NATIONAL INSTITUTE OF SIDDHA
Chennai – 47

THE TAMIL NADU DR. M.G.R. MEDICAL UNIVERSITY,
CHENNAI – 32

PRECLINICAL AND CLINICAL STUDY ON
VAAYU KUNMAM
(DISSERTATION SUBJECT)

For the partial fulfillment of the
requirements to the Degree of

DOCTOR OF MEDICINE (SIDDHA)
BRANCH I– MARUTHUVAM DEPARTMENT
2010 - 2013
ACKNOWLEDGEMENT

My heartful thanks to Siddhars for their blessings and guidance to complete this dissertation.

I take this opportunity to express my gratitude to, **The Tamilnadu Dr.M.G.R. Medical University**, Chennai -32.

I express my heartful gratitude to our **Director, Prof.Dr.K.Manickavasakam, M.D(S)**, HOD, Department of Maruthuvam, National Institute of Siddha, Chennai, for his valuable guidance to complete my project.

I express my sincere thanks to **Chairman and Members of Institutional Ethical Committee (IEC) and Institutional Animal Ethical Committee (IAEC)**, National Institute of Siddha, Chennai-47, for their valuable guidance.

I express my sincere thanks to **Prof.Dr.M.Murugesan,M.D(S)**, Former Dean, National Institute of Siddha, Chennai-47, for his guidance.

I express my sincere thanks to **Prof.Dr.R.S.Ramasamy, M.D(S)**, Former Hospital Superintendent, for granting permission to carry out the clinical study in OPD & IPD of National Institute of Siddha, Chennai-47.

I express my sincere thanks to **Dr.M.Rajasekaran M.D(S)**, H.O.D i/c and other Faculties, Department of Gunapadam, National Institute of Siddha, Chennai, for their valuable guidance in the preparation of the trial drug.

I express my sincere thanks to **Dr.T.Lakshmikantham M.D(S), Dr.H.Vetha merlin kumari M.D(S), and Dr.H.Nalini Sofia M.D(S)**, Lecturers, Department of Maruthuvam, National Institute of Siddha, Chennai, for their valuable guidance and encouragement.

I express my sincere thanks to **Dr.G.Subburagavalu, M.D.**, Professor, Department of General Medicine, Madras Medical College, Chennai, for his suggestions for my study.
I express my special thanks to **Dr. M. Manimaran, M.D, D.M.**, Assistant professor Dept of Gastroenterology, Stanly Medical College, Chennai, for his immense help in endoscopic evaluation.

I acknowledge my thanks to **Dr. V. Subha, M.Phil, Ph.D** Assistant professor, Pharmacology, for her guidance and support in Toxicological studies.

I express my thanks to **Dr. M. Muthuvel**, Assistant professor, Biochemistry, National Institute of Siddha, Chennai-47, for his guidance in Biochemical analysis.

I express my sincere thanks to **Dr. D. Aravind, M.D(S), M.Sc.**, [Medicinal plants], Assistant professor, Medicinal Botany, National Institute of Siddha, Chennai.

I express my sincere thanks to **Mr. M. Subramanian M.Sc. (Statistics)** Senior Research Officer, National Institute of Siddha, for his guidance in preparing the protocol and statistical analysis.

I extend my sincere thanks to **Dr. Palanivel**, Department of Veterinary Pathology, Tamil Nadu Veterinary & Animal Science University, Chennai, for his interpretation in histopathological studies.

I extend my sincere thanks to **Dr. R. Murugesan**, scientific officer Gr-I SAIF, IIT, Chennai-36, for conducting the SEM analysis and detecting trace metals in the trial drug.

I wish to thank the staffs of library, technicians of the Clinical pathology laboratory and Bio-Chemistry Department, National Institute of Siddha, Chennai.

I like to thank all my patients who have given their consent to record their case materials and for their co-operation.

I take this opportunity to thank my wife for her sacrifice, Co-Operation and Moral support from the very beginning of my career.
## CONTENTS

<table>
<thead>
<tr>
<th>S.NO.</th>
<th>TITLE</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>4</td>
</tr>
<tr>
<td>3.</td>
<td>REVIEW OF LITERATURE</td>
<td></td>
</tr>
<tr>
<td></td>
<td>SIDDHA ASPECTS</td>
<td>5</td>
</tr>
<tr>
<td></td>
<td>MODERN ASPECTS</td>
<td>38</td>
</tr>
<tr>
<td></td>
<td>TRIAL DRUG</td>
<td>56</td>
</tr>
<tr>
<td>4.</td>
<td>MATERIALS AND METHODS</td>
<td></td>
</tr>
<tr>
<td></td>
<td>PREPARATION OF TRIAL DRUG</td>
<td>62</td>
</tr>
<tr>
<td></td>
<td>CLINICAL STUDY</td>
<td>65</td>
</tr>
<tr>
<td>5.</td>
<td>OBSERVATION AND RESULTS</td>
<td>75</td>
</tr>
<tr>
<td>6.</td>
<td>DISCUSSION</td>
<td>107</td>
</tr>
<tr>
<td>7.</td>
<td>SUMMARY</td>
<td>120</td>
</tr>
<tr>
<td>8.</td>
<td>CONCLUSION</td>
<td>122</td>
</tr>
<tr>
<td>9.</td>
<td>BIBLIOGRAPHY</td>
<td>123</td>
</tr>
<tr>
<td>10.</td>
<td>ANNEXURES</td>
<td></td>
</tr>
<tr>
<td></td>
<td>PROFORMA</td>
<td></td>
</tr>
<tr>
<td></td>
<td>BIOCHEMICAL ANALYSIS OF TRIAL DRUG</td>
<td></td>
</tr>
<tr>
<td></td>
<td>PHYSIO CHEMICAL ANALYSIS OF TRIAL DRUG</td>
<td></td>
</tr>
<tr>
<td></td>
<td>TOXICOLOGICAL STUDIES OF TRIAL DRUGS</td>
<td></td>
</tr>
<tr>
<td></td>
<td>LABORATORY REPORTS</td>
<td></td>
</tr>
<tr>
<td></td>
<td>CERTIFICATES</td>
<td></td>
</tr>
</tbody>
</table>
INTRODUCTION

The siddha system of medicare is one of the most ancient systems contemporaneous with those of the submerged lands, Egyptian, Mesopotamian, Chinese and Grecian medicines. It is the holistic health care system, perfected many thousands of years ago in the Tamil speaking peninsular India.

The granite rocks of the southern peninsula belong to the category of Archaic Rocks and are estimated to be around 2.5 to 4 billion years old. The historical, Anthropological, Archeological and Geographical evidences currently available confirm the antiquity of human civilization in this region. This antiquity also places the Siddha system of health science of this region as the oldest.

Siddha system of medicare is also being called as Tamil Maruthuvam, Chinthamani Maruthuvam and Arivan Maruthuvam. The word Siddh means realized and perfected. Siddhar means perfected or realized saints. Siddhar implies an expert in occultism, alchemy and so on with divine power. Since the advent of Thirumoolar who denotes Siddhi as super natural powers in his text Thirumanthiram, this is popularly called as Siddha system.

Siddha system is associated with Siddhars – the enlightened seekers. Who aimed for ageless body to achieve their highest spiritual goal. Though the system of medicine is associated with Tamilnadu the originators of the system, Siddhars have transcended to different parts of the world.

The principles of siddha system are based on five basic elements, called Earth matter (Mann), Space (Aagayam), air (Vali), fire (Thee) and water (Neer). The formation of the five classical elements as per the Tamil literature

- மண்டல்
- அவையம்
- வாலி
- தீ
- நீர்

- பெர்யாணர்
It means the world is formed of the five elements.

The concepts of the five element constituting macrocosm (universe level) all the way down to the microcosm (sub atomic or even meta physical-level). This is better described by the verse of Siddhar Chattamuni.

"அமல்கிட்டில் இரண்டு பிள்ளை
பிள்ளைக்கைர் இரண்டு அந்தன்
அமல்கிட்ட் பிள்ளைக்கைர் குலன்
அமல்கிட்ட் நற்றல் பார்க்கிலைது"

- சமந்திரி குருரேநே.

This is very basic of understanding that the seven physical constituents (Udal thathus) and three biological humors (Uyir thathus) are all based of the five elements. Change in life style i.e. Food habits and physical activities will make an imbalance of three biological humors leads to pathological changes in the body and mind.

"பிள்ளையும் துயரையும் உட்பொறிய துக்கோல்
மை துள்ளது பல்லாலநிலையும்"

- சிர்காய்க்கூண்

Disharmony with environment is the cause of most of the diseases. Both extrinsic and intrinsic factors are responsible for the manifestation of diseases. Uyir Tathus when deranged become thodams resulting in various diseases numbering 4448 as per Siddha text.

Kunmam is a disease one among them occurs due to the derangement of Uyir tadhu Vali as per Siddhar Theriyar

"எறும் மக்க புகழ்நிலைத் தோல்வியும்"
Siddhar Yugi in his Yugi Vaithiya Chinthamani classified Kunmam in to eight types. One among them is Vaayu kunman. Melnokku kaal and Keezh nooku kaal are primarily affected in Vaayu kunmam. The signs and symptoms of Vaayu kunmam may be correlated to Gastritis in modern system of Medicine. The symptoms are as follows. Indigestion, Nausea or Vomiting, Aversion to food, Flatulence, Gripping abdominal pain and Generalized weakness.

In the Siddha Text ‘Yakoobu Vaidhiya Chinthamani 700’ the drug “Vediyuppu Kattu” is indicated specifically for Atta Kunmam and Vaayu. The main ingredients of Vediyuppu Kattu are Vediyuppu and Seenam. As per the Siddha literature Pathartha Guna Chinthamani Vediyuppu and Seenam are found to be very efficacious in the treatment of ‘Vaayu Kunmam’.

The above mentioned formulation has not undergone any clinical trial so far. Hence i selected Vediyuppu Kattu for further clinical evaluation in Vaayu Kunmam.
AIM AND OBJECTIVES

AIM

The aim of the study is to evaluate the safety and therapeutic efficacy of the Siddha formulation “Vediyuppu Kattu” (Internal Medicine) in the treatment of “Vaayu Kunmam” (Gastritis).

OBJECTIVES

1. PRIMARY OBJECTIVE

To evaluate the therapeutic efficacy of the Siddha formulation “Vediyuppu Kattu” (Internal Medicine) in the treatment of “Vaayu Kunmam” (Gastritis).

2. SECONDARY OBJECTIVE

- To evaluate the safety profile of the trial drug (Acute and Long term toxicity studies) to be carried out as per W.H.O guidelines 1993.

- To conduct a clinical trial with a well defined proforma on the patients identified with “Vaayu Kunmam”

- To screen the biochemical constituents of the trial drug “Vediyuppu Kattu”.

- To study the influence of other co factors such as age, sex, dietary habits, family history, socio economic status, habitat etc on the disease.

- To find out the side effects / adverse effects of the drug “Vediyuppu Kattu” if any.
SIDDHA ASPECT

KUNMAM

SYNONYM:

Kunmam, Vaitrul puralal, Vaittru puraludan nothal.

DEFINITION:

Kunmam is a form of dyspepsia with burning sensation and gnawing pain in gastrium, gastric eructation, nausea, vomiting and indigestion. These terms refer to deterioration of both body and mind due to pain.

NOI VARUMVAZHI (ETIOLOGY)

ACCORDING TO THERIYAR PINI ANUGA VIDHI:

"நீர்ச்ச வாய் பருழுத்துக் கருவப் பற்றை" - ஒளியார்

As per the Theriyar Text, Kunmam occurs due to the repeated derangement of Vaatham. Primarily Udhanan vaayu, Abanan vaayu and Samanan vaayu gets affected.

ACCORDING TO YUGI VAIDHYA CHINTHAMANI 800:

"பொருமைகள் தயாரின் விளக்கம் தக்கத்தம்
நீர்ஸ்சு நீர்ப் பருழுத்து கருவப் பற்றை
சைவும் மாந்தும் முதும் பற்றை
மத்தவத்தும் சிதையும் முதும் பற்றை
சைவும் பிரிவும் முதும் பஹூமிப் பற்றை
சைவும் பிரிவும் முதும் பஹூமிப் பற்றை
சைவும் பிரிவும் முதும் பஹூமிப் பற்றை
சைவும் பிரிவும் முதும் பஹூமிப் பற்றை".

- பெரிச் சார்பின் கிருட்டச்சார்
Yugi said that, there are two main reasons for the onset of Kunmam

1. Seiyal maarupadugal (Change in personal habits)
2. Manamarupadugal (Altered mental status)

1. Personal habits:
   - Intake of contaminated food and water
   - Excessive intake of foods that produces indigestion and flatulence
   - Excessive intake of tubers
   - Excessive intake of spicy items
   - Starvation
   - Excessive sexual indulgence

2. Mental status:
   - Increased anger
   - Mental depression
   - Disobedience towards God, Teacher, and Parents.
   - Ill treating the parents,
   - Letting the children and infants in a starving condition,
   - Involving in the antisocial activities such as rape etc.
AGASTHIYAR VAITHYA KAVIYAM-1500:

"According to ‘Agasthiyar vaithya kaviyam’ the combination of Pitham with Vaatham induces Kunmam leads to vomiting of food and water.

AGATHIYAR GUNA VAGADAM:

"Agathiar assures all the eight types of Kunmam are caused by indigestion of food.

AGATHIYAR KANMA KANDAM:

"Agathiar in his Kanma kandam states the cause for Kunmam as
• Sin pertaining to those who have deprived the dwellings of others and humiliating elders.
• Consuming food in the presence of starved people.
• Slanderers acquire the disease by their action and covetous mind in the past.

PARARASA SEKARAM:

"அமாசன் கல்லிடி சுவாமிக
காத்ரோடி நேர்காணும் உலம
காலைகள் மணிப் புறா
சோழ் கல்விகள் போர்க
மார்பாள் குரும் புர்வா
நீர்பாள் மாரி சாதும்
நீர்பாள் சிறுமி கைகளினி சுட்டு வெளியும் முறைமை காலா‘.

- பாண்டய சொகும

Intake of food contaminated with stones, rice husks, hair causes indigestion which in turn leads to infection by microorganisms results in Kunmam.

THIRUMOOLAR KARUKKADAI VAITHYAM:

"அழகு வாழ்க பல்கா நிறுத்தில்
கீற்றுக்கும் பிற்றும் அப்பாயன கயத்திகள்
அழகு மண்டதம் நீதிகள் அகப்பாயல்
மாகங்கா தீர்கள் மாந்திப்போனே‘.

- சிறுமையான குருமான் மண்டிதை

If Azhal and Vali together affected it leads to Kunmam.
RESTRICTIONS OF BODY FUNCTIONS:

“உலகத்தில் நடுநிலை விளாகம்
மன்னரில் தன் முறை மட்டும்”

- ஆயிரத்தின் விகிதக்க

As a result of prevention of the movement of vaatham, kunmam will occur.

“பென்னிழில் வெளிக்கையில் விளாகம் துடுப்புக்கட்ட
அறுப்படி பிடிக்கும் பாதியை வெளிப்படுத்துக்கட்ட
அருளின் இந்திக்கு ஆரோக்கி உடல் தங்கும்
பாதுகாப்பு பல்வேறு துடுப்புக்கட்ட விளாகப்பெருக்கில்”

- ஆயிரத்தின் விகிதக்க

Preventing tears leads to disease of Heart, sinuses, eye and head. when vaatham adds to it causes Kunma noi.

PATHARTHAGUNA CINTHAMANI:

“சுல்தான் எம் தலையால்
இலையால் மிச்சம் கிளம்பத்துக்கட்ட“

Intake of water before taking food leads to the genesis of Kunmam.

AAVIYALLIKUM AMUTHAMURAI CHURUKKUM BY SIDDHARS:

According to the text aaviyallikum amuthamurai churukkum, Kunma noi there will be excess secretion of Analapitham (Hcl) which induce gastric eructation, dyspepsia, flatulence with pain.

