINICAL ASSESSMENT
Form –III LABORATORY INVESTIGATIONS
Form –IV  CONSENT FORM
Form –IV A INFORMATION SHEET
A STUDY ON NEERKKURI NEIKKURI DIAGNOSTIC METHODOLOGY IN UTHIRAVATHASURONITHAM-RHEUMATOID ARTHRITIS

FORM I

SCREENING AND SELECTION PROFORMA


5. Name: __________ 6. Age (years): 7. Gender: M F


10. Address: ____________________________________________

INCLUSION CRITERIA

- Age: 18-60 years both sex
- Pain in the knee joint, ankle joint and inter phalangeal joints of the body
- Swelling of the knee joint, ankle joint and inter phalangeal joints of the body

YES NO
• Loss of appetite
• Patient who are willing to give blood and Urine samples for laboratory investigation

EXCLUSION CRITERIA:

YES               NO

• Major systemic illness
• Vulnerable group
• Complication of rheumatoid arthritis other than joint involvement

Date:

Signature of Investigator  Signature of Lecturer:
1. Sl.No of the case: ______________

2. Name: ___________________ Height: _____ cms Weight: _____ Kg

3. Age (years): _______ DOB D D M M Y E A R

4. Educational Status:
   1) Illiterate 2) Literate 3) Student 4) Graduate/Postgraduate

5. Nature of work:
   1) Sedentary work
   2) Field work with physical labour
   3) Field work Executive

6. Complaints and Duration:

__________________________________________________________________
__________________________________________________________________
__________________________________________________________________
__________________________________________________________________
__________________________________________________________________
__________________________________________________________________
__________________________________________________________________
7. History of present illness:

_______________________________________________________

8. History of Past illness:

<table>
<thead>
<tr>
<th>Condition</th>
<th>Yes</th>
<th>No</th>
</tr>
</thead>
<tbody>
<tr>
<td>Systemic hypertension</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Diabetes mellitus</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ischemic heart disease</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Dyslipidaemia</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Jaundice</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Seizures</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Bronchial asthma</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Any drug allergy</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Any surgeries</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Any other major illnesses</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Trauma</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

9. Habits:

<table>
<thead>
<tr>
<th>Habit</th>
<th>Yes</th>
<th>No</th>
</tr>
</thead>
<tbody>
<tr>
<td>Smoker</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Alcoholic</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Drug Addiction</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Betel nut chewer:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Tea</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Coffee</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Type of diet  □ V □ NV □ M

10. Personal history:

Marital status: Married □ Unmarried □

No. of children: Male: _____ Female: _____

11. Family history:

History of……………………………………… Father □ Mother □

History of……………………………………… Father □ Mother □

Others

6. Menstrual & Obstetric history:

Age at menarche _______ years

Gravidity □ Parity □

Duration of the menstrual cycle

Constancy of cycle duration: 1. Regular □ 2. Irregular □

7. GENERAL ETIOLOGY FOR UTHIRAVATHASURONITHAM:

<p>|YES | NO |
|-------------------------|
|Increased intake of sour taste | □ | □ |
|Increased intake of astringent taste | □ | □ |
|Increased intake of bitter taste | □ | □ |
|Increased intake of hot and spicy foods | □ | □ |
|Increased intake of old cooked rice | □ | □ |
|Increased intake of ragi | □ | □ |</p>
<table>
<thead>
<tr>
<th>Condition</th>
<th>Yes</th>
<th>No</th>
</tr>
</thead>
<tbody>
<tr>
<td>Increased intake of ghee</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Prolonged constipation</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Altered dietary timings</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Increased intake of water</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Increased anger</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Fear</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sadness</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Running fast</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Day slumber and staying back at night</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Date:**

**Signature of Lecturer:**
FORM II
CLINICAL ASSESSMENT

1. Serial No: ________
2. Name: ________________
3. Date of birth: ________
   ________
   ________
   ________
   ________
   ________
   ________
4. Age: ________ years
5. Date: ______________

GENERAL EXAMINATION:

1. Pallor:
2. Icterus:
3. Cyanosis:
4. Lymphadenopathy:
5. Pedal edema:
6. Clubbing:
7. Jugular vein pulsation:
8. Temperature (°F):
9. Pulse rate:
10. Heart rate:

11. Respiratory rate:

12. Blood pressure:

13. Height: _______ cms.

14. Weight (kg): BMI ______ (Weight Kg/ Height m2)

VITAL ORGANS EXAMINATION

1. Normal  2. Affected
1. Heart □ □ ____________
2. Lungs □ □ ____________
3. Brain □ □ ____________
4. Liver □ □ ____________
5. Kidney □ □ ____________
6. Spleen □ □ ____________
7. Stomach □ □ ____________

SYSTEMIC EXAMINATION:

1. Cardio Vascular System _______________________
2. Respiratory System _______________________
3. Gastrointestinal System _______________________
4. Central Nervous System _______________________
5. Uro genital System _______________________
6. Endocrine System _______________________
7. Musculoskeletal System _______________________