CLASSIFICATION OF KUNMAM:

YUGI CLASSIFICATION:

Yugi classified the Kunmam into 8 types
1. Vaayu kunmam
2. Vatha kunmam
3. Pitha kunmam
4. Eri kunmam
5. Vali kunmam
6. Satthi kunmam
7. Sanni kunmam
8. Sethuma kunmam

**THIRUMOOLAR CLASSIFICATION:**

Classified the kunmam into 8 types

Due to derangement of vali:

1. Vatha kunmam
2. Soolai kunmam
3. Vali kunmam

Due to derangement of pitham:

1. Eri kunmam
2. Pitha kunmam
3. Satthi kunmam

Due to dearangement of kabam:

1. Iya kunmam
2. Sanni kunmam
ACCORDING TO T.V.SAMBA SIVAM PILLAI DICTIONARY:

Kunmam is classified into 13 types

1. Eri kunmam
2. Vali kunmam
3. Satthi kunmam
4. Kasa kunmam
5. Thontha kunmam
6. Sanni kunmam
7. Valineer kunmam
8. Purattal kunmam
9. Pitha kunmam
10. Vatha kunmam
11. Kari kunmam
12. Silethuma kunmam
13. Pulippu kunmam

ACCORDING TO DANVANTHRI VAITHYAM:

Danvanthri says that 108 diseases arise from the abdomen; eight among them are kunmams which are as follows

1. Vatha kunmam
2. Vali kunmam
3. Satthi kunmam
4. Soolai kunman
5. Pitha kunmam
6. Susai kunmam
7. Kaba kunmam
8. Eri kunmam
ACCORDING TO YUGI VAITHIYAKAVIYAM:

Classified the kunmam into 11 types

1. Vali kunmam
2. Maha kunmam
3. Bethi kunmam
4. Vatha kunmam
5. Soolai kunmam
6. Pitha kunmam
7. Eri kunmam
8. Satthi kunmam
9. Kabala kunmam
10. Ratha kunmam
11. Susai kunmam

AATHMA RATCHAMIRTHAM ENNUM VAITHYA SARASANGIRAKAM:

Classified the kunmam into 8 types

1. Vatha kunmam
2. Pitha kunmam
3. Silethuma kunmam
4. Vali kunmam
5. Satthi kunmam
6. Eri kunmam
7. Soolai kunmam
8. Kabala kunmam
VAAYU KUNMAM

CLINICAL FEATURES:

- Indigestion,
- Vomiting the residues of last food intake,
- Aversion to food,
- Flatulence,
- Fatigue,
- Generalized weakness,
- Sweating
- Gripping abdominal pain,
AS PER NAADI NOOL:

"Vaayu Kunmam is one of the classifications of Kunmam disease.
A form of dyspepsia marked by following symptoms viz- Upper abdominal pain, unusual secretion of saliva, indigestion, belching, etc…"

CLINICAL FEATURES:

- Increased vaatha humor
- Flatulence with painfull abdomen.
- Pricking pain of the chest.
- Gripping abdominal pain,

In T.V.S Dictionary description:

Vaayu Kunmam is one of the classifications of Kunmam disease.
A form of dyspepsia marked by following symptoms viz- Upper abdominal pain, unusual secretion of saliva, indigestion, belching, etc…

YUGI VAITHYA KAAVIYAM:

"Vaayu Kunmam is one of the classifications of Kunmam disease.
A form of dyspepsia marked by following symptoms viz- Upper abdominal pain, unusual secretion of saliva, indigestion, belching, etc…"
1. Pain in the upper abdomen
2. Excessive salivation in mouth
3. Belching
4. Rigor
5. Raised body temperature

AATHMA RATHAMIRTHAM ENNUM VAITHYA SARASANGIRAKAM:
1. Burning sensation in the upper abdomen
2. Excessive salivation, Nausea
3. Belching
4. Shivering
5. Pain in the joints.

MUKKUTRA VERUPADUGAL (Pathogenesis)

Disease occurs due to the derangement in

- Uyir thathukkal
- Udalthathukkal
- kaala marupadu (seasonal changes)
- Thinai (living lands) and
- Udal vanmai.

Mukkutra Iyal

The function of the three uyir thathus:

a) Vali \(=\) (Kattru + Veli)

b) Azhal \(=\) (Thee)

c) Iyyam \(=\) (Neer + Mann)

The alteration of three thathu in their reaction to extrinsic or intrinsic factors results in disharmony. This altered harmony and balance variation of the three thathus results in disease. Their natural ratio (1 :\(\frac{1}{2}\) :\(\frac{1}{4}\)) to each other is discerned by the physician at the wrist and each naadi is individually assessed for its strength, speed and regularity.
The following poem describes the origin of three uyir thahus

"திருவண்ணாமலை வாழ்கரியல்

பெருநாள் தெகைகளின் மலர் - பிள்ளை

சுருக்கத் தம்பதி சிருப்பிகள் பாற்ற சருண்ணகத்தை

சத்தணு பேணல் அரப்

"சருண் தம்பதி செல்லும் தேச்சினம்

பனிராகம் பிள்ளையுடைய பிள்ளையுடைய - பூமியான

2 பந்துகுறிக்கு காலாணல்கையால் முள்ளாது

மன்னர்கள் பிள்ளையுடையை முழும்”

"வாழ்கரியல் தெகைகள் மரபுமக்கண்டதைல்

தண்டு பிள்ளையுடைய பிள்ளையுடைய நடக்கும்

காலாணல்கு முள்ளாது காலாணல் முள்ளாது

மரபுமக்கண்டன் பிள்ளை முழும்”

- காலாணல்கைனால்

The three thahus are manifested at the wrist and are individually and collectively assessed. These three humour are divided in to various types and have their functions specifically.

FUNCTIONS OF VALI

"சுருக்கத் தம்பதி செல்லும் தேச்சினம் பிள்ளையால்

சாசகுறிப்பின் பொழுது அவுடை - சாசகுறிப்பின்

சுருக்கத் தம்பதி செல்லும் தேச்சினம்

மூன்று காலாணல் காலாணல்”

- மூன்று காலாணல்

According to the physiological function, vali is classified into ten types. They are
1. **Uyir Kaal (Pranan)**

This is the first of ten vital airs. According to Yugimuni, pranan starts from moolatharam and comes through the nostrils and causes the act of inspiration and the expiration. The inspiration and expiration are not equal and their ratio is 8:12. This is responsible for the respiration of the tissues, controlling knowledge, mind and five sense organs and helps in the digestion of ingested food.

2. **Kizhnokkumkaal (Abanan)**

Abanan, the downward air, starts from swathittanam and descends towards the pelvis and is responsible for excretion of urine and faeces ejaculation of semen and menstruation. This is green in color. It contracts the anus. It helps to take the essence of the digested food to the different parts of the body which requires food. The god attributed is varadarajan.

3. **Paravukaal (Viyanan)**

Viyanan arises from the shoulders and go through all the 72,000 nerves and thus activate voluntary and involuntary movements of the body and thus make them to extend and contract. This is responsible for the motor and sensory function of the entire body. This appreciates the sense of touch, helps to take the essence of the food to the strategic points of the body and guards the body.

4. **Melnokkumkaal (Udhanan)**

Udhanan starts from the umbilical region (Udarakkini) and takes the essence of food and stations it at appropriate places. It helps in digestion and assimilation of food. It is responsible for all the upward movements.

5. **Nadukkaal (Samanan)**

Samanan starts from the umbilical cord and spread out up to the lowerlimb. This is responsible for the balance of the other four vathas. It equalizes the six tastes, water, food etc and helps in assimilation.
6. **Naagan**

Naagan is responsible for higher intellectual functions, hearing, thinking etc. It causes closing and opening of the eye lids. Its derangement causes impaired memory, lack of coherent thinking.

7. **Koorman**

Koorman starts from the mind and causes winking of the eyelids, yawning and closure of mouth. It gives strength to the body and helps to visualize things and causes lacrimal secretion.

8. **Kirukaran**

Kirukaran lies in the tongue and causes nasal and salivary secretions. Hunger, concentration of the mind on one particular thing, Sneezing and cough are attributed to kirukaran. It is black in colour.

9. **Devadaththan**

Laziness is attributed to devadaththan. Occular movements and human passions are attributed to this vaatham. It stays at the anus or at urinary orifice.

10. **Dhananjeyan**

Dhananjeyan functions from the nose and it is responsible for the bloating of the body after death and also for the foul smell.

In Vaayu Kunmam, Pranan, Samanan and Udhanan will be mainly affected due to poor appetite, gastro intestinal symptoms and indigestion respectively.

Abanan and Viyanan may also be affected due to changes in bowel movements and poor assimilation.
FUNCTIONS OF AZHAL

Azhal is functionally divided into five types. They are

1. **Aakkanal (Anala pitham)**
   
   It lies between the stomach and the intestine and causes digestion and dries up moist ingested substances. Its derangement produces indigestion, acidity, burning sensation in the middle of the chest, throat and stomach.

2. **Vanna eri (Ranjaga pitham)**
   
   This fire lies in the stomach and gives red colour to the chyme and produces blood. It improves blood. Its derangement causes disease of the liver and spleen and disease of the blood.

3. **Attralangi (Sadhaga pitham)**
   
   This fire lies in the region of intellectual function and helps for the accomplishment of desired functions.

4. **Nokku Azhal (Alosaga pitham)**
   
   It lies in the eyes and causes the faculty of vision. It helps to visualize things.

5. **Ollolithe (Prasaga pitham)**
   
   It gives color and complexion and brightness to the skin.

   In Vaayu Kunnam Anala Pitham is mainly affected due to indigestion, acidity, burning sensation in the middle of the chest. In later stage Attralangi and Vannaerri will be affected.
FUNCTIONS OF IYAM

"நிலையை பின்பற்றுவது கிருட்டப்படுகை மூடப்படும்
அறையான மலர்புமுக்கு அழிக்க கிருட்டது
நேர்முறை பண்பாடும் தொல்லூர் காரப்படும்
யங்குண்டுக்கு செய்யப்படும் போன்ற
- பாதைக்கு கடிந்தன்

It is of five types. They are

1. Alli Iyam (Avalambagam)

   It lies in the lungs and helps in respiration. It causes firmness of the limbs. This is vital among all types of kapham. It controls the other four kapham and maintains equilibrium

2. Neerpi Iyam (Kilaethagam)

   It lies in the stomach. It mixes the consumed food and water and promotes the digestive process. Protects the upper and middle abdomen from hot, irritant and cold food as well as from the secretions of anala pitham.

3. Suvaikanna Iyam (Pothagam)

   It lies in the tongue and helps to realize the taste of the consuming food. Potentially harmful substances are initially rejected by this taste screen.

4. Niraivu Iyam (Tharpagam)

   Sustaining in the head, this gives refrigerant effect to cool the eyes and other sense organs.

5. Ondri Iyam (Santhigam)

   Sustaining in the joints this makes them more freely and easily.

   In Vaayu Kunmam, Kilaethagam may be affected due to altered digestive process and Pothagam may be affected due to altered taste sensation.
PARUVAKALAM (SEASONS)

According to ancient Tamilians, the one year is divided into six seasons and each season consists of two months and the year starts from Margazhi.

1. **Munpani** - Early winter season from Markazhi to thai (Dec 16 to Feb 15)
2. **Pinpani** - Latter winter season from Masi to panguni (Feb 16 to Apr 15)
3. **Elavenil** - Early summer season from Chithirai to vaikasi (Apr 16-Jun 15)
4. **Mudhuvenil** - Latter summer season from Aani to aadi (Jun 16 to Aug 15)
5. **Kaar** - Early rainy season from Aavani to puratassi (Aug 16 to Oct 15)
6. **Koothir** - Latter rainy season from Iypasi to karthigai (Oct to Dec 15)

The disease Vaayu kunmam mostly aggravated during the seasons Elavenil (early summer) and Muthuvenil (Late summer).

The winter season gives good health to the man, early summer and latter rainy gives moderate health. Whereas early rainy and latter summer are more prone to diseases, that’s why siddhars called it as Aanaga kalam.

THINAI (LAND)

Siddhars classified the lands in to five types. They are

1. **Kurungi** - Mountain range
2. **Mullai** - Pastoral area of the forest
3. **Marudham** - The fertile river bed
4. **Neidhal** - The coastal region
5. **Paalai** - Arid desert

- Marudha nilam is the fertile area where no disease occurs
- It is reportedly higher in Palai, Neithal and Mullai area’s when compared to others.
Relation between Mukkutram, Kaalangal and Thinnaigal

<table>
<thead>
<tr>
<th>Mukkutram</th>
<th>Paruvakalam (Seasons)</th>
<th>Thannilai vazharchi (Accumulation)</th>
<th>Vetrunilai vazharchi (Aggravation)</th>
<th>Thannilai adaithal (Alleviation)</th>
<th>Thinai</th>
</tr>
</thead>
<tbody>
<tr>
<td>Vaatham</td>
<td>Mudhuvenil kalam</td>
<td>Kaar kalam</td>
<td>Koothir kalam</td>
<td>Vatha disease is more prevalent in Neithal land</td>
<td></td>
</tr>
<tr>
<td>Pitham</td>
<td>Kaar kalam</td>
<td>Koothir kalam</td>
<td>Munpani</td>
<td>Pitha disease is more prevalent in Mullai land</td>
<td></td>
</tr>
<tr>
<td>Kapham</td>
<td>Pinpani</td>
<td>Elavenil kalam</td>
<td>Mudhuvenil kalam</td>
<td>Kaphadisease is more prevalent in Kurunchi land</td>
<td></td>
</tr>
</tbody>
</table>

Gnanenthriyam:

- **Mei** - feels all types of sensation.
- **Vaai** - for identifying taste.
- **Kan** - for vision
- **Mooku** - for identifying the smell
- **Sevi** - for hearing

In Vaayu kunmam, mei was affected due to the presence of epigastric tenderness and vaai may affected due to impairment of taste sensation

Kanmenthriyam:

- **Kai** - majority of normal works done by hand
- **Kaal** - for walking
Vaai - for speaking
Eruvai – for defeacation
Karuvai - for reproduction

In Vaayu Kunmam, Eruvai may be affected due to variation in bowel habits.

**UDAL VANMAI (IMMUNITY)**

Siddhars classify Udal vanmai as three types. They are

1. Iyarkai vanmai
2. Kala vanmai
3. Seyarkai vanmai

Since Vaayu Kunmam patients are suffering with epigastric pain, nausea, indigestion as principal symptom, we came to understand that it is because of alteration in Vali thathu and Vali should be the primary causative factor (Muthanmai kutram). It can be confirmed by the words of great Siddhar Therayer

“நீதி பலக பிளன்பாலக கொள்கின் வகை”

- சோதனம்

**EZHU UDAL KOORUGAL (SEVEN PHYSICAL CONSTITUENTS)**

“நீதியில் மறுபாடு வால் இளங்கல்படு பண்டகோன்மார் விலைமுடைய பொருள்”

சுரியான புரோட்டுக்கு பொட்டாசிப்புடன் பிளன்பாலன் பிள்ளையான பிள்ளையான

உலகம் மைத்தோற்றால் வறும் பொருள் முறையே சுரியான பிள்ளையான

மறுபாட்டை மறுபாட்டு வேறுபாட்டை பிள்ளையான பிள்ளையான பிள்ளையான”

- சோதனம்

The human body is made of seven basic physical constituents. These constituents should be in harmony and function normally. Any variation in them will lead to their functional deviations. The Natural characters of the seven physical constituents are
1. **Saaram (Chyle)**

   This gives mental and physical perseverance

2. **Senner (Blood)**

   Imparts color to the body, nourishes the body and is responsible for the ability and intellect of an individual

3. **Oon (Muscle)**

   It gives shape to the body according to the physical activity and covers the bones

4. **Kozhuppu (Fat)**

   It lubricates the joints and other parts of the body to function smoothly

5. **Enbu (Bone)**

   Supports the frame and responsible for the postures and movements of the body

6. **Moolai (Bone marrow)**

   It occupies the medulla of the bones and gives strength and softness to them

7. **Sukkilam/Suronitham (Sperm / Ovum)**

   It is responsible for reproduction

**THE VARIATIONS OF THE PHYSICAL CONSTITUENTS**

1. **SAARAM**

   Increased Saaram: Leads to diseases of increased kapham like loss of appetite etc.

   Decreased Saaram: Leads to loss of weight, tiredness, lassitude, dryness of the skin and diminished activity of the sense organs.

2. **SENNER**

   Increased Senner: Causes boils in different parts of the body throbbing pain, anorexia, mental disorder, splenomegaly, Colicky pain, increased blood pressure, reddish eye and Skin, jaundice, haematuria etc.
Decreased Senner: Leads to anaemia, tiredness, neuritis and lassitude, Pallor of body.

3. **OON**

Increased Oon: Oon in excess causes cervical lymph adenitis, venereal ulcer, tumor in face, abdomen, thigh genitalia etc are the signs of increased Oon.

Decreased Oon: Leads to impairment of sense organs, joints of jaw, thigh and genitalia gets shortened.

4. **KOZHUPPU**

Increased Kozhuppu: Identical to that of increased Oon associated with Dyspnoea and loss of acidity.

Decreased Kozhuppu: Leads to pain in the hip region and diseases of the spleen.

5. **ENBU**

Excess Enbu: Growth in bones and teeth

Decreased Enbu: Loosening of teeth and nails and Splitting and falling of hair

6. **MOOLAI**

Increased Moolai: Causes heaviness, swollen eyes, swollen phalanges, Oliguria and non healing ulcers.

Decreased Moolai: Causes osteoporosis and sunken eyes

7. ** SUKKILAM / SURONIITHAM**

Excess Sukkilam/Suronitham: Causes lust towards women and cause Urinary calculus.

Decreased Sukkilam/Suronitham: Causes failure in reproduction, pain in the genitalia.

In *Vaayu Kunnam* Saaram (Generalised weakness), Senner (Pale conjunctiva) and Oon (loss of Weight) may be affected.
PINIYARI MURAIMAI (DIAGNOSIS)

It means the method of diagnosing the disease.

"அரித்தியால் தந்து காணும் முறைகள்

சுருக்காய்ப் பாய்க்கிறதற்கு

சுருக்காய் பாய்க்கிறாதோரின்

சுருக்காய் பாய்க்கிறாதோரின்

புனிதம் பாய்க்கிறாதோரின்

புனிதம் பாய்க்கிறாதோரின்

புனிதம் பாய்க்கிறாதோரின்

புனிதம் பாய்க்கிறாதோரின்"

- கிருஷ்ண ராமநாத் - பகுதி 3

The above poem describes that diagnosis is very important for the physician to treat the disease.

Four steps are followed in diagnosing the disease. They are,

- Poriyal arithal
- Pulanal therthal
- Vinaathal
- Envagaithervu

In detail,

a. PORIYAL ARITHAL

In this the physician should carefully observe the changes that occur in the five sensory organs (Porigal) of the patient.

b. PULANAL THERTHAL

The physician carefully applies his five senses of perception, smell, taste, vision, touch and sound to understand the condition of the patient.
c. **VINAATHAL**

The physician should interrogate about the patients name, age, occupation, socio economic status, food habits, history of past illness, history of present illness, family history, marital status, menstrual history and frequency of pain.

d. **ENVAGAI THERVUKAL**

"தனுராமப் பெரியாரின் சிற்றுருவத்தில்
மண்டபத்தில் சிலைய என்கின்றோம்"

- மட்டுடன் சுட்டிக் குறுக்கு

"தனுராமப் பெரியாரின் சிற்றுருவத்தில்
மண்டபத்தில் சிலைய என்கின்றோம்
மட்டுடன் சுட்டிக் குறுக்கு மண்டபத்தில்
சிலைய என்கின்றோம்
என்று நீதிக்கும் குறிப்பிட்டு அடிவாரம்"

- ஆனேக்கும் நீதிக்கும் குறிப்பிட்டு

Nowadays advanced diagnostic tools have been developed by modern bio-medical scientists. But Siddhars have given eight diagnostic methodological tools. They are called as Envagai thervu.

**Eight Fold Systems of Clinical Assessments**

Siddhars have given eight diagnostic methodological tools. They are,

1. Naa
2. Niram
3. Mozhi
4. Vizhi
5. Malam
6. Moothiram
7. Naadi
8. Parisam
GENERAL FINDINGS

1. NAA
   i. Signs and symptoms in the tongue are noted here.
   ii. Color, salivary secretion, ulcers, coating, inflammation, taste changes, and its nature are generally noted.

   In VaayuKunmam the Naa may be affected due to the pallor and dryness of the tongue with Sour / Bitter taste sensation.

2. NIRAM
   i. The color of the skin is noted here.

   In VaayuKunmam the Niram may be affected due to the Pale / Yellowish colour of the body.

3. MOZHI
   i. Character of the speech is noted, mainly uratha olli (high pitched), thazhntha olli (low pitched), or resembles the sound of any instrument.

   In VaayuKunmam the Mozhi will be affected to the patients who have severe epigastric pain leading to the thazhntha olli (Low and soft).

4. VIZHI
   i. Character of the eye is noted. Color, warm, burning sensation, irritation, visual Perception.

   In VaayuKunmam the Vizhi may be affected due to the pale in colour and burning sensation of the eyes.

5. MALAM
   i. The stools are examined for Erugal (constipation), Elagal (Loose stools), Color (Niram) and Froth (Nurai).
In VaayuKunmam the Malam will be affected (either constipation or diarrhea). Nurai may not present.

6. MOOTHIRAM

a. Neerkuri

The urine is examined for its

(i) Niram (Colour)
(ii) Adarthi (Specific gravity)
(iii) Manam (Odour)
(iv) Nurai (Froth)
(v) Enjal (Deposits)

b. Neikuri

"ஒரு தாய் பாவியால் அதிர்வந்திற்கும்
நிலை ஒரு தார்வியால் அருடேற்கும்
சான்றதட்டி ஊடையி வேலிட்டு
நனத்தாரிய் தோவிலிகளில்
எந்தவுண்டுகளிக்குத் தலைக்கும்
நிலையில் பெருந்து பிள்ளிக்கும் கலை"

- வித்மான் ராக்கியில் முழிப்பாண் நோய்

The early morning freshly voided urine of the patient is analyzed by dropping a drop of gingili oil on the surface of the urine sample. The accumulation, formations, changes, and dispersal under the sunlight without any external disturbances of the urine sample can be noted.

- Vatha neer - The oil spreads like snake
- Pitha neer - The oil spreads like ring
- Kapha neer - The oil stood like pearl
- If the oil spreads gradually, it indicates good prognosis
• If the oil spreads fast or gets mixed completely with urine or sinks in urine, it suggests bad prognosis.

Since VaayuKunmam is due to the derangement of vaatham and pitham the neikuri will be in snake pattern and ring like.

7. NAADI

Naadi is a Unique Siddha Pulse reading method and it should be felt and not read. Different characters of Vazhi, Azhal, Iyam like branching, jumping, mixing, rotating and compression can be identified in diseased conditions.

Characters of the Naadies

<table>
<thead>
<tr>
<th>Identification (finger)</th>
<th>Index</th>
<th>Middle</th>
<th>Ring</th>
</tr>
</thead>
<tbody>
<tr>
<td>Strength (In unit)</td>
<td>1</td>
<td>½</td>
<td>¼</td>
</tr>
<tr>
<td>Pattern</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(Male)</td>
<td>Hen</td>
<td>Tortoise</td>
<td>Snake</td>
</tr>
<tr>
<td>(Female)</td>
<td>Snake</td>
<td>frog</td>
<td>Swan</td>
</tr>
</tbody>
</table>

"நாடி நாடை இல்லையென்று குறுக்கும்
பாதியப் பாதிக்கிளையும் பல்செய்வதே
கல்வெட்டு வரும்போல் வரும்போல்
கொண்டாட்ட ப்ள்ளிக்கு உண்டால் உண்டால்
ரேற்றெடுக்கும் எச்சையையைத் தந்துவைந்து
சிறைக்கும் எளியவை பிரார்த்திக்கு கால்வை"

-பிரார்த்திக்கு வியத்து தவர்க்கின்ற (பசைகாய் துறு)- பக்கம்2

In VaayuKunmam the Naadi nadai will be as follows;

1. Vaatha Naadi

மாதிரியே இருப்பது வரும்போல்
சுரங்கத்திலே வலியும் பிள்ளையை சிறியை
சுரங்கத்தில் மோதி பக்கம் புகை

30
In VaayuKunmam any one of the following naadies will be observed vatha naadi, vatha pitham, vatha kappam, pitha vaatham, kappa vaatham, kappapitham.

8. PARISAM

In parsiam the following observations such as temperature, sensory impairment, mass, nodes, swelling, and texture of the skin, pain, hardness, edema will be noted through palpitation.

In VaayuKunmam the parsiam may be affected (tenderness in theEpigastric region).
NOIKANIPPU VIVAATHAM:

Vatha Kunmam is differentiated from other types of Kunmam as follows:

1. ERI KUNMAM:

"திருச்சிற்றாக கைவிளைக்குண்டம் கிண்டுக்கோள் கரவு
சிறுகுளியில் குண்டுக்கோள் கல்லம் குண்டு
அதிகம் சிவனுக்கு குண்டுக்கோள் குண்டு குண்டு"

- பாலிந்துச்சீரியரால்

1. Burning sensation in the stomach
2. Borborygmus
3. Excessive salivation
4. Headache
5. Giddiness
6. Belching
7. Perspiration
8. Diarrhoea
9. Emaciation
10. Loathing of food
11. Burning sensation all over the body
12. Cough
2. SILETHUMA KUNMAM:

1. Excessive salivation
2. Emaciation
3. General weakness
4. Loathing of food
5. Generalised Tremor
6. Heaviness of head
7. Pallor of the skin
8. Dyspnoea
9. Heart burn sensation
3. PITHAKUNMAM:

“செய்திகளை கோரித்து கொள்ளும் வகையில்

சபித்து சிகரிப்பட்டு மருந்து மருந்து

மகிழ்து மருந்து மருந்து மருந்து

மருந்து மருந்து மருந்து மருந்து

சித்தியை கொண்டு சித்தியை கொண்டு

சித்தியை கொண்டு சித்தியை கொண்டு

சித்தியை கொண்டு சித்தியை கொண்டு மருந்து

- பாதிமாதிகளின் காரணங்கள்

1. Yellowish discolouration of face
2. Nausea and Vomiting
3. Reeling of head
4. Phlegm in the chest
5. Thirst
6. Haematuria
7. Constipation
8. Excessive body heat
9. Weariness of limb
10. Fainting
11. Dyspnoea
TREATMENT:

Siddhars have designed line of treatment into 3 phases for all disease, they are given below

1. Kaappu (Prevention)
2. Neekam (Treatment)
3. Niraivu (Restoration)

“பூம் முடித்து முடித்தே என்று கருத்திகள்
முற்றும் முடித்தே உண்டோ”

- மீதுகை

LINE OF TREATMENT:

- Purgation
- Internal medicine
- Dietary advice

Purgation:

“சித்தோத்தகத்தோ பாதை சுழல்” -

“அதிகாரித்து சுழல் அழுத் துள்வரிதோ”

- மீதுகை

Here Vaayu Kunmam, vatha humour is mainly deranged. Administration of purgatives is done to normalize the vitiated vaatham and eliminate other toxic products of digestion, metabolism and catabolism.

Purgative medicine:

Agasthiyar kuzhumbu-130 mg (Ref: Siddha vaithya thirattu) with 15 ml ginger juice at early morning on the first day of treatment.
INTERNAL MEDICINE:

Vediyuppu kattu - 800mg

with

Thiru kadugu Chooranam – 400mg

With Butter milk, after food twice daily.

Dietary advice:

Restricted diet:

1. As per saint Yugi:

   Excessive intake of food having Thuvarppu taste

   Milagu vagai uraippu (excessive intake of spicy diet)

   Kilanguvagaigal (Tuberous diet)

2. As per literature Noigalukku Siddha parikaram:

   Kollu, ulunthu, maamisam, sea foods like fish, dry fish…

DO’S:

- Butter milk is also recommended as one of the best home remedy for the treatment of gastric ulcer.

- Coconut water is considered as one of the best health drink. It keeps the body temperature cool, helps indigestion.

- Patient suffering from gastric ulcer should drink plenty of water (8-10 glasses of water/day).

- Having a small meal every 3 hours is recommended.

- Honey is also considered as an effective home remedy for the treatment of gastric ulcer.

- Foods to include: Leafy vegetables, carrot juice, fresh fruits, vegetable salads.
DON'TS:

- Alcohol, black pepper, chilli powder should be avoided.
- Tea, coffee, chocolate should not be taken.
- Do not eat full stomach

Prevention:

- Eat slowly by chewing the food thoroughly; this will help in proper digestion and prevention of gastric ulcer.
- Do not eat full stomach.
- Having a small meal every 3 hours is recommended.
- Avoid spicy foods.
- Avoid stress
- A proper diet for gastric ulcer combined with stress managing methods and lifestyle changes can help in preventing gastric ulcer.

Niraivu (restoration):

**Yogam techniques to be observed by the Vaayu Kunmam patients:**

- Kiriya Gnyiru Vanakkam (Kiraiya Pose of Sun Salutation)
- Meditative postures
  - Thamarai Asanam (Padmasanam)
  - Mandi Uruthi Asanam (Vajrasanam)
- Paranayamams
  - Mathrika Pranayamam
  - Omkhara Pranayamam
  - Nithirai Pranayamam
- Shanthi Asanam (Savasanam)
DIGESTIVE SYSTEM

ABDOMEN

The abdominal cavity is an extensive space which extends upwards, deep to the costal margin, into the concavity of the diaphragm; and projects downwards and backwards into the bony pelvis as the pelvic cavity.

NINE REGIONS OF THE ABDOMEN

For the purpose of describing the location of viscera, the abdomen is divided into nine regions by four imaginary planes, two horizontal and two vertical. The horizontal planes are transplloric and trans tubercular planes. The vertical planes are the right lateral and left lateral planes.

STOMACH

The stomach is a muscular bag forming the widest and most distensible part of the digestive tube, it is connected above to the lower end of the oesophagus and below to the duodenum.

LOCATION:

The stomach lies obliquely in the upper and left part of the abdomen, occupying the epigastric, umbilical and hypochondriac regions.

SIZE:

The stomach is about 25cm long and is 6 inches (15.2 cm) wide at its widest part.

SHAPE AND POSITION:

The shape of the stomach depends upon the degree of its distension and that of the surrounding viscera.

When empty, the stomach is somewhat J-shaped (vertical).

When partially distended it become pyriform in shape.
CAPACITY:

- At birth - 30 ml
- Puberty - 1000 ml
- Adults - 1500 – 2000 ml

ANATOMY OF THE STOMACH

The stomach has two orifices, two curvature, and two surfaces

ORIFICE:

**Cardiac orifice:** The cardiac orifice is joined by the lower end of the oesophagus.

**Pyloric orifice:** The pyloric orifice opens into the duodenum.

CURVATURES:

**Lesser curvature:** The lesser curvature is concave and forms the right border of the stomach.

**Greater curvature:** The greater curvature is convex and forms the left border of the stomach.

SURFACES:

The **Anterior** or Antero superior surface faces forwards and upwards.

The **Posterior** or Postero inferior surface faces backwards and downwards.

PARTS OF STOMACH:

The stomach is divided into two parts
1. Cardiac part:

- This is upper opening of the stomach.
- Cardiac part is further subdivided into the fundus, body.

2. Pyloric part:

- This is lower opening of the stomach.
- Pyloric part is subdivided into the antrum, pyloric canal.

Fundus:

Fundus is the portion above the horizontal line drawn across the oesophago-gastric junction.

It is commonly distended with gas which is seen clearly in radiographic examination under the left dome of diaphragm.

Body of the stomach:

It lies between the fundus and the pyloric antrum.

STRUCTURE OF WALL OF THE STOMACH

The wall of the stomach has four layers.

**Outer serous layer:** It consists of the peritoneal covering.

**Muscular coat:** This consists of three layers of smooth muscles fibers namely, inner oblique, middle circular and longitudinal layer.

**Sub mucosa layer:** It is made of connective tissue, arterioles and nerve plexus.

**Inner mucosa layer:** The glands of the stomach are situated in the mucous membrane. The gastric glands are mainly mucous secreting.
The glands of the fundus and most part of the body contain three types of cells

a. The mucous neck cells
b. The chief cells or zymogenic or peptic cells
c. The parietal cells or oxyntic cells

The glands of pyloric region mainly produce mucous and alkali.

**Arterial supply:**

- Right gastric artery
- Left gastric artery
- Right gastroepiploic artery
- Left gastroepiploic artery
- Short gastric arteries

**Venous supply:**

- Right gastric vein
- Left gastric vein
- Right gastroepiploic vein
- Left gastroepiploic vein
- Short gastric vein

**NERVE SUPPLY:**

Stomach is supplied by both parasympathetic and sympathetic nerves.