SIDHHA SYSTEM OF EXAMINATION

[1] ENVAGAI THERVU  [EIGHT-FOLD EXAMINATION]

I. NAADI (KAI KURI) (RADIAL PULSE READING)

(a) Naadi Nithanam (Pulse Appraisal)

1. Kalam (Pulse reading season)

Perumpozhuthu:

1. Kaarkaalam (Rainy season) 
2. Koothirkaalam (Autumn)
3. Munpanikaalam (Early winter)
4. Pinpanikaalam (Late winter)
5. Ilavenirkaalam (Early summer)
6. Muthuvenirkaalam (Late summer)

Sirupozhuthu:

1. . Kaalai 
2. Mathiyam
3. . Maalai
4. Erpaadu 
5. Iravu 
6 Vaikarai

2. Desam (Climate of the patient’s habitat):

1. Kulir (Temperate) 
2. Veppam (Hot)

3. Vayathu (Age) : 1. 1-33yrs 
2. 34-66yrs
3. 67-100

4. Udal Vanmai (General body condition)

1. Iyyalbu (Normal built) 
2. Valivu (Robust)
3. Melivu (Lean)
(b) Naadi nadai (Pulse Play)

1. Vanmai (Expansile Nature)
   - 1. Vatham  
   - 2. Pitham  
   - 3. Kabam

2. Panbu (Habit)
   - 1. Thannadai (Playing in)  
   - 2. Puranadai (Playing out)  
   - 3. Illaitthal (Feeble)  
   - 4. Kathithal (Swelling)  
   - 5. Kuthithal (Jumping)  
   - 6. Thuullal (Frisking)  
   - 7. Azhutthal (ducking)  
   - 8. Padutthal (Lying)  
   - 9. Kalatthal (Blending)  
   - 10. Munnokku (Advancing)  
   - 11. Pinnokku (Flinching)  
   - 12. Suzhalal (Revolving)  
   - 13. Pakkamnokku (Swerving)

3. Naadi nadai
   - 1. Vali  
   - 2. Azhal  
   - 3. Iyyam  
   - 4. Vali Azhal  
   - 5. Azhal Vali  
   - 6. Iyya Vali  
   - 7. Vali Iyyam  
   - 8. Azhal Iyyam  
   - 9. Iyya Azhal

Any Other Findings ____________________________

II. NAA (TONGUE)

   (Coatedness)

2. Niram (Colour) 1. Sivappu (Red)  2. Manjal (Yellow)

3. Velluppu (Pale)  4. Karuppu (Dark)

Others___________________
3. Suvaï    
   (Taste sensation) 
   1. Pulippu    (Sour)  
   2. Kaippu    (Bitter)  
   3. Inippu    (Sweet)  

4. Vedippu    (Fissure) 
   1. Present  
   2. Absent  

5. Vai neer ooral    (Salivation) 
   1. Normal  
   2. Increased  
   3. Reduced  

Any Other Findings  

III. NIRAM (COMPLEXION) 
1. Karuppu    (Dark-Vatham)  
2. Manjal    (Yellowish-Pitham)  
3. Velluppu    (Fair-Kabam)  
4. Thontham  

Any Other Findings  

IV. MOZHI (VOICE) 
1. Sama oli    (Medium pitched-Vatham)  
2. Urattha oli    (High pitched-Pitham)  
3. Thazhantha oli    (Low pitched-Kabam)  
4. Thontham  

Any Other Findings  

V. VIZHI (EYES) 
1. Niram (Venvizhi)    (Discolouration)  
   1. Karuppu    (Dark)  
   2. Manjal    (Yellow)  
   3. Sivappu    (Red)  
   4. Velluppu    (White)  
   5. No Discoloration  
   6. Thontham  

2. Kanneer    (Tears) 
   1. Normal  
   2. Increased  
   3. Reduced  

Any Other Findings  

3. Erichchal 1. Present 2. Absent
(Burning sensation)

4. Peelai seruthal 1. Present 2. Absent
(Mucus excrements)

Any Other Findings ______________________

VI. MEI KURI-SPARISAM (PHYSICAL SIGNS)

(Warmth) (Mild-Vatham) (Moderate-Pitham)

3. Thatpam
 (Low-Kabam)

2. Viyarvai 1. Normal 2. Increased 3. Reduced
 (Sweat)

Area______________

3. Thodu vali 1. Absent 2. Present
(Tenderness)

Any Other Findings ______________________

VII. MALAM (STOOLS)

(Color) (Dark-Vatham) (Yellowish-Pitham)

3. Sivappu
 (Reddish-Pitham)

4. Velluppu
 (Pale-Kabam)

2. Sikkal
 (Constipation)

1. Present 2. Absent

3. Siruthal
 (Poorly formed stools)

1. Present 2. Absent

4. Kalichchal
 (Loose watery stools)

1. Present 2. Absent

5. Seetham
 (Watery and mucoid excrements)

1. Present 2. Absent

6. Vemmai
 (Warmth)

1. Present 2. Absent

7. History of habitual constipation 1. Present 2. Absent
VIII. MOOTHIRAM (URINE)
DAY I

(a) NEER KURI (PHYSICAL CHARACTERISTICS)

1. Niram (colour)

<table>
<thead>
<tr>
<th>Colour</th>
<th>□</th>
<th>□</th>
<th>□</th>
<th>□</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pale yellow</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Milky purulent</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Orange</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Red</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Greenish</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Dark brown</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Bright red</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Black</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Brown red or yellow</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Colourless</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Dark yellow</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

2. Manam (odour)

<table>
<thead>
<tr>
<th>Odour</th>
<th>□</th>
</tr>
</thead>
<tbody>
<tr>
<td>Aromatic</td>
<td></td>
</tr>
<tr>
<td>Ammonical</td>
<td></td>
</tr>
<tr>
<td>Fruity</td>
<td></td>
</tr>
<tr>
<td>Others</td>
<td></td>
</tr>
</tbody>
</table>

3. Edai (Specific gravity)

<table>
<thead>
<tr>
<th>Gravity</th>
<th>□</th>
</tr>
</thead>
<tbody>
<tr>
<td>Normal (1.010-1.025)</td>
<td></td>
</tr>
<tr>
<td>High Specific gravity (&gt;1.025)</td>
<td></td>
</tr>
<tr>
<td>Low Specific gravity (&lt;1.010)</td>
<td></td>
</tr>
<tr>
<td>Low and fixed Specific gravity (1.010-1.012)</td>
<td></td>
</tr>
</tbody>
</table>

4. Alavu (volume)

<table>
<thead>
<tr>
<th>Volume</th>
<th>□</th>
</tr>
</thead>
<tbody>
<tr>
<td>Normal (1.2-1.5 lt/day)</td>
<td></td>
</tr>
<tr>
<td>Polyuria (&gt;2lt/day)</td>
<td></td>
</tr>
<tr>
<td>Oliguria (&lt;500ml/day)</td>
<td></td>
</tr>
</tbody>
</table>

Any Other Findings ___________________________
5. Nurai(froth)

<table>
<thead>
<tr>
<th>Froth</th>
<th>Clear</th>
<th>Cloudy</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

6. Enjal (deposits): Yes  No

Any Other Findings

(b) NEI KURI (oil spreading sign)

TIME:

1. Urine collection:

2. Oil drop:

3. Picture taken: shape

<table>
<thead>
<tr>
<th>1 minute:</th>
<th></th>
<th>3 minutes:</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>5 minutes:</td>
<td></td>
<td>7 minutes:</td>
<td></td>
</tr>
<tr>
<td>10 minutes:</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

| shape |
|-------|------|
|       |      |
DAY II -  

VIII. MOOTHIRAM (URINE)  

(a) NEER KURI (PHYSICAL CHARACTERISTICS)  

1. Niram (colour)  

<table>
<thead>
<tr>
<th>Colour</th>
<th></th>
<th>Milky purulent</th>
<th></th>
<th>Orange</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Pale yellow</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Red</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Bright red</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Colourless</td>
<td></td>
<td>Dark yellow</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

2. Manam (odour)  

<table>
<thead>
<tr>
<th>Odour</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Aromatic</td>
<td></td>
</tr>
<tr>
<td>Ammonical</td>
<td></td>
</tr>
<tr>
<td>Fruity</td>
<td></td>
</tr>
<tr>
<td>Others            : ________________________</td>
<td></td>
</tr>
</tbody>
</table>

3. Edai (Specific gravity)  

<table>
<thead>
<tr>
<th>Specific gravity</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Normal (1.010-1.025)</td>
<td></td>
</tr>
<tr>
<td>High Specific gravity (&gt;1.025)</td>
<td></td>
</tr>
<tr>
<td>Low Specific gravity (&lt;1.010)</td>
<td></td>
</tr>
<tr>
<td>Low and fixed Specific gravity (1.010-1.012);</td>
<td></td>
</tr>
</tbody>
</table>

4. Alavu (volume)  

<table>
<thead>
<tr>
<th>Volume</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Normal (1.2-1.5 lt/day)</td>
<td></td>
</tr>
<tr>
<td>Polyuria (&gt;2lt/day)</td>
<td></td>
</tr>
<tr>
<td>Oliguria (&lt;500ml/day)</td>
<td></td>
</tr>
</tbody>
</table>

5. Nurai (froth)  

| Froth            |  |
| Clear            |  |
| Cloudy           |  |
6. Enjal (deposits) : Yes No

Any Other Findings __________________________

(b) NEI KURI (oil spreading sign)

TIME:

1. Urine collection:

2. Oil drop:

3. Picture taken: shape

1 minute: ........................................ ........................................

3 minutes: ........................................ ........................................

5 minutes: ........................................ ........................................

7 minutes: ........................................ ........................................

10 minutes: ........................................ ........................................