**Sympathetic:**

- Greater splanchnic nerve

**Parasympathetic:**

- Right vagus and Left vagus.
STOMACH FUNCTIONS:

1. Storage function: It is a reservoir for food.
2. Absorption: It has limited power of absorption. Substances like water, alcohol and drugs acetylsalicylic acid etc. are absorbed from the stomach.
3. Digestive function: Secretion of gastric juice.
4. Haematinic function: Secretion of intrinsic factor (glycoprotein) which is necessary for the absorption of vitamin $\text{B}_{12}$.

GLANDS OF STOMACH:

The glands of the stomach or gastric glands are divided into three types

1. **Fundic glands:**

   The different cells of these glands are,

   a) Chief cells or pepsinogen cells: These cells secrete pepsinogen, rennin and gelatinase.
   b) Parietal cells or oxyntic cells: These secrete HCL and intrinsic factor of castle.
   c) Mucous neck cells which secrete mucin.

2. **Pyloric glands:**

   These glands secrete mostly mucin and gastrin.

3. **Cardiac glands:**

   These glands secrete alkaline mucus and small quantity of pepsinogen.

GASTRIC JUICE

Gastric juice is the mixture of secretions from different glands of the stomach.
Composition:

Gastric juice contains 99.5% water and 0.5% solids

Organic substances of gastric juice:

1. Gastric enzymes:

Pepsin, rennin, gastric lipase and other enzymes.

2. Gastric mucus:

Mucus is a glycoprotein, it is like a flexible gel covering the gastric mucus membrane.

3. Intrinsic factor:

This is necessary for absorption of the extrinsic factor (old name for vitamin B12).

Inorganic substances of gastric juice:

HCl, Sodium, Calcium, Potassium, Chloride, Bicarbonate, Phosphate

SECRETION OF HCL

HCl secretion is an active process taking place in the canaliculi of parietal cells in fundic glands of stomach.

Factors regulating the secretion of HCl

1. Gastrin:

   i. Gastrin is one of the gastrointestinal hormones
   ii. It stimulates acid secretion

2. Enterogastrone:

   i. Enterogastrone is another gastrointestinal hormone
ii. It inhibits the acid secretion

3. Histamine:
   i. It is an excitatory neurotransmitter substance secreted in spinal cord.
   ii. It stimulates the acid secretion

4. Vagal stimulation:
   Increases acid secretion

REGULATION OF GASTRIC SECRETION

Secretion of gastric juice occurs when the food is taken in the mouth. The neural and hormonal mechanism is involved in the secretion of gastric juice. The secretion occurs in three phases

1. Cephalic phase : This phase is under nervous control.
2. Gastric phase : This phase is under nervous and hormonal control.
3. Intestinal phase : when the chyme leaves the stomach and enters the intestine, initially the secretion of gastric juice is increased and later it is inhibited.

GASTRITIS

Definition:

Gastritis is an inflammation or irritation of the lining of the stomach, is not a single disease. The term gastritis should be reserved for histologically documented inflammation of the gastric mucosa. Gastritis is not the mucosal erythema seen during endoscopy and is not interchangeable with "dyspepsia."

The etiologic factors leading to gastritis are broad and heterogeneous. Gastritis has been classified based on time course (acute vs. chronic), histologic features, and anatomical distribution or proposed pathogenic mechanism.
Classification of Gastritis

I. Acute gastritis

A. Acute H. pylori infection

B. Other acute infectious gastritis
   a. Bacterial (other than H. pylori)
   b. Helicobacter helmanni
   c. Phlegmonous
   d. Mycobacterial
   e. Syphilitic
   f. Viral
   g. Parasitic
   h. Fungal

II. Chronic atrophic gastritis

A. Type A: Autoimmune, body- predominant
B. Type B: H. pylori–related, antral-predominant
C. Indeterminant

III. Uncommon forms of gastritis

A. Lymphocytic
B. Eosinophilic
C. Crohn's disease
D. Sarcoidosis
E. Isolated granulomatous gastritis

Incidence:

Sex : No sexual predilection

Age : Gastritis affects all age groups
ACUTE GASTRITIS

Acute gastritis is a term covering a broad spectrum of entities that induce inflammatory changes in the gastric mucosa. The different etiologies share the same general clinical presentation. However, they differ in their unique histologic characteristics. The inflammation may involve the entire stomach (eg, pangastritis) or a region of the stomach (eg, antral gastritis). Acute gastritis can be broken down into two categories: erosive (eg, superficial erosions, deep erosions, hemorrhagic erosions) and nonerosive (generally caused by Helicobacter pylori).

The bacteria Helicobacter pylori accounts for 90% of cases of acute gastritis. If not treated, this picture will evolve into one of chronic gastritis. Hypochlorhydria lasting for up to one year may follow acute H. pylori infection.

No correlation exists between microscopic inflammation (histologic gastritis) and the presence of gastric symptoms (eg, abdominal pain, nausea, vomiting). In fact, most patients with histologic evidence of acute gastritis (inflammation) are asymptomatic. The diagnosis is usually obtained during endoscopy performed for other reasons. Acute gastritis may present with an array of symptoms, the most common being nondescript epigastric discomfort.

Other symptoms include nausea, vomiting, loss of appetite, belching, and bloating. Occasionally, acute abdominal pain can be a presenting symptom. The diagnosis of acute gastritis may be suspected from the patient's history and can be confirmed histologically by biopsy specimens taken at endoscopy.

Pathophysiology

Acute gastritis has a number of causes, including certain drugs; alcohol; bile; ischemia; bacterial, viral, and fungal infections; acute stress (shock); radiation; allergy and food poisoning; and direct trauma. The common mechanism of injury is an imbalance between the aggressive and the defensive factors that maintain the integrity of the gastric lining (mucosa).
Causes for acute gastritis

1. Diet and personal habits:
   - Highly spiced food
   - Excessive alcohol consumption
   - Malnutrition
   - Heavy smoking

2. Infections:
   - **Bacterial infections** e.g. *H. Pylori*, *H. heilmanii*, streptococci, staphylococci, Proteus species, *Clostridium* species, *Escherichia coli*, Diphtheria, Salmonellosis and pneumonia,
   - **Viral infections**, e.g. *Cytomegalovirus (CMV)*, viral hepatitis, influenza, infectious mononucleosis.
   - **Fungal (yeast) infections** – eg *Candida albicans*, Histoplasmosis and Gastric phycomycosis.
   - **Parasites and worms** - Anisakidosis

3. Drugs:
   Intake of drugs like Non steroidal anti-inflammatory drugs (NSAIDs), asprin, indomethacin cortisone, preparation of iron and chemotherapeutic agents.

4. Chemical and physical agent:
   Intake of Corrosive chemicals such as caustic soda, phenol, Lysol.
   Gastric irradiation.

5. Severe stress:
   Emotional factors like shock, anger, etc.
   Trauma and Surgery
   Extensive burns.

6. Bile:
   The reflux of bile (an alkaline medium important for the activation of digestive enzymes in the small intestine) from the small intestine to the stomach can induce gastritis.
CHRONIC GASTRITIS

Chronic gastritis is a histopathologic entity characterized by chronic inflammation of the stomach mucosa. Gastritis can be classified on the basis of the underlying cause (eg, Helicobacter pylori, bile reflux, nonsteroidal anti-inflammatory drugs [NSAIDs], autoimmunity, or allergic response) and the histopathologic pattern, which may suggest the cause and the likely clinical course (eg, H pylori –associated multifocal atrophic gastritis).

Etiology

Chronic gastritis may be caused by either infectious or noninfectious conditions.

Infectious forms of gastritis include the following:

- Chronic gastritis caused by H pylori infection – This is the most common cause of chronic gastritis
- Gastritis caused by Helicobacter heilmannii infection
- Granulomatous gastritis associated with gastric infections in mycobacteriosis, syphilis, histoplasmosis, mucormycosis, South American blastomycosis, anisakiasis, or anisakidosis
- Chronic gastritis associated with parasitic infections -Strongyloides species, schistosomiasis, or Diphyllobothrium latum
- Gastritis caused by viral (eg, CMV or herpesvirus) infection

Noninfectious forms of gastritis include the following:

- Autoimmune gastritis
- Chemical gastropathy, usually related to chronic bile reflux or NSAID and aspirin intake
- Uremic gastropathy
- Chronic noninfectious granulomatous gastritis – This may be associated with Crohn disease, sarcoidosis, Wegener granulomatosis, foreign bodies, cocaine use, isolated granulomatous gastritis, chronic granulomatous disease of childhood,
eosinophilic granuloma, allergic granulomatosis and vasculitis, plasma cell granulomas, rheumatoid nodules, tumoral amyloidosis and granulomas associated with gastric carcinoma, gastric lymphoma, or Langerhans cell histiocytosis

- Lymphocytic gastritis, including gastritis associated with celiac disease (also called collagenous gastritis)
- Eosinophilic gastritis
- Radiation injury to the stomach
- Graft-versus-host disease (GVHD)
- Ischemic gastritis
- Gastritis secondary to drug therapy

**Chronic gastritis:**

Older people tend to suffer more frequently with chronic gastritis. Chronic gastritis involves the long-term inflammation of the mucosal lining of the stomach. This inflammatory condition of the upper digestive system can last for years. There are many possible causes, though in 90% of all patients who suffer with chronic gastritis the Helicobacter pylori bacteria is the primary culprit.

**Type A gastritis: (autoimmune gastritis)**

Type A gastritis involves mainly the body-fundic mucosa. It is also called autoimmune gastritis due to the presence of circulating antibodies and is sometimes associated with other auto immune diseases such as Hashimoto’s thyroiditis and Addison’s disease.

As a result of the antibodies against parietal cells and intrinsic factor, there is depletion of parietal cells and impaired secretion of intrinsic factor, these changes may lead to significant gastric atrophy where intestinal metaplasia may occur, and a small proportion of these patients may develop pernicious anemia. Due to to depletion of gastric acid-producing mucosal area, there is hypo-or achlorhydria, and hyperplasia of gastrin-producing G cells in the antrum resulting in hyper gastrinaemia.
Type B: (H.pylori-related)

Type B gastritis involves the region of antral mucosa and is more common. It is also called hypersecretory gastritis due to excessive secretion of acid, commonly due to infection with H.pylori. These patients may have associated peptic ulcer.

Type AB: (Environmental gastritis, Chronic atrophic gastritis)

Type AB gastritis affects the mucosal region of A as well as B types. This is the most common type of gastritis in all groups. It is also called environmental gastritis because a number of as yet unidentified environmental factors have been implicated in its etio-pathogenesis.

Chronic atrophic gastritis is also used synonymously with type AB gastritis because in advanced stage, there is progression from chronic superficial gastritis to chronic atrophic gastritis, characterized by mucosal atrophy and metaplasia of intestinal or pseudopyloric type.

Sydney system of recording of Histologic changes in gastritis is more acceptable since it takes into account following multiple parameters:

i. Etiology (H.pylori, autoimmune, NSAIDs, infections)
ii. Location (Pangastritis, Predominant antral, predominant body-fundic)
iii. Morphology (depth of inflammation-superficial or deep, severity of inflammation, type of inflammation, atrophy, metaplasia).
iv. Some special features
   (e. Granulomas, Eosinophilic gastritis, Erosions, Necrosis, Haemorrhages).
CLINICAL FEATURES:

1. Pain in the abdomen:
   i. Onset : Sudden
   ii. Location : Epigastric area of the abdomen
   iii. Radiation : Gastritis pain occurs in the left upper portion of the abdomen and in the back. The pain seems to "go right straight through" a person as it travels from the belly to the back.
   iv. Nature of pain : People often use the terms burning, aching, gnawing, or sore to describe the pain. Usually, a vague sense of discomfort is present, but the pain may be sharp, stabbing or cutting.

2. Other symptoms of gastritis include the following:
   Belching
   Nausea and vomiting
   Bloating
   Feeling of fullness or burning in the upper part of the belly

PROGNOSIS

The prognosis of chronic gastritis is strongly related to the underlying cause. Chronic gastritis as a primary disease, such as H pylori- associated chronic gastritis, may progress as an asymptomatic disease in some patients, whereas other patients may report dyspeptic symptoms. The clinical course may be worsened when patients develop any of the possible complications of H pylori infection, such as peptic ulcer or gastric malignancy.

H pylori gastritis is the most frequent cause of MALT lymphoma. Patients with chronic atrophic gastritis may have a 12- to 16-fold increased risk of developing gastric
carcinoma, compared with the general population. Approximately 1 in 6 infected persons develop peptic ulcer, and, in the United States, approximately 25% develop hypochlorhydria or achlorhydria. The lifetime risk of gastric cancer is in the range of 1-3%.

Eradication of H pylori results in rapid curing of the infection with disappearance of the neutrophilic infiltration of the gastric mucosa. Disappearance of the lymphoid component of gastritis might take several months after treatment. Data on the evolution of atrophic gastritis after eradication of H pylori have been conflicting. Follow-up for as long as several years after H pylori eradication has not demonstrated regression of gastric atrophy in most studies, whereas others report improvement in the extent of atrophy and intestinal metaplasia.

Another important question is whether H pylori eradication in a patient with atrophic gastritis reduces the risk of gastric cancer development. Limited data are available, but a prospective study in a Japanese population reported that H pylori eradication in patients with endoscopically resected early gastric cancer resulted in the decreased appearance of new early cancers, whereas intestinal-type gastric cancers developed in the control group without H pylori eradication.

These findings support an intervention approach with eradication of H pylori if the organisms are detected in patients with atrophic gastritis; the goal is to prevent the development of gastric cancer.

In patients with autoimmune gastritis, the major effects are consequent to the loss of parietal and chief cells and include achlorhydria, hypergastrinemia, loss of pepsin and pepsinogen, anemia, and an increased risk of gastric neoplasms. Autoimmune gastritis represents the most frequent cause of pernicious anemia in temperate climates. The risk of gastric adenocarcinoma appears to be at least 2.9 times higher in patients with pernicious anemia than in the general population.
Laboratory Studies

A number of laboratory tests are usually ordered.

- CBC count to assess for anemia, as acute gastritis can cause gastrointestinal bleeding
- Liver and kidney function tests
- Gallbladder and pancreatic function tests
- Pregnancy test
- Stool for blood

Special investigation:

During the endoscopy, a thin, flexible probe with a tiny camera on the end is sent into your stomach for a direct look.

At the same time, samples of stomach lining can be taken to test for a wide variety of conditions

Histologic Findings

Histologic examination of a biopsy specimen can help in establishing the etiologic agent of gastritis.

Other investigation:

Gallbladder and pancreas functions

H pylori tests:

Blood antibody test

Urea breath test

Stool antigen test
Differential Diagnosis:

Gastritis is often interpreted as primary, although it is frequently an expression of a more general disease. The following diseases present with gastric complaints and must always be considered in differential diagnosis.

1. General disease condition:

Any serious general disease can show symptoms indicating a stomach disease, such as nausea, belching, loss of appetite, and possibly vomiting.

2. Chronic uremia:

These symptoms are particularly frequent in chronic uremia.

3. Acute or chronic liver diseases:

Acute or chronic liver diseases (e. g., due to chronic alcohol abuse) are frequently accompanied by gastric complaints.

4. Congestive gastritis:

Congestive gastritis as a manifestation of cardiac insufficiency or portal hypertension must be considered in patients with cardiac or hepatic disease.

5. Digitalis gastritis:

Among drugs, “digitalis gastritis” in cardiac patients disappears a few days after stopping therapy.

6. Allergic gastritis:

Allergic gastritis, as a consequence of hypersensitive reactions to food, particularly milk, chocolate, yeast, nuts, citrus fruit, strawberries, shellfish, etc., occurs primarily as part of a generalized gastrointestinal reaction with diarrhea and pain, in some cases combined with systemic symptoms (e. g., tachycardia, drop in blood pressure, asthma, headache, urticaria).
Diagnosis:

Diagnosis of gastritis is made by examination (clinical symptoms, physical examination) habits and lifestyle, and the medications history along with endoscopy and biopsy findings.

Complications of Gastritis:

If gastritis isn't treated, it may lead to stomach ulcers and stomach bleeding. There are also some forms of chronic gastritis that may increase your risk of stomach cancer.

Other complications include:

- Gastrointestinal bleeding from an erosion or ulcer
- Gastric erosion
- Gastric outlet obstruction due to edema limiting the adequate transfer of food from the stomach to the small intestine
- Anemia
- Dehydration from vomiting
- Renal insufficiency as a result of dehydration
- Stomach perforation.
வைகையாளம்:  பாதுகாப்பு துறையில் சிற்றுத்துறை - 700

கண்காட்சி: வைகையாளம்

"எண்ணுக்கும் பார்வையான வைகையாளன்

நிறுக்கும் வலிமையில் அவ்வியல் கட்டுரைகள்

முகாதியில் இசைபிள்ளையாக பதிகுறிகள்

பாடலைக் காட்டி தம்பிதங்கள் கொண்டு வருகின்றது

காலநிலையில் குறுநடப்பாடு நடத்தத்தேக்கம்

தொலைகத்தை நிலைத்து நுட்பத்தில் நவிந்து

விளையாடும் வழிப்பாட்டு நிதியில்

நாகத்து வைகையாளம் பிப்ரவி காலநிலை

- பாதுகாப்பு துறையில் சிற்றுத்துறை - 700

விபரைணி: ஒரு பொருள், பிரதானவாயும் வைகையாளப் பல சிறிய பாதுகாப்பு ஒற்றை அவர்களின்

கோராட்சியாக இசைபிள்ளையாக நிற்பிள்ளையாக விளக்கு வருகின்றன. சூழல்லான ஒருங்கிணை

பாதுகாப்புக் கோராட்சியாக கொண்டு அவர்கள் விளக்கு வருகின்றன ஒருங்கிணைத்திலிருந்து

தொலைக்காட்சியும் பயனிக்கும் நாளை செய்து விளக்குவதற்கும் முன் படையானது.
VEDIYUPPU (POTASSIUM NITRATE)

Vediyuppu occurs naturally as efflorescence on the soil. It is mixed with water, boiled and egg white is added to remove its impurities and get purified.

Organoleptic characters

<table>
<thead>
<tr>
<th>Taste</th>
<th>Pungent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Potency</td>
<td>Hot</td>
</tr>
<tr>
<td>Division</td>
<td>Pungent</td>
</tr>
<tr>
<td>Action</td>
<td>demulcent, diuretic, and diaphoretic.</td>
</tr>
</tbody>
</table>

Medicinal uses: In the form of solution it is a refrigerant, efficient diuretic and disphoretic. It acts on the vascular system and reduces the pulse.

As per the siddha text vediyuppu is used in the treating eight types of Gunmam, Utrine tumours,
SEENAM (ALUMINIUM POTASSIUM SULPHATE)

Taste : sour, sweet and astringent.

Characters : Colourless, transparent crystals, with acid, sweetish astringent taste.

Action : Astringent, caustic, haemostatic, anti spasmodic and anti septic.
Irritant and purgative in large dose.
Emetic in repeated doses.

Medicinal uses: It is used in the treatment of Leucorrhea, Haematuria, Haemoptysis, Menorrhagia, Gastric and intestinal catarrh and other Haemorrhages.

In the form of lotion it is used internally to check Haemorrhage from stomach, lungs, kidneys and other organs.
Botanical name : Zingiber officinale, Roscoe.

Family : Zingiberaceae

Parts used : Scraped and Dried rhizome

**Organoleptic characters**

Taste : Pungent

Potency : Hot

Division : Pungent

Action : Stimulant to the gastro intestinal tract, stomachic, carminative, aromatic, silagogue and digestive.

Constituents : Camphene, phellandrene, cineol, zingiberine, borneol, gingerol a yellow pungent body and an oleo resin Gingirin.

Medicinal uses : Dry ginger is much used as a carminative adjunct. It is extremely valuable in dyspepsia, flatulence, colic, cough, asthma, dyspepsia and indigestion.

It is also used in nervous disorders, strengthens memory, removes obstruction in the vessels and restricts incontinence of urine.

Dry ginger is generally used as a corrective adjunct to purgatives to prevent nausea and griping.
MILAGU

Botanical name : Piper nigrum, Linn.
Family : Piperaceae
Parts used : Dried unripe fruit

Organoleptic characters

Taste : Pungent, Bitter.
Potency : Hot
Division : Pungent
Action : Black pepper is acrid, pungent, hot, carminative, Stimulant, Anti periodic, Antidote and Anti pyretic.

Constituents : A volatile oil Piperine and Piperidin, a balsamic volatile essential oil, soluble pungent resin chavicine, starch, lignin, gum, fat, proteids and ash.

Medicinal uses : Black pepper is prescribed in cholera, dyspepsia, flatulence, diarrhea and various gastric ailments. It is also used in the treatment of piles, constipation, colic, gastric troubles, ascities, anemia, worms, asthma, etc. Black peper is also used in the treatment of venereal disease, tuberculosis and rheumatism.
THIPPILI

Botanical name : Piper longum, Linn.

Family : Piperaceae

Parts used : Dried unripe fruit

Organoleptic characters

Taste : Sweet
Potency : coolant
Division : Sweet
Action : Infusion is stimulant, carminative and alternative tonic. It acts also as an aphrodisiac, vermifuge, emmenagogue and diuretic.

Constituents : Resins, volatile oil, alkaloid Piperine, starch, gum, fatty oil and inorganic matter.

Medicinal uses : Old long pepper is more efficacious in medicine. It relieves cough, cold, asthma, hoarseness and hiccups.
Thippili is valuable alternative tonic in paraplegia, asthma, chronic bronchitis, chronic cough, enlargement of spleen and other abdominal viscera etc.
It is also used in the treatment of anorexia, piles and rheumatism.
INGREDIENTS OF VEDIYUPPU KATTU

VEDIYUPPU

SEENAM

INGREDIENTS OF THIRIKADUGU CHOORANAM

CHUKKU

MILAGU

THIPILI

PREPARED MEDICINES

VEDIYUPPU KATTU

THIRIKADUGU CHOORANAM
The required raw drugs were purchased from a well reputed country shop. The raw drugs were authenticated by the concerned Head of the Department, of NIS. The raw drugs were purified and the medicine was prepared in Gunapadam lab of NIS. The prepared medicine was again authenticated by the concerned Head of the department.

PREPERATION OF VEDIYUPPU KATTU

Required raw drugs:

1. Vediyuppu – Pottasium Nitrate
2. Seenam – Aluminium Potassium Sulphate

Purification of the raw drugs

1. VEDIYUPPU - Pottasium Nitrate

Pottasium Nitrate and water is mixed in the ratio of 1:4 taken in a pot and allowed to boil in mild flame. When the salt and water content is about to boil, add egg white in a ratio of 4 egg: 1400 grams of Potassium Nitrate salt. Now the impurities accumulated over the water surface are removed with the help of wooden spoon. When the salt water mixture is about to freezing transfer it into a separate mud pot and kept out of reach without aeration. The next day water content in the mixture is drained and the salt is dried under sunlight. The above said procedure is repeated for seven times to get the purified Potassium Nitrate salt.

2. SEENAM (Alum) - Aluminium Potassium Sulphate

The alum is dissolved in water, filtered, boiled when it attains the jelly consistency. It is allowed to cool to get it in a purified form.
Method of Preparation:

Two parts of purified Vediyuppu and one part of purified Seenam are powdered and mixed. This mixture is taken in an earthen vessel and heated in mild flame till it melts. This colloid mixture is then allowed to cool till it becomes hard. Then it is powdered well and stored in an air tight glass container.

PREPERATION OF THIRIKADUGU CHOORANAM

Required raw drugs:

1. Chukku (Dried Ginger) – Zingiber officinale, Rosc
2. Milagu (Black Pepper) – Piper nigrum. Linn
3. Thippili (Long Piper) - Piper longum.Linn

Purification of the raw drugs

1. Chukku (Dried Ginger)- Zingiber officinale, Rosc
   Double the proportion of lime stone [calcium carbonate] solution is poured to the dried ginger and boiled for three hours, then wash it, dry and remove the peel.

2. Milagu (Black Pepper) – Piper nigrum. Linn
   Soak it in sour butter milk for three hours then dry it in sunlight.

3. Thippili (Long Piper) - Piper longum, linn
   Soak it in Plumbago zeylanica,Linn leaf juice for twenty four minutes(1 Nazhigai) and dry it in sunlight.

Method of Preparation:

Equal parts of purified Chukku, Milagu and Thippili are powdered separately and mixed thoroughly and stored in an air tight container.
DRUG STORAGE:

The drug thus prepared is stored in a clean and dry glass bottles.

DISPENSING:

The Prepared Medicine was dispensed in sachets.

DOSAGE:

Kaasu edai [800mg]
(Twice / day) after food.

VEHICLE:

Thirikadugu Chooranam

COURSE:

1 Mandalam [48 days]
STUDY DESIGN AND CONDUCT OF THE STUDY

STUDY TYPE : An Open Clinical Trial

STUDY PLACE : OPD and IPD of Ayothidasar Pandithar Hospital, National Institute of Siddha, Tambaram Sanatorium, Chennai-47.

STUDY PERIOD : 12 Months.

SAMPLE SIZE : 40 patients.

TRIAL DRUG : VEDIYUPPU KATTU

DOSAGE : Kaasu edai [800mg] (Twice / day) after food.

VEHICLE : Thirikadugu Chooranam

COURSE : 1 Mandalam [48 days]

SUBJECT SELECTION:

As and when patients reporting at OPD of Ayothidasa Pandithar Hospital, National Institute of Siddha with clinical symptoms of Indigestion, Vomiting the residues of last food intake, Aversion to food, Flatulence, Fatigue, Generalized weakness, Sweating Gripping abdominal pain, Pricking pain of the chest were subjected to screening test & documented using screening proforma.
SELECTION CRITERIA

INCLUSION CRITERIA

- Age 20-55 of both sexes.
- Patient willing to undergo blood investigation and willing to be admitted in the hospital or attend the OPD once in 7 days.
- Patients with clinical symptoms of Indigestion, Vomiting the residues of last food intake, Aversion to food, Flatulence, Fatigue, Generalized weakness, Sweating Gripping abdominal pain, Pricking pain of the chest.
- Patient willing to sign the informed consent stating that he/she will conscientiously stick to the treatment during 48 days but can opt out of the trial of his/her own conscious discretion.

EXCLUSION CRITERIA

Patient’s with a known
- History of Gastric Carcinoma
- History of complicated Peptic Ulcer
- History of Cardio vascular disease
- History of Liver disorders
- History of Worm infection
- Abnormal spinal curvature of thoracic vertebrae (kypho scoliosis)
- History of Diabetes mellitus
- History of Hyper tension
- Pregnancy
- Lactation
- History of Appendicitis
- History of pancreatitis
  were excluded.
WITHDRAWAL CRITERIA

- Intolerance to the drug, and development of adverse reactions during the drug trial
- Severe abdominal pain
- Profuse vomiting and occurrence of Haematemesis.
- Incidence of diarrhea, dysentery
- Any other acute illness
- Poor patient compliance and defaulters
- Patients turned unwilling to continue in the course of clinical trial
- Any other unforeseen circumstances rendering the patient unable to continue in the trial were withdrawn from the study.

ASSESSMENTS AND INVESTIGATIONS:

A) Clinical assessment
   Siddha assessment

B) Routine investigations
   Modern parameters
   Siddha parameters

C) Special investigations

A) CLINICAL ASSESSMENT:

- Indigestion
- Vomiting with residues of food intake lastly
- Aversion to food
- Griping epigastric pain
- Flatulence
- Fatigue
- Generalized weakness
- Sweating
- Excessive thirst
- Headache
- Loss of weight
- Regurgitation
SIDDHA ASSESSMENT

Ennvagaithervu (Eight types of Examination):

- Naadi
- Sparisam
- Naa
- Niram
- Mozhi
- Vizhi
- Malam
- Moothiram

B) ROUTINE INVESTIGATION

Modern Parameters:

BLOOD

- Hb (gm/dl) Total WBC Count( Cells/cumm) ,
- DC - (Polymorphs (%), Lymphocytes (%) Eosinophils (%), Monocytes (%), Basophils (%),
- Total RBC count (Million cells / cu mm),
- ESR (mm/hr)
- Blood glucose ( mg/dl) ( Fasting, Post Prandial or Random)

LIPID PROFILE

- Serum cholesterol (mg/dl), HDL cholesterol (mg/dl), LDL cholesterol (mg/dl)- VLDL cholesterol (mg/dl), Serum triglycerides (mg/dl).

KIDNEY FUNCTION TESTS

- Blood urea(mg/dl), Serum Creatinine (mg/dl)
LIVER FUNCTION TESTS

- Serum total bilirubin (mg/dl), Serum Direct bilirubin (mg/dl), Serum Indirect bilirubin (mg/dl), Serum Alkaline phosphate (u/l), SGOT (u/l), SGPT (u/l), Serum Total Protein (g/dl), Serum Albumin (g/dl), Serum Globulin (g/dl), Serum Calcium (mg/dl), Serum Phosphorous (mg/dl), Serum Uric Acid (mg/dl).

URINE

- Urine sugar (F)&(PP) or (R), Albumin, Deposits

MOTION

- Ova, Cyst, Occult blood.

Siddha parameters

<table>
<thead>
<tr>
<th>Malam</th>
<th>Niram</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Elakal / Erukal</td>
</tr>
<tr>
<td></td>
<td>Muraigal</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Moothiram</th>
</tr>
</thead>
<tbody>
<tr>
<td>Neerkuri</td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Neikuri</th>
</tr>
</thead>
</table>

C) SPECIAL INVESTGATIONS

- Endoscope

- USG - Abdomen
12.0 METHODOLOGY

PATIENT SCREENING
INCLUSION / EXCLUSION

INCLUSION CRITERIA
INFORM ABOUT STUDY AND TRIAL DRUG
INFORMED CONSENT FORM
STUDY NUMBER
HISTORY TAKING
LAB INVESTIGATION
TRIAL DRUG
CLINICAL ASSESSMENT
OUTCOME

EXCLUSION CRITERIA
EXCLUDED FROM TRIAL
GENERAL TREATMENT

IF ANY ADVERSE REACTION
REFERED TO PHARMACO VIGILANCE DEPT OF NIS
TREATED IN OPD
STUDY ENROLLMENT

- In this Open Clinical Trial, patients reporting at the OPD with the clinical symptoms of Indigestion, Vomiting the residues of last food intake, Aversion to food, Flatulence, Fatigue, Generalized weakness, Sweating Gripping abdominal pain, Pricking pain of the chest etc., were examined clinically for enrolling in the study based on the inclusion and exclusion criteria.

- The patients enrolled were informed (Form IV) about the study, trial drug, possible outcomes and the objectives of the study in the language and terms understandable to them.

- After ascertaining the patient’s willingness, informed consent was obtained in writing from them in the consent form (Form IV-A).

- All these patients will be given unique registration card in which patient’s Registration number of the study, Address, Phone number and Doctors phone number etc. had be given, so as to report easily, if any complications arise.

- Complete clinical history, complaints and duration, examination findings-- all were recorded in the prescribed Proforma in the history and clinical assessment forms separately. Screening Form- I will be filled up; Form I-A, Form –II and Form –III were used for recording the patient’s history, clinical examination of symptoms and signs and laboratory investigations respectively.

- Patients were advised to take the trial drug with appropriate dietary advice (Form IV-D).

CONDUCT OF THE STUDY:

As per Siddha literature, before starting the treatment for VAAYU KUNMAM, purgation was given with Agathiar kulambu 130 mg with palm jaggery 5gm, early morning, in empty stomach for one day.

The trial drug “VEDIYUPPU KATTU” was given with THIRIKADUGU Chooranam continuously for 48 days. OP patients visited the hospital once in 7 days. At each clinical visit clinical assessment was done and prognosis was noted. For IP patients the drug was provided daily and prognosis was noted. For IP patients, clinical assessments were carried out daily.
Laboratory investigations were done at 0\textsuperscript{th} day and 48\textsuperscript{th} day of the trial. For IP patients, who were not in a situation to stay in the hospital for a long time was advised to attend the OPD for further continuation of the treatment.

Patients with previous Endoscopic investigations were included and after completion of the treatment they were subjected to endoscopic evaluation and changes were noted.

After the 35\textsuperscript{th} day (6\textsuperscript{th} visit), a card containing Symptom tables were given to each patient. The patients were advised to mark a tally mark for each occurrence of symptoms during the last two weeks of the treatment (36\textsuperscript{th} – 48\textsuperscript{th} day). These data’s were analyzed using symptom score according to vaezl, Grading and Staging in Gastroenterology, for outcome measurement.

During the course of the treatment, patient was advised not to take coffee, tea, curd, root tubers, sour and spicy foods, and advised to, take the diet as given in Form IV-D. After the end of the treatment also, the patient was advised to visit the OPD for another 2 months for follow-up. If any of the trial patients who fail to collect the trial drug on the prescribed day but wants to continue in the trial, from the next day or two was allowed, but defaulters of one week and more were excluded from the study.