DAY III -

VIII. MOOTHIRAM (URINE)

(a) NEER KURI (PHYSICAL CHARACTERISTICS)

1. Niram (colour)

Pale yellow □ Milky purulent □ orange □

Red □ Greenish □ dark brown □

Bright red □ Black □ Brown red or yellow □

Colourless □ Dark yellow □
2. Manam (odour)
Aromatic
Ammonical
Fruity
Others : ____________________

3. Edai (Specific gravity)
Normal (1.010-1.025) : ____________________
High Specific gravity (>1.025) : ____________________
Low Specific gravity (<1.010) : ____________________
Low and fixed Specific gravity (1.010-1.012): ____________________

4. Alavu (volume)
Normal (1.2-1.5 lt/day) : ____________________
Polyuria (>2lt/day) : ____________________
Oliguria (<500ml/day) : ____________________

5. Nurai (froth)
Froth : ____________________
Clear : ____________________
Cloudy : ____________________

6. Enjal (deposits) Yes No

Any Other Findings ____________________
(b) NEI KURI (oil spreading sign)

TIME:

1. Urine collection:

2. Oil drop:

3. Picture taken: shape

<table>
<thead>
<tr>
<th>Time</th>
<th>Shape</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 minute</td>
<td>........................................</td>
</tr>
<tr>
<td>3 minutes</td>
<td>........................................</td>
</tr>
<tr>
<td>5 minutes</td>
<td>........................................</td>
</tr>
<tr>
<td>7 minutes</td>
<td>........................................</td>
</tr>
<tr>
<td>10 minutes</td>
<td>........................................</td>
</tr>
</tbody>
</table>

[2]. MANIKADAI NOOL (Wrist circummetric sign) : Right _____ fbs

Left _____ fbs

[3]. THATHUVA IYALPU:

MANO THATHUVAM

Sathuva Gunam □

Rajo Gunam □

Thamo Gunam □
### 4. YAKKAI (SOMATIC TYPES)

<table>
<thead>
<tr>
<th>Vatha constitution</th>
<th>Pitha constitution</th>
<th>Kaba constitution</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lean and lanky built</td>
<td>Thin covering of bones and joints by soft tissue</td>
<td>Plumpy joints and limbs</td>
</tr>
<tr>
<td>Hefty proximities of limbs</td>
<td>Always found with warmth, sweating and offensive body odour</td>
<td>Broad forehead and chest</td>
</tr>
<tr>
<td>Cracking sound of joints on walking</td>
<td>Wrinkles in the skin</td>
<td>Sparkling eyes with clear sight</td>
</tr>
<tr>
<td>Dark and thicker eye lashes</td>
<td>Red and yellow admixed complexion</td>
<td>Lolling walk</td>
</tr>
<tr>
<td>Dark and light admixed complexion</td>
<td>Easily suffusing eyes due to heat and alcohol</td>
<td>Immense strength despite poor eating</td>
</tr>
<tr>
<td>Split hair</td>
<td>Sparse hair with greying</td>
<td>High tolerance to hunger, thirst and fear</td>
</tr>
<tr>
<td>Clear words</td>
<td>Intolerance to hunger, thirst and heat</td>
<td>Exemplary character with good memory power</td>
</tr>
<tr>
<td>Scant appetite for cold food items</td>
<td>Inclination towards perfumes like sandal</td>
<td>More liking for sweet taste</td>
</tr>
<tr>
<td>Poor strength despite much eating</td>
<td>Slender eye lashes</td>
<td>Husky voice</td>
</tr>
<tr>
<td>Loss of libido</td>
<td>Pimples and moles are plenty</td>
<td></td>
</tr>
<tr>
<td>In generosity</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sleeping with eyes half closed</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**RESULTANT SOMATIC TYPE:** ______________________________
[5]. **IYMPORIGAL /IYMPULANGAL**  
(Penta sensors and its modalities)  

<table>
<thead>
<tr>
<th></th>
<th>1. Normal</th>
<th>2. Affected</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mei (skin)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Vaai (Mouth/ Tongue)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Kan (Eyes)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mookku (Nose)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sevi (Ears)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

[6]. **KANMENTHIRIYANGAL /KANMAVIDAYANGAL**  
(Motor machinery and its execution)  

<table>
<thead>
<tr>
<th></th>
<th>1. Normal</th>
<th>2. Affected</th>
</tr>
</thead>
<tbody>
<tr>
<td>Kai (Hands)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Kaal (Legs)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Vaai (Mouth)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Eruvai (Analepy)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Karuvaai (Birth canal)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

[7] **UYIR THATHUUKAL**  

**A. VALI**  

<table>
<thead>
<tr>
<th></th>
<th>1. Normal</th>
<th>2. Affected</th>
</tr>
</thead>
<tbody>
<tr>
<td>Praanan (Heart centre)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Abaanan (Matedial of muladhar centre)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Samaanan (Navel centre)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Udhaanan (Forehead centre)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Viyaanan (Throat centre)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
6. Naahan  
(Higher intellectual function)  
__________________