**DATA MANAGEMENT**

- After enrolling the patient in the study, a separate file for each patient was opened and all forms were filed in the file. Study No. and Patient No. were entered on the top of file for easy identification. Whenever study patient visits OPD during the study period, necessary recordings were made at the assessment form or other suitable form of the respective patient’s file.
- The screening forms were filed separately.
- The Data recordings were monitored for completion by Faculties, HOD and SRO (statistics). All collected data were entered in the computer using Microsoft Office software. Data entries were 100% cross checked manually.
- All forms were further scrutinized in presence of Investigator by Senior Research Officer (Statistics) for logical errors and incompleteness of data to avoid any bias. No modification in the results was permitted for unbiased reports.
OUTCOME OF TREATMENT

Primary Outcome:

Primary Outcome was mainly assessed by reduction in the clinical symptoms of Gripping abdominal pain, Flatulence and Regurgitation assessed by Symptom score according to vaezl.

According to the score obtained by the patient before and after treatment they are categorized as Level I (0 – 5), Level II (6 – 10) and Level III (11 – 15).

Secondary Outcome:

Secondary outcome was assessed by comparing the following parameters, before and after the treatment.

1) Reduction in other clinical symptoms
2) Changes in Endoscopic study (5 Patients)

ADVERSE EFFECT / SERIOUS EFFECT MANAGEMENT

If the trial patient develops any adverse reaction, he/she will be referred to the pharmacovigilance department of NIS. The members of this department will assess the adverse event and recorded in the prescribed adverse reaction form. For any adverse effect the investigator will give the proper management in NIS OPD with free of cost.

ETHICAL ISSUES

1. Informed consent was obtained from the entire patient after explaining about the study in the understandable language to them.
2. After getting the consent of the patient (through consent form) only, they were enrolled in the study.
3. Treatment was provided free of cost.
4. While collecting blood sample from the patient, only disposable syringes, disposable gloves, with proper sterilization of lab equipments were used to prevent infections.
5. The data collected from the patient were kept confidential. The patient’s were informed about the diagnosis, treatment and follow-up.
6. The patients excluded [as per the exclusion criteria] from the study were given proper treatment, with full care at NIS.
19.0 ASSESSMENT FORMS

Form – I  Screening and Selection Proforma
Form – IA  History Proforma on enrollment
Form - II  Clinical Assessment on enrollment
Form - IIA  Clinical Assessment during and after the trial
Form – III  Laboratory investigations on enrollment during and after the trial.
Form - IV  Information sheet
Form – IV A  Consent form
Form - 1V-B  Withdrawal form
Form - IV-C  Drug Compliance form
Form – IV- D  Dietary Advice form.
Form – IV-E  Adverse Reaction form
Observations and Results are tabulated under the following headings,

1. Age incidence.
2. Sex distribution
3. Gunam
4. Body constitution
5. Paruva Kaalam
6. Nilam
7. Diet
8. Habit of Smoking and Alcohol
9. Occupation
10. Socio-economic status
11. Positive family history for the disease
12. Chronicity of illness
14. Derangement in Pitham
15. Derangement in Kabam.
17. Kanmenthiriyam
18. Kosangal
19. Udal thathukkal
20. Envagai thervugal
   18.a. Naadi
   18.b. Naa
   18.c. Vizhi
   18.d. Malam
   18.e. Neikkuri
21. Clinical features
22. Blood Grouping
24. Lab investigations.
OBSERVATION AND RESULTS

1. AGE INCIDENCE:

Table: 1

<table>
<thead>
<tr>
<th>AGE (YEAR)</th>
<th>NUMBER OF CASES</th>
<th>PERCENTAGE</th>
</tr>
</thead>
<tbody>
<tr>
<td>21-30</td>
<td>7</td>
<td>17.5 %</td>
</tr>
<tr>
<td>31-40</td>
<td>19</td>
<td>47.5 %</td>
</tr>
<tr>
<td>41-50</td>
<td>12</td>
<td>30 %</td>
</tr>
<tr>
<td>51-60</td>
<td>2</td>
<td>5 %</td>
</tr>
<tr>
<td>Total</td>
<td>40</td>
<td>100 %</td>
</tr>
</tbody>
</table>

Fig:1

Observation:

As per table 1 & fig 1: The prevalence of the disease was found to be higher in 19 cases (47.5 %) in the age group of 31 - 40 years, 12 cases (30%) in the age group of 41 - 50 years, 7 cases (17.5 %) in the age group of 21 - 30 years and 2 cases (5 %) in the age group of 51 - 60 years.
2. SEX DISTRIBUTION:

Table: 2

<table>
<thead>
<tr>
<th>GENDER</th>
<th>NUMBER OF CASES</th>
<th>PERCENTAGE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Male</td>
<td>25</td>
<td>62.5 %</td>
</tr>
<tr>
<td>Female</td>
<td>15</td>
<td>37.5 %</td>
</tr>
<tr>
<td>Total</td>
<td>40</td>
<td>100%</td>
</tr>
</tbody>
</table>

Fig:2

Observation:

As per table 2 and fig 2, Among the 40 patients selected, prevalence of the disease was found to be higher in males i.e. 25 cases (62.5%) then the female cases of 15 (37.5%).
3. GUNAM

Table: 3

<table>
<thead>
<tr>
<th>GUNAM</th>
<th>NUMBER OF CASES</th>
<th>PERCENTAGE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sathuva gunam</td>
<td>0</td>
<td>0 %</td>
</tr>
<tr>
<td>Rasatha gunam</td>
<td>40</td>
<td>100 %</td>
</tr>
<tr>
<td>Thamo gunam</td>
<td>0</td>
<td>0 %</td>
</tr>
<tr>
<td>Total</td>
<td>40</td>
<td>100</td>
</tr>
</tbody>
</table>

Fig:3

Observation:

As per table 3 and fig 3: Among the 40 patients selected all were found to possess Rasatha gunam.
4. BODY CONSTITUTION:

Table 4:

<table>
<thead>
<tr>
<th>S. NO</th>
<th>CONSTITUTION OF THE BODY</th>
<th>NO. OF CASES</th>
<th>PERCENT</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Vadha Thegi</td>
<td>40</td>
<td>100 %</td>
</tr>
<tr>
<td>2.</td>
<td>Pitha Thegi</td>
<td>Nil</td>
<td>Nil</td>
</tr>
<tr>
<td>3.</td>
<td>Kabha Thegi</td>
<td>Nil</td>
<td>Nil</td>
</tr>
</tbody>
</table>

Observation:

As per table 4 and fig 4: Among the 40 patients selected, all were found to be Vaatha thegi.
5. PARUVA KAALAM (SEASON)

Table 5

<table>
<thead>
<tr>
<th>PARUVA KAALAM</th>
<th>NUMBER OF CASES</th>
<th>PERCENTAGE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Kaar (Aug 16 – Oct 15)</td>
<td>8</td>
<td>20 %</td>
</tr>
<tr>
<td>Koothir (Oct 16 – Dec 15)</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Munpani (Dec 16 – Feb 15)</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Pinpani (Feb 16 – Apr 15)</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Ilavenil (Apr 16 – Jun 15)</td>
<td>22</td>
<td>55 %</td>
</tr>
<tr>
<td>Mudhuvenil (Jun 16 – Aug 15)</td>
<td>10</td>
<td>25 %</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>40</strong></td>
<td><strong>100</strong></td>
</tr>
</tbody>
</table>

Fig 5

**Observation:**

As per table 5 and fig 5: Among the 40 cases, in 22 cases (55%) the incidence of the disease seems to be higher in Ilavenil kaalam (Apr 16 – Jun 15), 10 cases (25%) in Mudhuvenilkaalam (Jun 16 – August 15) and 8 cases (20 %) in Kaar kaalam.
6. THINAI:

Table: 6

<table>
<thead>
<tr>
<th>THINAI</th>
<th>NO OF PATIENTS</th>
<th>PERCENTAGE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Kurinji</td>
<td>Nil</td>
<td>Nil</td>
</tr>
<tr>
<td>Mullai</td>
<td>Nil</td>
<td>Nil</td>
</tr>
<tr>
<td>Marutham</td>
<td>28</td>
<td>70%</td>
</tr>
<tr>
<td>Neithal</td>
<td>11</td>
<td>27.5%</td>
</tr>
<tr>
<td>Paalai</td>
<td>1</td>
<td>2.5%</td>
</tr>
<tr>
<td>Total</td>
<td>40</td>
<td>100%</td>
</tr>
</tbody>
</table>

Observation:

As per table 6: The incidence of the disease was more in 28 (70 %) cases reported in Marutham Thinai, 11 (27.5%) cases in Neithal thinai and only 1 ( 2.5%) case from Paalai Thinai.
7. DIET

Table: 7

<table>
<thead>
<tr>
<th>DIET</th>
<th>NUMBER OF CASES</th>
<th>PERCENTAGE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Vegetarian</td>
<td>2</td>
<td>5 %</td>
</tr>
<tr>
<td>Non-Vegetarian</td>
<td>38</td>
<td>95 %</td>
</tr>
<tr>
<td>Total</td>
<td>40</td>
<td>100</td>
</tr>
</tbody>
</table>

FIG: 7

Observation:

As per table 7 and fig 7: Among 40 cases the incidence of the disease was higher in 38 (95%) cases, who were non vegetarians and lower in vegetarians 2 cases (5%).
8. Habits of Smoking and Alcohol

Table: 8

<table>
<thead>
<tr>
<th>Habit</th>
<th>NUMBER OF CASES</th>
<th>PERCENTAGE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Smoking and Alcohol</td>
<td>8</td>
<td>20 %</td>
</tr>
<tr>
<td>Smoking only</td>
<td>1</td>
<td>2.5 %</td>
</tr>
<tr>
<td>Non users</td>
<td>31</td>
<td>77.5</td>
</tr>
<tr>
<td>Total</td>
<td>40</td>
<td>100</td>
</tr>
</tbody>
</table>

Fig: 8

**Habit of Smoking & alcohol**

Observation:

As per table 8 and fig 8: Among 40 cases the habit of consuming Smoking and Alcohol was found to be in 8 (20%) cases and only Smoking was found to be in 1 (2.5%). Remaining 31(77.5%) were non users of smoking and alchol.
9. OCCUPATION STATUS

Table: 9

<table>
<thead>
<tr>
<th>OCCUPATION</th>
<th>NUMBER OF CASES</th>
<th>PERCENTAGE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Field Work</td>
<td>24</td>
<td>60 %</td>
</tr>
<tr>
<td>Desk work</td>
<td>8</td>
<td>20 %</td>
</tr>
<tr>
<td>Others</td>
<td>8</td>
<td>20 %</td>
</tr>
<tr>
<td>Total</td>
<td>40</td>
<td>100</td>
</tr>
</tbody>
</table>

**FIG: 7**

![Work pie chart]

**Observation:**

As per table 9 and fig 9: Among 40 cases, 24 cases (60%) were doing Field work, 8 cases (20%) were doing Desk work and 8 cases (20%) were found to be with other works.
10. SOCIO-ECONOMIC STATUS

Table: 10

<table>
<thead>
<tr>
<th>SOCIO-ECONOMIC STATUS (In terms of Income status)</th>
<th>NUMBER OF CASES</th>
<th>PERCENTAGE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lower</td>
<td>13</td>
<td>32.5 %</td>
</tr>
<tr>
<td>Middle</td>
<td>27</td>
<td>67.5 %</td>
</tr>
<tr>
<td>Higher</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Total</td>
<td>40</td>
<td>100%</td>
</tr>
</tbody>
</table>

FIG: 10

Observation:

As per table 10 and Fig 10, the incidence of the disease was found to be higher in 27 (67.5 %) cases belonging to Middle class, lower in 13 (32.5 %) cases belonging to lower class.
11. POSITIVE FAMILY HISTORY FOR THE DISEASE

Table: 11

<table>
<thead>
<tr>
<th>FAMILY HISTORY FOR THE DISEASE</th>
<th>NO. OF CASES</th>
<th>PERCENTAGE</th>
</tr>
</thead>
<tbody>
<tr>
<td>IN 1 DEGREE RELATIONSHIP</td>
<td>4</td>
<td>10%</td>
</tr>
<tr>
<td>NO POSITIVE FAMILY HISTORY</td>
<td>36</td>
<td>90%</td>
</tr>
<tr>
<td>Total</td>
<td>40</td>
<td>100%</td>
</tr>
</tbody>
</table>

FIG 11

Observation:

As per table 11 and Fig 11. Among the 40 cases, Positive familial history was seen in 4 (10%) patients and no history of family involvement was found in 36 cases (90%).
12. CHRONICITY OF ILLNESS AT THE TIME OF RECRUITMENT:

Table: 12

<table>
<thead>
<tr>
<th>CHRONICITY OF ILLNESS</th>
<th>NO OF CASES</th>
<th>PERCENTAGE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Less than 6 months</td>
<td>4</td>
<td>10 %</td>
</tr>
<tr>
<td>Six months – 1 year</td>
<td>4</td>
<td>10 %</td>
</tr>
<tr>
<td>1 – 2 years</td>
<td>3</td>
<td>7.5 %</td>
</tr>
<tr>
<td>2-5 years</td>
<td>21</td>
<td>52.5 %</td>
</tr>
<tr>
<td>5-10 years</td>
<td>4</td>
<td>10 %</td>
</tr>
<tr>
<td>More than 10 years</td>
<td>4</td>
<td>10 %</td>
</tr>
<tr>
<td>Total</td>
<td>40</td>
<td>100 %</td>
</tr>
</tbody>
</table>

FIG:12

Observation:

As per table 12 and Fig 12. The chronicity of illness before recruitment for the study was more in 21(52.5%) cases with 2-5 years of illness then 4(10%) cases in the category within 6 months, 6-12months, bet 5-10 years and above 10 years. 3(7.5%) the chronicity of illness was found to be bet 1 – 2 years.
### 13. DERANGEMENT IN VATHAM:

<table>
<thead>
<tr>
<th>CLASSIFICATION OF VALI</th>
<th>NUMBER OF CASES</th>
<th>PERCENTAGE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pranan</td>
<td>40</td>
<td>100 %</td>
</tr>
<tr>
<td>Abanan</td>
<td>19</td>
<td>47.5 %</td>
</tr>
<tr>
<td>Samanan</td>
<td>40</td>
<td>100 %</td>
</tr>
<tr>
<td>Udhanan</td>
<td>32</td>
<td>80 %</td>
</tr>
<tr>
<td>Viyanan</td>
<td>3</td>
<td>7.5 %</td>
</tr>
<tr>
<td>Nagan</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Koorman</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Kirukaran</td>
<td>4</td>
<td>10 %</td>
</tr>
<tr>
<td>Devadhathan</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Danajeyan</td>
<td>-</td>
<td>-</td>
</tr>
</tbody>
</table>

Table 13: FIG 13

**Observation:**

As per table 13 and Fig 13 Samanan and Pranan were affected in all the 40 (100%) Patients. In 32 (80 %) cases Udhanan was affected and Abanan was affected in 19 (47.5%) of the cases. Viyanan was affected in 3 (7.5%) cases and Kirukaran was affected in 4 (10%) cases.
14. DERANGEMENTS IN PITHA KUTRAM:

Table 14:

<table>
<thead>
<tr>
<th>CLASSIFICATION OF AZHAL</th>
<th>NUMBER OF CASES</th>
<th>PERCENTAGE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Analam</td>
<td>40</td>
<td>100 %</td>
</tr>
<tr>
<td>Ranjagam</td>
<td>3</td>
<td>7.5</td>
</tr>
<tr>
<td>Sathagam</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Alosagam</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Prasagam</td>
<td>1</td>
<td>2.5 %</td>
</tr>
</tbody>
</table>

Fig 14

Observation:

As per table 14 and Fig 14, Among the 40 (100%) cases, Analam was affected in all the 40 (100%) cases as a result of epigastric tenderness, indigestion, abdominal discomfort and Flatulence. Ranjagam was affected in 3 (7.5%) cases as a result of pale conjunctiva. Prasagam was affected in 1(2.5%) cases due to dull skin texture.
15. DISTURBANCES IN KABA KUTRAM:

Table 15:

<table>
<thead>
<tr>
<th>CLASSIFICATION OF KABAM</th>
<th>NUMBER OF CASES</th>
<th>PERCENTAGE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Avalambagam</td>
<td>40</td>
<td>100 %</td>
</tr>
<tr>
<td>Kiledhagam</td>
<td>40</td>
<td>100 %</td>
</tr>
<tr>
<td>Pothagam</td>
<td>2</td>
<td>5 %</td>
</tr>
<tr>
<td>Tharpagam</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Santhigam</td>
<td>1</td>
<td>2.5 (3) %</td>
</tr>
</tbody>
</table>

FIG 15

Observation:

As per table 15 and Fig 15, Among 40 cases Avalambagam and Kiledhagam were affected in all the 40 (100%) cases as a result of epigastric tenderness, indigestion, abdominal discomfort and Flatulence. Pothagam was affected in 2 (5%) cases with poor taste sensation and Santhigam was affected in 1 (2.5 %) as a result of pain in both limbs.
16. DISTURBANCES IN GNANENTHIRIAM:

Table 16:

<table>
<thead>
<tr>
<th>SL.NO</th>
<th>GNANENDRIUM</th>
<th>NO OF CASES</th>
<th>PERCENTAGE</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Mei</td>
<td>40</td>
<td>100</td>
</tr>
<tr>
<td>2</td>
<td>Vai</td>
<td>8</td>
<td>20%</td>
</tr>
<tr>
<td>3</td>
<td>Kan</td>
<td>3</td>
<td>7.5%</td>
</tr>
<tr>
<td>4</td>
<td>Mooku</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>5</td>
<td>Sevi</td>
<td>-</td>
<td>-</td>
</tr>
</tbody>
</table>

Fig: 16

Observation:

As per table 16 and Fig 16, Among 40 cases all 40 (100%) cases had Mei affected (Epi gastric tenderness). 8 (20%) cases had Vaai affected (mouth ulcers) and in 3 (7.5%) cases Kan was affected (pallor).
17. KANMENTHIRIYAM INVOLVEMENT:

Table 17

<table>
<thead>
<tr>
<th>KANMENTHIRIYAM</th>
<th>NO.OF CASES</th>
<th>PERCENTAGE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Kai</td>
<td>1</td>
<td>2.5%</td>
</tr>
<tr>
<td>Kaal</td>
<td>1</td>
<td>2.5%</td>
</tr>
<tr>
<td>Vai</td>
<td>8</td>
<td>20%</td>
</tr>
<tr>
<td>Eruvaai</td>
<td>19</td>
<td>47.5%</td>
</tr>
<tr>
<td>Karuvaai</td>
<td>1</td>
<td>2.5%</td>
</tr>
</tbody>
</table>

FIG 17

Observation:

As per table 17 and Fig 17. Among the 40 cases, Eruvaai was affected in 19 (47.5%) cases (variable in bowel habits). Vai was affected in 8 (20%) cases (Stomatitis). Kai (pain), Kaal (pain) and Karuvaai (white discharge) were affected in 1 (2.5%) case.
18. KOSANGAL:

Table: 18

<table>
<thead>
<tr>
<th>KOSANGAL</th>
<th>NO OF CASES</th>
<th>PERCENTAGE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Annamaya kosam</td>
<td>40</td>
<td>100 %</td>
</tr>
<tr>
<td>Pranamaya kosam</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Manomaya kosam</td>
<td>1</td>
<td>2.5%</td>
</tr>
<tr>
<td>Vignana mayakosam</td>
<td>1</td>
<td>2.5%</td>
</tr>
<tr>
<td>Anantha mayakosam</td>
<td>1</td>
<td>2.5%</td>
</tr>
</tbody>
</table>

FIG: 18

OBSERVATION:

As per table 18 and Fig 18, In all the 40 cases Annamaya kosam was affected due to clinical symptoms like epigastric pain, flatulence, vomiting, indigestion and gripping abdominal pain. Manomaya kosam (depression), Vignananamaya kosam (pain) and Anantha maya kosam (White discharge) were affected each in 1 (2.5%) cases.
19. DISTURBANCE IN UDAL THATHUKKAL

Table 19:

<table>
<thead>
<tr>
<th>UDAL THATHUKKAL</th>
<th>NUMBER OF CASES</th>
<th>PERCENTAGE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Saaram</td>
<td>40</td>
<td>100 %</td>
</tr>
<tr>
<td>Senneer</td>
<td>3</td>
<td>7.5 %</td>
</tr>
<tr>
<td>Oon</td>
<td>3</td>
<td>7.5 %</td>
</tr>
<tr>
<td>Kozhuppu</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Enbu</td>
<td>1</td>
<td>2.5 %</td>
</tr>
<tr>
<td>Moolai</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Sukkilam/Suronitham</td>
<td>1</td>
<td>2.5 %</td>
</tr>
</tbody>
</table>

FIG: 19

Observation:

As per table 19 and Fig 19, Saaram, was affected in all the 40 cases due to generalized weakness, Oon (weight loss) and Senner (pale conjunctiva) were affected in 3 (7.5 %) cases. Enbu (pain in joints) and Suronitham (white discharge) were affected in 1(2.5%) cases.
20. ENVAGAI THERVGAL (EIGHT DIAGNOSTIC METHODS)

Table 20

<table>
<thead>
<tr>
<th>ENVAGAI THERVGAL</th>
<th>NUMBER OF CASES</th>
<th>PERCENTAGE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Naadi (Vaatham &amp; vaathapitham)</td>
<td>40</td>
<td>100%</td>
</tr>
<tr>
<td>Naa (Coating &amp; Fissured)</td>
<td>25</td>
<td>62.5%</td>
</tr>
<tr>
<td>Niram (Pallor &amp; Yellow)</td>
<td>8</td>
<td>20%</td>
</tr>
<tr>
<td>Mozhi (Reduction)</td>
<td>8</td>
<td>20%</td>
</tr>
<tr>
<td>Vizhi (Pallor &amp; Yellow)</td>
<td>16</td>
<td>40%</td>
</tr>
<tr>
<td>Sparisam (Warmth)</td>
<td>26</td>
<td>65%</td>
</tr>
<tr>
<td>Malam (Constipation &amp; Diarrhea)</td>
<td>19</td>
<td>47.5%</td>
</tr>
<tr>
<td>Moothiram (Dysurea)</td>
<td>2</td>
<td>5%</td>
</tr>
</tbody>
</table>

FIG 20

**Envagai Thervu**

![Bar chart showing the distribution of cases for each diagnostic method]

Observation

As per table 20 and Fig 20, Naadi was altered in all the 40 cases. Naa was affected in 25 (62.5%) cases, Vizhi was affected in 16 (40%) cases, Malam was affected in 19 (47.5%), Sparism was affected in 26 (65%) cases due to warmth and Niram & Mozhi were affected in 8 (20%) and Moothiram was affected in 2(5%) cases.
As per the table 20a and Fig 20a, Majority of the cases 30 (75%) revealed predominantly Vatha naadi and 10 (25%) with Vatha pitha tontha naadi.
20. b. NAA

Table 20 b

<table>
<thead>
<tr>
<th>NAA</th>
<th>NUMBER OF CASES</th>
<th>PERCENTAGE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Coated</td>
<td>18</td>
<td>45 %</td>
</tr>
<tr>
<td>Coated with Fissured</td>
<td>7</td>
<td>17.5%</td>
</tr>
<tr>
<td>Normal</td>
<td>15</td>
<td>37.5 %</td>
</tr>
<tr>
<td>Total</td>
<td>40</td>
<td>100</td>
</tr>
</tbody>
</table>

FIG 20 b

Observation:

As per the table 20 b and Fig 20 b, Among the total of 40 patients Coated tongue is noted in 18(45%) of cases and Coating with Fissured tongue was noted in 7 (17.5%). 15 (37.5%) cases were found to be with normal tongue.
20. c. VIZHI

Table 20 c

<table>
<thead>
<tr>
<th>VIZHI</th>
<th>NUMBER OF CASES</th>
<th>PERCENTAGE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pale</td>
<td>3</td>
<td>7.5 %</td>
</tr>
<tr>
<td>Yellow</td>
<td>13</td>
<td>32.5 %</td>
</tr>
<tr>
<td>Normal</td>
<td>24</td>
<td>60%</td>
</tr>
<tr>
<td>Total</td>
<td>40</td>
<td>100</td>
</tr>
</tbody>
</table>

FIG 20 c

Observation:

As per the table 20 c and Fig 20c, among the total of 40 patients Yellow conjunctiva is noted in 13 (32.5%) of cases, Pale colored conjunctiva was noted in 3 (7.5%) and normal Vizhi was observed in 24 (60%).
### Table 20.d

<table>
<thead>
<tr>
<th>MALLAM</th>
<th>NUMBER OF CASES</th>
<th>PERCENTAGE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Constipated</td>
<td>16</td>
<td>40%</td>
</tr>
<tr>
<td>Diarrhea</td>
<td>3</td>
<td>7.5%</td>
</tr>
<tr>
<td>Normal</td>
<td>21</td>
<td>52.5%</td>
</tr>
<tr>
<td>Total</td>
<td>40</td>
<td>100</td>
</tr>
</tbody>
</table>

### FIG 20 d

![Bar Chart for Malam](image)

**Observation:**

As per the table 20 d and Fig 20d, among the total of 40 patients Constipation was noted in 16 (40%) of cases and Diarrhea was noted in 3 (7.5%). Remaining 21 (52.5%) cases had normal bowel habits.
Table 20 e.

<table>
<thead>
<tr>
<th>PATTERN</th>
<th>NUMBER OF CASES</th>
<th>PERCENTAGE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Aravenaneendathu</td>
<td>28</td>
<td>70 %</td>
</tr>
<tr>
<td>Vathaneer (Spreading like a snake)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Aazhipolparaviathu</td>
<td>8</td>
<td>20 %</td>
</tr>
<tr>
<td>Pitha neer (Spreading like a ring)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Muththothu Ninrathu</td>
<td>4</td>
<td>10 %</td>
</tr>
<tr>
<td>Kabaneer (Stands like a pearl)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>40</td>
<td>100</td>
</tr>
</tbody>
</table>

FIG 27

Observation:

As per the table 20 e and Fig 20 e, Among the total of 40 patients Vaatha neer was observed in 28 (70%) cases, Pitha neer was observed in 8 (20%) and Kabha neer was observed in 4 (10%) patients.
## TABLE NO 21. CLINICAL FEATURES:

<table>
<thead>
<tr>
<th>CLINICAL FEATURES</th>
<th>BEFORE</th>
<th></th>
<th>AFTER</th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>NO OF CASES/40</td>
<td>%</td>
<td>%</td>
<td>RELIEVED</td>
<td>%</td>
<td>REDUCED</td>
<td>%</td>
<td>NO IMPROVEMENT</td>
<td>%</td>
<td></td>
</tr>
<tr>
<td>Indigestion</td>
<td>40</td>
<td>100%</td>
<td>34/40</td>
<td>85%</td>
<td>6/40</td>
<td>15%</td>
<td>-</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td>Vomiting with residues of food</td>
<td>33</td>
<td>82.5%</td>
<td>30/33</td>
<td>91%</td>
<td>3/33</td>
<td>9%</td>
<td>-</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td>Aversion to food</td>
<td>40</td>
<td>100%</td>
<td>36/40</td>
<td>90%</td>
<td>4/40</td>
<td>10%</td>
<td>-</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td>Griping epigastric pain</td>
<td>40</td>
<td>100%</td>
<td>34/40</td>
<td>85%</td>
<td>4/40</td>
<td>10%</td>
<td>2/40</td>
<td>5%</td>
<td></td>
</tr>
<tr>
<td>Flatulence</td>
<td>31</td>
<td>77.5%</td>
<td>28/31</td>
<td>90%</td>
<td>2/31</td>
<td>6.5%</td>
<td>1/31</td>
<td>3.5%</td>
<td></td>
</tr>
<tr>
<td>Fatigue</td>
<td>28</td>
<td>70%</td>
<td>26/28</td>
<td>93%</td>
<td>2/28</td>
<td>7%</td>
<td>-</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td>Generalised weakness</td>
<td>39</td>
<td>97.5%</td>
<td>39</td>
<td>100%</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td>Sweating</td>
<td>2</td>
<td>5%</td>
<td>½</td>
<td>50%</td>
<td>-</td>
<td>-</td>
<td>½</td>
<td>50%</td>
<td></td>
</tr>
<tr>
<td>Excessive thirst</td>
<td>3</td>
<td>7.5%</td>
<td>3/3</td>
<td>100%</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td>Headache</td>
<td>9</td>
<td>22.5%</td>
<td>8/9</td>
<td>89%</td>
<td>1/9</td>
<td>11%</td>
<td>-</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td>Loss of weight</td>
<td>3</td>
<td>7.5%</td>
<td>2/3</td>
<td>67%</td>
<td>1/3</td>
<td>33%</td>
<td>-</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td>Regurgitation</td>
<td>6</td>
<td>15%</td>
<td>4/6</td>
<td>67%</td>
<td>2/6</td>
<td>33%</td>
<td>-</td>
<td>-</td>
<td></td>
</tr>
</tbody>
</table>

**Observation:**

As per the table 21, Indigestion, Griping epigastric pain and aversion to food were found in all the 40 (100%) patients. Vomiting, flatulence and generalised weakness were present in majority of patients 33 (82.5%), 31 (77.5%) and 39 (97.5%) respectively. 28 (70%) patients had fatigue, 9 (22.5%) patients had Headache, 6 (15%) patients were affected by regurgitation, 3 (7.5%) patients were found to have loss of weight and excessive thirst and 2 (5%) patients have increased sweating.

After treatment there was a considerable reduction in all symptoms, except 2 (5%) patients showed no reduction in griping epigastric pain and 1 showed no reduction in flatulence.
FIG 21 a

CLINICAL FEATURES

FIG 21 b

CLINICAL FEATURES
22. BLOOD GROUPING

Table 22

<table>
<thead>
<tr>
<th>BLOOD GROUPING</th>
<th>NUMBER OF CASES</th>
<th>PERCENTAGE</th>
</tr>
</thead>
<tbody>
<tr>
<td>A +</td>
<td>11</td>
<td>27.5%</td>
</tr>
<tr>
<td>A -</td>
<td>1</td>
<td>2.5%</td>
</tr>
<tr>
<td>B +</td>
<td>8</td>
<td>20%</td>
</tr>
<tr>
<td>O+</td>
<td>18</td>
<td>45%</td>
</tr>
<tr>
<td>O-</td>
<td>1</td>
<td>2.5%</td>
</tr>
<tr>
<td>AB+</td>
<td>1</td>
<td>2.5%</td>
</tr>
<tr>
<td>TOTAL</td>
<td>40</td>
<td>100%</td>
</tr>
</tbody>
</table>

Observation:

As per the table 22, among the 40 patients, 18(45%) belongs to the O+ Blood group, 11(27.5%) belongs to the A+ Blood group, 8(20%) belongs to the B+ Blood group and 1(2.5%) each belongs to the blood groups AB+, A- and O- respectively.
Observation with reference to symptom score according to vaezl, Grading and Staging in Gastroenterology:

Level 1 – marks scored between 0 – 5
Level 2 – marks scored between 6 – 10
Level 3 – marks scored between 11 – 15

Table 23:

<table>
<thead>
<tr>
<th>LEVELS (SCORES)</th>
<th>SYMPTOM SCORE BEFORE TREATMENT</th>
<th>SYMPTOM SCORE AFTER TREATMENT</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>NO. OF CASES</td>
<td>PERCENTAGE</td>
</tr>
<tr>
<td>I (0-5)</td>
<td>0</td>
<td>0 %</td>
</tr>
<tr>
<td>II (6-10)</td>
<td>1</td>
<td>2.5 %</td>
</tr>
<tr>
<td>III(11-15)</td>
<td>39</td>
<td>97.5 %</td>
</tr>
<tr>
<td>TOTAL</td>
<td>40</td>
<td>100</td>
</tr>
</tbody>
</table>

FIG 23
Observations:

According to Vael’s symptom score of Grading and Staging in Gastroenterology, (Table 22)

Among the 40 patients

Before treatment 1(2.5%) patient was found to be in level 2 and 39 (97.5%) patients were found to be in Level 3.

After treatment 28 (70%) patients were in level 1, 7(17.5%) patients were in Level 2 and 5(12.5%) patients were in Level 3.

STATISTICAL ANALYSIS:

Symptom score Paired Samples Statistics

<table>
<thead>
<tr>
<th>SYMPTOM SCORE</th>
<th>MEAN ± SD</th>
<th>t VALUE</th>
<th>p VALUE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Before treatment</td>
<td>14.33 ± 1.185</td>
<td>18.930</td>
<td>P &lt;0.001</td>
</tr>
<tr>
<td>After treatment</td>
<td>5.40 ± 3.037</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

The mean± standard deviation of symptom score of patients before and after treatment were 14.33 ± 1.185 and 5.40 ± 3.037 respectively which is statistically significant (t= 18.930  p<0.001).