7. Koorman  
(Air of yawning)  
__________________

8. Kirukaran  
(Air of salivation)  
__________________

9. Devathathan  
(Air of laziness)  
__________________

10. Dhananjeyan  
(Air that acts on death)  
__________________

B. AZHAL

1. Normal  2. Affected
1. Anala pittham  
(Gastric juice)  
__________________

2. Prasaka pittham  
(Bile)  
__________________

3. Ranjaka pittham  
(Haemoglobin)  
__________________

4. Aalosaka pittham  
(Aqueous Humour)  
__________________

5. Saathaka pittham  
(Life energy)  
__________________

C. IYYAM

1. Normal  2. Affected
1. Avalambagam  
(Serum)  
__________________

2. Kilethagam  
(saliva)  
__________________

3. Pothagam  
(lymph)  
__________________
4. Tharpagam (cerebrospinal fluid)  
5. Santhigam (Synovial fluid)

**8] UDAL THATHUKKAL:**

**A. SAARAM:**

<table>
<thead>
<tr>
<th>INCREASED SAARAM (CHYLE)</th>
<th>DECREASED SAARAM (CHYLE)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Loss of appetite</td>
<td>Loss of weight</td>
</tr>
<tr>
<td>Excessive salivation</td>
<td>Tiredness</td>
</tr>
<tr>
<td>Loss of perseverance</td>
<td>Dryness of the skin</td>
</tr>
<tr>
<td>Excessive heaviness</td>
<td>Diminished activity of the sense organs</td>
</tr>
<tr>
<td>White musculature</td>
<td></td>
</tr>
<tr>
<td>Cough, dyspnoea, excessive sleep</td>
<td></td>
</tr>
<tr>
<td>Weakness in all joints of the body</td>
<td></td>
</tr>
</tbody>
</table>

Normal [ ] Abnormal [ ]

**B. CENNEER:**

<table>
<thead>
<tr>
<th>INCREASED CENNEER (BLOOD)</th>
<th>DECREASED CENNEER (BLOOD)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Boils in different parts of the body</td>
<td>Anemia</td>
</tr>
<tr>
<td>Anorexia</td>
<td>Tiredness</td>
</tr>
<tr>
<td>Mental disorder</td>
<td>Neuritis</td>
</tr>
<tr>
<td>Spleenomegaly</td>
<td>Lassitude</td>
</tr>
<tr>
<td>Colic pain</td>
<td></td>
</tr>
<tr>
<td>Increased pressure</td>
<td>Pallor of the body</td>
</tr>
<tr>
<td>Reddish eye and skin</td>
<td></td>
</tr>
<tr>
<td>Jaundice</td>
<td></td>
</tr>
<tr>
<td>Haematuria</td>
<td></td>
</tr>
</tbody>
</table>

Normal [ ] Abnormal [ ]
### C.OON:

<table>
<thead>
<tr>
<th>INCREASED OON (MUSLE)</th>
<th>DECREASED OON (MUSLE)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cervical lymphadenitis</td>
<td>Impairment of sense organs</td>
</tr>
<tr>
<td>Vernical ulcer</td>
<td>Joint pain</td>
</tr>
<tr>
<td>Tumour in face, abdomen, thigh, genitalia</td>
<td>Jaw, thigh and genitalia gets shortened</td>
</tr>
<tr>
<td>Hyper muscular in the cervical region</td>
<td></td>
</tr>
</tbody>
</table>

Normal □ Abnormal □

### D.KOZHUPPU:

<table>
<thead>
<tr>
<th>INCREASED KOZHUPPU (ADIPOSE TISSUE)</th>
<th>DECREASED KOZHUPPU (ADIPOSE TISSUE)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cervical lymph adenitis</td>
<td>Pain in the hip region</td>
</tr>
<tr>
<td>Vernical ulcer</td>
<td>Disease of the spleen</td>
</tr>
<tr>
<td>Tumour in face, abdomen, thigh, genitalia</td>
<td></td>
</tr>
<tr>
<td>Hyper muscular in the cervical region</td>
<td></td>
</tr>
<tr>
<td>Dyspnoea</td>
<td></td>
</tr>
<tr>
<td>Loss of activity</td>
<td></td>
</tr>
</tbody>
</table>

Normal □ Abnormal □
### E.ENBU:

<table>
<thead>
<tr>
<th>INCREASED ENBU (BONE)</th>
<th>DECREASED ENBU (BONE)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Growth in bones and teeth</td>
<td>Bones diseases</td>
</tr>
<tr>
<td></td>
<td>Loosening of teeth</td>
</tr>
<tr>
<td></td>
<td>Nails splitting</td>
</tr>
<tr>
<td></td>
<td>Falling of hair</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Normal</th>
<th>Abnormal</th>
</tr>
</thead>
</table>

### F.MOOLAI:

<table>
<thead>
<tr>
<th>INCREASED MOOLAI (BONE MARROW)</th>
<th>DECREASED MOOLAI (BONE MARROW)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Heaviness of the body</td>
<td>Osteoporosis</td>
</tr>
<tr>
<td>Swollen eyes</td>
<td>Sunken eyes</td>
</tr>
<tr>
<td>Swollen phalanges</td>
<td></td>
</tr>
<tr>
<td>chubby fingers</td>
<td></td>
</tr>
<tr>
<td>Oliguria</td>
<td></td>
</tr>
<tr>
<td>Non healing ulcer</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Normal</th>
<th>Abnormal</th>
</tr>
</thead>
</table>

### G.SUKKILAM/SURONITHAM:

<table>
<thead>
<tr>
<th>INCREASED SUKKILAM/SURONITHAM (SPERM OR OVUM)</th>
<th>DECREASED SUKKILAM/SURONITHAM (SPERM OR OVUM)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Infatuation and lust towards women / men</td>
<td>Failure in reproduction</td>
</tr>
<tr>
<td>Urinary calculi</td>
<td>Pain in the genitalia</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Normal</th>
<th>Abnormal</th>
</tr>
</thead>
</table>
### [9] DHASANAADI

<table>
<thead>
<tr>
<th>1. Normal</th>
<th>2. Affected</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Idagalai</td>
<td></td>
</tr>
<tr>
<td>2. Pingalai</td>
<td></td>
</tr>
<tr>
<td>3. Suzhumunai</td>
<td></td>
</tr>
<tr>
<td>4. Siguvai</td>
<td></td>
</tr>
<tr>
<td>5. Purudan</td>
<td></td>
</tr>
<tr>
<td>6. Kaanthari</td>
<td></td>
</tr>
<tr>
<td>7. Atthi</td>
<td></td>
</tr>
<tr>
<td>8. Alambudai</td>
<td></td>
</tr>
<tr>
<td>9. Sangini</td>
<td></td>
</tr>
<tr>
<td>10. Kugu</td>
<td></td>
</tr>
</tbody>
</table>

### 10. KOSANGAL

<table>
<thead>
<tr>
<th>1. Normal</th>
<th>2. Affected</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Annamayakosam</td>
<td></td>
</tr>
<tr>
<td>2. Praanamaya kosam</td>
<td></td>
</tr>
<tr>
<td>3. Manomayakosam</td>
<td></td>
</tr>
<tr>
<td>4. Vignanamayakosam</td>
<td></td>
</tr>
<tr>
<td>5. Anandhamayakosam</td>
<td></td>
</tr>
<tr>
<td><strong>I. Vali Migu Gunam</strong></td>
<td></td>
</tr>
<tr>
<td>-----------------------</td>
<td>--</td>
</tr>
<tr>
<td>1. Emaciation</td>
<td></td>
</tr>
<tr>
<td>2. Complexion – blackish</td>
<td></td>
</tr>
<tr>
<td>3. Desire to take hot food</td>
<td></td>
</tr>
<tr>
<td>4. Shivering of body</td>
<td></td>
</tr>
<tr>
<td>5. Abdominal distension</td>
<td></td>
</tr>
<tr>
<td>6. Constipation</td>
<td></td>
</tr>
<tr>
<td>7. Insomnia</td>
<td></td>
</tr>
<tr>
<td>8. Weakness</td>
<td></td>
</tr>
<tr>
<td>9. Defect of sense organs</td>
<td></td>
</tr>
<tr>
<td>10. Giddiness</td>
<td></td>
</tr>
<tr>
<td>11. Lack of interest</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>II. Vali Kurai Gunam</strong></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Body pain</td>
<td></td>
</tr>
<tr>
<td>2. Diminished voice</td>
<td></td>
</tr>
<tr>
<td>3. Diminished work</td>
<td></td>
</tr>
<tr>
<td>4. Delirium</td>
<td></td>
</tr>
<tr>
<td>5. Arivu mangal</td>
<td></td>
</tr>
<tr>
<td>6. Features of increased Kapha</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>III. Pitham Migu Gunam</strong></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Yellowish discolouration of skin</td>
<td></td>
</tr>
<tr>
<td>2. Yellowish discolouration of the eye</td>
<td></td>
</tr>
<tr>
<td>3. Yellow coloured urine</td>
<td></td>
</tr>
<tr>
<td>4. Yellowishness of faeces</td>
<td></td>
</tr>
</tbody>
</table>
5. Increased appetite
6. Increased thirst
7. Burning sensation over the body
8. Sleep disturbance

IV. Pitham Migu Gunam
1. Indigestion
2. Chillness
3. Discolouration
4. Disranged Kapha

V. Kapham migu gunam
1. Increased salivary secretion
2. Reduced activeness
3. Heaviness of the body
4. Body colour–fair complexion
5. Chillness of the body
6. Reduced appetite
7. Eraippu
8. Increased sleep

VI. Kapham migu gunam
1. Giddiness
2. Loss of fluid in the Joints
3. Increased Sweating
4. Palpitations
[12]. **NOIUTRA KALAM**

1. Kaarkaalam  
   (Aug 15 - Oct 14)  

2. Koothirkaalam  
   (Oct 15 - Dec 14)  

3. Munpanikaalam  
   (Dec 15 - Feb 14)  

4. Pinpanikaalam  
   (Feb 15 - Apr 14)  

5. Ilavanirkaalam  
   (Apr 15 - June 14)  

6. Muthuvenirkaalam  
   (June 15 - Aug 14)  

[13]. **NOI UTRA NILAM**

1. Kurunji  
   (Hilly terrain)  

2. Mullai  
   (Forest range)  

3. Marutham  
   (Plains)  

4. Neithal  
   (Coastal belt)  

5. Paalai  
   (Desert)  

[14]. **Date of Birth**

[15]. **Time of Birth**

- AM  
- PM  

[16]. **Place of Birth**: ____________________________  

[17]. **Rasi (Zodiac Sign)**

1. Mesam  
2. Rishabham  
3. Midhunam  
4. Katakam  
5. Simmam  
6. Kanni  
7. Thulam  
8. Viruchiham  
9. Dhanusu  
10. Maharam  
11. Kumbam  
12. Meenam
[18]. Natchathiram (birth stars):

<p>| | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>28. Not Known</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Date: ____________________________

Signature of Lecturer: ____________________________
LABORATORY INVESTIGATION

HEMATOLOGY:

Hemoglobin : .................gm %
Total RBC count : .................millions cells / cu.mm
Total WBC count : .................cells / cu.mm
Differential count:
Polymorphs : ....% 
Lymphocytes : ......% 
Monocytes : ......% 
Basophils : ......% 
Eosinophils : ......% 
Platelet count : ........ lakhs cells / cu.mm

ESR (mm) 

½ Hr :

1 Hr :

BIO CHEMISTRY

Sugar (F) : .................mg%
PP : .................mg%
Total cholesterol : .......mg %
HDL : ..... mg %
LDL : .........mg %
VLDL : ...... mg% 
TGL : ...... mg%
Uric acid : ......... mg %

**Renal function test:**

Urea : ......... mg %
Creatinine : .......mg %

**Liver function test:**

SGOT : .........IU
SGPT : .........IU
Alkaline phosphatise : .........IU
Serum Total Protein : ...............gm %
Serum Albumin : ...............gm %
Serum Globulin : ...............gm %

**URINALYSIS:**

**Physical :**

Colour :
Appearance :
Specific Gravity :
Ph :
Odour :

**Chemical:**

Protein :
Glucose :
Ketones : 
Bile salts : 
Bile pigments : 
Urobilinogen : 
Occult blood :

**Microscopic:**

Deposits :

**MOTION :**

Ova :
Cyst :
Occult blood :

**SPECIFIC INVESTIGATIONS**

CRP :
RA factor :
ASO titre :

**OTHERS**

**RADIOLOGICAL INVESTIGATIONS**

X Ray of affected joints (AP and Lat view):

Date: 
Signature of the Doctor:
INFORMED WRITTEN CONSENT FORM

I ………………………exercising my free power of choice, hereby give my consent to be included as a subject in the diagnostic trial entitled “A Study on Neerkkuri Neikkuri Diagnostic Methodology in Uthiravathasuronitham- Rheumatoid Arthritis”. I may be asked to give urine and blood samples during the study.

I have been informed to about the study to my satisfaction by the investigator and the purpose of this trial and the nature of study and the laboratory investigations. I also give my consent to publish my urine sample photographs in scientific conferences and reputed scientific journals for the betterment of clinical research.

I am also aware of my right to opt out of the trial at any time during the course of the trial without having to give the reasons for doing so.

NAME OF THE VOLUNTEER : 

SIGNATURE OR THUMB IMPRESSION OF THE VOLUNTEER : 

SIGNATURE OF INVESTIGATOR : 

DATE: 

SIGNATURE OF LECTURER
சிறிய சிற்றொக்கு பிரைனூலம், நீலகிரி-47.

சிலந்த கதறக் குறிப்பு

"கீழ்வலய்விப்புக்கு தீர்வு நிறுவனம் பதிவு குழு"

பதிவு தரப்பட்டது-32103205 (2010-2013)

அம்மான் பாங்கு

அம்மான் சாந்திக்குப்பட்டு

தன்னால் - நேர அம்மான் தீர்வு அளிக்கப்பட்டது போல விளைந்தது. அம்மான் குறிப்பிட்டது.

தொலைவு:  கைவிளைப்பு:

- நாம்: கைவிளைப்பு :

இருந்து என்னை சாந்திக்குப்பட்டு

தன்னால் - நேர அம்மான் தீர்வு அளிக்கப்பட்டது போல விளைந்தது. அம்மான் குறிப்பிட்டது.

தொலைவு:  கைவிளைப்பு:

- நாம்: கைவிளைப்பு :

- நாம்: கைவிளைப்பு :

- நாம்: கைவிளைப்பு :
PURPOSE OF RESEARCH AND BENEFITS:

The diagnostic research study in which your participation is proposed to assess the accuracy of the Neikkuri procedure adopted in UTHIRAVATHASURONITHAM patients. It is expected that you would benefit from this study. Knowledge gained from this study would be of benefit to patients suffering from such conditions for the diagnosis and prognosis.

STUDY PROCEDURE:

You will be interviewed and examined as OP and IP patients at the study centre. At the first visit the physician will conduct a brief physical examination and assess the condition followed by blood pressure and routine blood and urine analysis. After matching the inclusion criteria you will be included in this study and neikuri procedure is done by the collection of your urine sample again.

POSSIBLE RISK:

During this study there may be a minimum pain to you while drawing blood sample.
CONFIDENTIALITY:

Your medical records will be treated with confidentiality and will be revealed only to other doctors / scientists. The results of this study may be published in a scientific journal, but you will not be identified by your name.

YOUR PARTICIPATION AND YOUR RIGHTS:

Your participation in this study is voluntary and you may be withdrawn from this study anytime without having to give reasons for the same. You will be informed about the findings that occur during the study. If you do agree to take part in this study, your health record will need to be made available to the investigators. If you don’t wish to participate at any stage, the level of care you receive will in no way be affected.

The Ethics committee cleared the study for undertaking at OPD and IPD, NIS. Should any question arise with regards to this study you contact following person
ஒரு குறிப்பிட்டு முதியை இல்லை, வருடம் 47.

சீரமைப்பாளர் குறிப்பிட்டு

"நூற்றாண்டுக்காலத்தின் நிகழ்வுகள் நிறைவேற்றிய அப்படி அம்ம"

சீரமைப்பாளர் செல்சிய பணி

அப்படி செல்பதற்கு பலன்:

சீரமைப்பாளர் பார்வைகள் ஒருவர் "நூற்றாண்டுக்காலத்தின் நிகழ்வுகள் நிறைவேற்றிய அப்படி அம்ம" கிளை நூற்றாண்டு இறக்கும் முறையில் வழங்கி அம்மைக்கு.
- மூடுமுனை சாலையில் சீரமைப்பாளரின்
  பணிகள் சீரமைப்பாளர் பணிகள் அம்மும் செல்பதற்கு பலன்.

அப்படி வாய்வு:

சீரமைப்பாளர் இந்தியாவின் புனித முக்கியத்துவம் செல்பதற்கு, சீரமைப்பாளர் புனித ஓர்ப்பு புரிந்து கொண்டது.

சீரமைப்பாளர் புனித ஓர்ப்பு தொடர்பில் என்ன விளக்காயம்.
- மூடுமுனை - ருது புனிதத்துவம் செல்லி குறித்து முடிக்கின்றது
- குறித்து மூடுமுனை சீரமைப்பாளரின்

சீரமைப்பாளர் இந்தியாவின் புனித ஓர்ப்பு

முதலில் புரிந்து கொண்டு முடிக்கின்றது, ஆனால்

அல்லது புரிந்து கொண்டு முடிக்கின்றது.
சுருக்கப்பட்டு பாதிக்கப் பட்டு சுருக்கப்பட்டு

- சுருக்கப்பட்டு கலந்து பாதிக்கப் பட்டு கலந்து சுருக்கப்பட்டு
  - சுருக்கப்பட்டு கலந்து பாதிக்கப் பட்டு கலந்து சுருக்கப்பட்டு

- சுருக்கப்பட்டு கலந்து பாதிக்கப் பட்டு
  - சுருக்கப்பட்டு கலந்து பாதிக்கப் பட்டு
Name: SIVAPRAMATHA
REG NO: 3203205
Title: A STUDY ON NEERKURI NEERKURI DIAGNOSTIC METHODOLOGY IN
UTHIRAVATHA SURONITHAM / RHEUMATOID ARTHRITIS


DECESSION

Opinion of the Institutional Ethics Committee - Please check one

☐ Approval

☐ Modifications required prior to approval (Please specify one space below)

☐ Disapproval

Date of review: 

Signed: (Please print name) Dr. V. SUBRAMANIAN

(Chairperson, Secretary)

Modifications needed

Modification given to candidate

The research proponent is hereby informed that the Institutional Ethics Committee will require the following:
1. All adverse drug reactions (ADRs) that are both serious and unexpected to be reported promptly to the IEC within 7 working days
2. The progress report to be submitted to the IEC at least annually
3. Upon completion of the study, a final study status report needs to submitted to the
IEC
The Tamil Nadu Dr. M.G.R. Medical University
69, Anna Salai, Guindy, Chennai-600 032

This Certificate is awarded to

Mr / Ms / Dr .........................................

for participating as a Resource Person / Delegate in the IX Workshop on "Research Methodology & Biostatistics"
for AYUSH Post-Graduates & Researchers
organized by the Department of Siddha
The Tamil Nadu Dr. M.G.R. Medical University
from 24th September 2012 to 28th September 2012.

Dr. N. KABILAN  MD (Siddha)
READER, DEPT. OF SIDDHA

Dr. K. SIVASANGEETHA  MD
REGISTRAR (FAC)

DR. MAYILVAHANAN NATARAJAN  D.Sc.
7th VICE CHANCELLOR