Haemoglobin Paired Samples Statistics

<table>
<thead>
<tr>
<th>HAEMOGLOBIN</th>
<th>MEAN ± SD</th>
<th>t VALUE</th>
<th>p VALUE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Before treatment</td>
<td>13.85 ± 1.8</td>
<td>-2.714</td>
<td>P &lt;0.010</td>
</tr>
<tr>
<td>After treatment</td>
<td>14.55 ± 1.97</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

The mean± standard deviation of Haemoglobin of patients before and after treatment were 13.85 ± 1.8 and 14.55 ± 1.97 respectively which is statistically significant (t= -2.714  p<0.010).
LAB INVESTIGATIONS:

ENDOSCOPIC EVALUATION

Among the 40 patients screened 12 patients were found to have endoscopic study before treatment itself. After the completion of drug administration for 48 days, 5 patients willing to undergo endoscopic study were undergone the procedure and compared.

<table>
<thead>
<tr>
<th>S.No of Patient</th>
<th>Before treatment</th>
<th>After treatment</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Duodenal ulcers (healing), Duodinitis, <em>Gastritis.</em></td>
<td>Normal Gastro- Deodenoscopy</td>
</tr>
<tr>
<td>2.</td>
<td>Antral Gastritis</td>
<td>Normal study</td>
</tr>
<tr>
<td>3.</td>
<td>Antral Gastritis</td>
<td>Normal</td>
</tr>
<tr>
<td>4.</td>
<td>Multiple Duodenal ulcer with Duodenitis, <em>Gastritis</em></td>
<td>Normal Gastro- Deodenoscopy</td>
</tr>
<tr>
<td>5.</td>
<td><em>Gastritis</em></td>
<td>Normal mucosal study</td>
</tr>
</tbody>
</table>

Observations:

Endoscopic evaluation of the 5 patients after treatment shows no inflammation in the gastric mucosa and they were found to be normal.
DISCUSSION

Vaayu Kunmam is one among the eight types of Kunmam as mentioned by Siddhar Yugi in his ‘Yugi Vaithia chinthamani’. The signs and symptoms of Vaayu Kunmam are Indigestion, nausea or Vomiting, aversion to food, flatulence, gripping abdominal pain and generalized weakness. These are similar to Gastritis in modern system of medicare. The aim of the study is to evaluate the safety and therapeutic efficacy of the trial drug Vediyuppu Kattu in the treatment of Vaayu Kunmam.

In the siddha literature ‘Yakoobu Vaidhiya Chinthamani 700’ the drug Vediyuppu Kattu is mainly indicated for Atta Kunmam and Vaayu. Vediyuppu Kattu comprises of two mineral drugs namely vediyuppu and seenam which are found to be very efficacious in the treatment of vaayu Kunmam as per the text ‘Patartha Guna Chinthamani’.

The raw drugs were purchased from reputed country drugs stores and authenticated by the concerned department. The trial drug was prepared by the standard operating procedure as mentioned in the protocol in the Dept of Gunapadam, National Institute of Siddha under the direct supervision of lecturers.

The safety of the trial drug usage and standardization of the trial drug through biochemical analysis were also ensured during the study.

The preclinical toxicity studies (Acute and long term toxicity) for the above said trial drug was carried out at National Institute of Siddha after getting the proper acceptance and permission from the Institutional Animal Ethical Committee. The trial drug was proved to be safe for human beings from the observations made from the study.

The biochemical qualitative and quantitative analysis were done at the Biochemistry lab of NIS. SEM analysis and Trace metal detections were carried out at Sophisticated Analytical Instrument Facility, IIT, Chennai. It revealed the presence of effective minerals and the existence of the drug molecules at micro level.

After the approval of the Institutional Ethical Committee of NIS, the clinical study was conducted with a well defined protocol with a proper proforma under the direct supervision of faculties of Dept of Maruthuvam. After screening 70 cases reporting at the OPD, 40 cases were selected for induction to the trial. The patient who satisfied the
Inclusion and Exclusion criteria were admitted to the trial. The patients were well explained about the clinical trial and informed consent was obtained from them.

The enrolled patients were subjected to lab investigations before and after treatment. On the day one of the treatment the patients were advised to take Agasthiyar kuzhumbu 130 mg with ginger juice, at early morning for purgation to normalize the deranged thodams. From the 2nd day onwards the patients were treated with the trial drug Vediyuppu Kattu 800mg with Thirikadugu Chooranam 400 mg, internal twice daily for a period of 48 days.

For OP patients, they should visit the hospital once in 7 days. At each clinical visit clinical assessment was done and prognoses were noted. For IP Patients clinical assessment was done daily and prognosis was noted.

For IP patients, who were not in a situation to stay in the hospital for a long time were advised to attend the OPD for the continuation of the treatment. All the patients were put under observation for 2 months as follow up period without the trial drug treatment.

The observations are summarized below.

1. **Incidence with Age distribution:**

Among the 40 patients

- 7(17.5%) cases were observed to be in the age group of 21 to 30 years
- 19 (47.5%) cases were observed to be in the age group of 31 to 40 years.
- 12 (30%) of cases were observed to be in the age group of 41 to 50 years.
- 2 (5%) cases were observed to be in the age group of 51 to 60 years.

**Inference:** In this study the prevalence was more in the age group 31 - 40 years. i.e the middle decade of life is mostly suffered with more stress.

2. **Incidence with Sex distribution:**

Out of 40 patients, 25(62.5%) cases were males and 15(37.5%) cases were females.
Inference: In this study the prevalence was more in males than the females, which clearly states the prevalence and predominance of the disease in males who may have irregular dietary habits and may consume alcohol or smoking.

3. Incidence with reference to Gunam:

All the 40 cases were observed with Rasatha gunam.

4. Incidence with reference to constitution of the body:

All the 40 (100%) cases were observed with Vaatha predominant.

5. Incidence with reference to Paruvakalam:

Among the 40 cases observed,

- 22 cases (55%) the incidence of the disease was observed in Ilavenil kaalam
- 10 cases (25%) the incidence of the disease was observed in Muthuvenilkaalam
- 8 cases (20%) the incidence of the disease was observed in Kaar kaalam.

6. Incidence with reference to Thinai:

Among the 40 cases observed

- 28 (70%) cases were observed to be from Marutham.
- 11 (27.5%) cases were observed to be from Neithal
- 1 (2.5%) case was observed to be from Paalai.

Inference: According to Siddha literature Neithal land which comprises Sea shore and its adjoining areas induce Vatha diseases.

Though Marutham land is said to possess healthy leaving, now a day’s change in lifestyle and food habits may induce the diseases.

7. Incidence with reference to Diet:

Among the 40 cases observed

- 38 (95%) cases were observed to have Non-vegetarian diet.
- 2 (5%) cases were observed to have vegetarian diet.
**Inference:** Intake of Non Veg diet may lead to increased acid secretion in the stomach, which in turn may lead to the disease.

**8. Habits of Smoking and Alcohol:**

Among the 40 cases observed

- 8 (20%) cases were found to be with the habit of Smoking and Alcohol
- 1 (2.5%).case was found to have the habit of Smoking alone.

**Inference:** In 9(22.5%) cases the onset of disease may be due to the habit of smoking and alcohol.

**9. Occupation status:**

Among the 40 cases observed

- 24 cases (60%) were doing Field work
- 8 cases (20%) were doing Desk work and
- 8 cases (20%) were found to be with other works

**10. Incidence with reference of Socio-economic status:**

Among the 40 cases observed

- 27 (67.5 %) cases belonging to Middle class.
- 13 (32.5 %) cases belonging to lower class.

**Inference:** The incidence of the disease was found to be higher 27 (67.5 %) in Middle class.

**11. Incidence due to familial involvement history:**

Among the 40 cases observed

- 4 (10%) cases had the incidence of the disease in their first degree relationship.
- 36 (90%) cases did not have any family history for the incidence of the disease.

**Inference:** In this study only few patients had familial history related to the disease.
12. Incidence with reference to chronicity of illness:

Among the 40 cases observed,

- In 21 (52.5%) of the cases the chronicity of illness was between 2 – 5 years.
- In 4 (10%) of the cases the chronicity of illness was within 6 months.
- In 4 (10%) of the cases the chronicity of illness was between 6 months-1 year.
- In 4 (10%) of the cases the chronicity of illness was between 5-10 years.
- In 4 (10%) of the cases the chronicity of illness was more than 10 years.
- In 3 (7.5%) cases the chronicity of illness was between 1 – 2 years.

**Inference:** The chronicity of illness before recruitment for the study was more in 21(52.5%) cases who were between the time intervals of two years to five years.

**CONDITION OF MUKKUTTRAM:**

13. Derangement in Vadha kutram:

Among the 40 cases,

- Pranan was affected in 40 (100%) cases which resulted in indigestion.
- Abanan was affected in 19 (47.5%) cases which resulted in constipation in 16 patients and Diarrhea in 3 Patients.
- Samanan was affected in all 40 (100%) cases as a result of epigastric pain, flatulence, indigestion and abdominal discomfort.
- Udhanan was affected in 32 (80%) of cases which resulted in Nausea and vomiting.
- Viyanan was affected in 3 (7.5 %) cases resulted in body pain.
- Kirukaran was affected in 4 (10%) cases resulted in excess salivaivation.
- Naagan, Koorman, Devadhatan and Dhananjeyan were remained normal in all 40 cases.
14. Derangement in Pitha Kutram:

Among 40 cases,

- All 40 (100%) cases Anarpitham was affected, which resulted in loss of appetite, indigestion and abdominal discomfort.
- In 3 (7.5%) cases Ranjaga pitham was affected resulted in pallor of conjunctiva.
- In 1 (2.5%) case Prasaga pitham was affected resulted in reduced glowing of skin.

15. Derangement in Kabha kutram:

Among 40 cases,

- Avalambagam was affected in 40 (100%) cases, due to the derangement of Kilethagam.
- Klethagam was affected in 40 (100%) cases resulted in digestive disorders.
- Pothagam was affected in 2 (5%) cases resulted in tastelessness.
- Santhigam was affected in 1 (2.5%) case resulted in joint pain.

16. Incidence with reference to the Gnanendrium:

Among 40 cases,

- Mei was affected in all 40 (100%) cases (epi gastric tenderness was felt)
- Vai was affected in 8 (20%) cases (Stomatitis)
- Kan was affected in 3 (7.5%) cases (pallor of the conjunctiva)

17. Incidence with reference to the Kanmendrium:

Among 40 cases,

- Kai (Upper limb) and Kal (Lower limb) were affected in 1(2.5%) (pain in the joints)
- Vai (Mouth) was affected in 8 (20%) cases (stomatitis)
- Eruvai was affected in 19(47.5%) cases (constipation in 16 and diarrhea in 3 patients)
- Karuvai was affected in 1(2.5%) patient (white discharge)
8. KOSANGAL:
Among the 40 cases

- Annamaya kosam was affected in all 40 cases (epigastric pain, flatulence, vomiting, indigestion and gripping abdominal pain)
- In 1 (2.5%) case Vignanamaya kosam was affected (pain in joints)
- In 1 (2.5%) case Manomaya kosam was affected (mental depression)
- In 1 (2.5%) case Ananthamaya kosam was affected (presence of white discharge)

19. Incidence with reference to the Udal thathukkal:
Among 40 cases,

- Saaram was affected in all 40 (100%) cases that produced the symptoms like Generalised weakness and tiredness.
- Senneer was affected in 3 (7.5%) cases that produced the signs like pale conjunctiva of the eyes.
- Oon was affected in 3 (7.5%) cases that lead to weight loss.
- Enbu was affected in 1 (2.5%) cases that produced the symptoms like joint pain.
- Suronitham was affected in 1 (2.5%) case with white discharge.

20. Incidence with reference to the Envagai thervugal:
Among 40 cases,

- Naadi: Under this study of naadi, all the 40 cases showed Vaatham 30(75%) and its tontham with Pitham (25%).
- Naa was affected in 25(62.5%) cases as it showed coating of tongue in 18 (45%) and coating and fissured in 7(17.5%).
- Niram was affected in 8(20%) case as it was observed by pallor and yellowish discolouration of the skin.
- Mozhi was affected in 8 (20 %) cases as it leads to reduction of voice due to epigastric pain.
- Vizhi was affected in 16 (42.5%) cases as it showed pale in 3(7.5%) and Yellow discolourisation of conjunctiva in 13(32.5%).
- Sparisam was affected in 26 (65%) cases (warm feel on touching)
• Malam was affected in 19 (47.5%) cases, leading to constipation in 16 (40%) and Diarrhea in 3 (7.5%) of cases.
• Moothiram was found to be affected in 2 (5%) patient with burning sensation during urination.

20. a. Incidence with reference to the Naadi type:

Majority of the cases 30 (75%) revealed Vatha naadi and 10 (25%) with Vatha pitha tontha naadi.

20. b. Incidence with reference to the Naa changes:

Among the total of 40 patients

Coated tongue is noted in 18 (45%) of cases and coated with fissured tongue was noted in 7 (17.5%). Remaining 15 (37.5%) cases were found to be normal.

20. c. Incidence with reference to the Vizhi:

Among the total of 40 patients

Yellow conjunctiva is noted in 13 (32.5%) of cases and Pale colored conjunctiva was noted in 3 (7.5%) and normal Vizhi was observed in 23 (57.5%) of cases.

20. d. Incidence with reference to the Malam:

Among the total of 40 patients

Constipation is noted in 16 (40%) of cases and Diarrhea was noted in 3 (7.5%) cases. Remaining 21 (52.5%) had normal bowel habits.

20. e. Incidence with reference to the Neikuri:

Among the 40 patients,

• Vaatha neer was observed in 28 (70%) of cases,
• Pitha neer was observed in 8 (20%) cases,
• Kabha neer was observed in 4 (10%) of cases.
OUTCOME MEASURES:

21. CLINICAL FEATURES:

Observation with reference to Clinical symptoms:

1. **Indigestion**
   
   Among 40 patients all are found to have Indigestion.
   
   - In 34 (85%) cases complete relief was found.
   - In 6 (15%) cases there was reduction in symptom was present.

2. **Vomiting with residues of food**
   
   Among 40 patients, 33 (82.5%) patients were found to have Vomiting with residues of food. Out of the 33 cases,
   
   - In 30 (91%) cases complete relief was found.
   - In 3 (9%) cases there was reduction in symptom was present.

3. **Aversion to food**
   
   Among 40 patients all were found to have the symptom aversion to food. Out of them,
   
   - In 36 (90%) cases complete relief was found.
   - In 4 (10%) cases there was reduction in symptom was present.

4. **Griping epigastric pain**
   
   Among 40 patients all were found to have the symptom of Griping epigastric pain. Out of them,
   
   - In 34 (85%) cases complete relief was found.
   - In 4 (10%) cases reduction in symptom was present.
   - In 2 (5%) cases there was no improvement.

5. **Flatulence**
   
   Among 40 patients 31 (77.5%) were found to have the Flatulence. Out of 31 patients,
• In 28 (90%) cases complete relief was found.
• In 2 (6.5%) cases reduction in symptom was present.
• In 1 (3.5%) case there was no improvement.

6. Fatigue
Among 40 patients, 28 (70%) patients were found to have Fatigue. Out of the 28 patients,
• In 26(93 %) cases complete relief was found.
• In 2(7 %) cases there was reduction in symptom was present.

7. Generalized weakness
Among 40 patients 39(97.5%) were found to have generalized weakness. After treatment all are found to have complete relief.

8. Sweating
Among 40 patients only 2(5%) were found to have sweating. Out of them, One was found to have complete relief and in the other there was no impact.

9. Excessive thirst
Among 40 patients only 3 (7.5%) were found to have the symptom of excessive thirst. After treatment all are found to have complete relief.

10. Headache
Among 40 patients 9 (22.5%) patients were found to have Headache. Out of the 9 patients,
• In 8(89 %) cases complete relief was found.
• In 1(11 %) case there was reduction in symptom was present.

11. Loss of weight
Among 40 patients only 3 (7.5%) were found to have Loss of weight. Out of the three patients, after treatment 2 patients (67%) showed weight gain and 1 patient (33%) showed no further weight loss.
12. Regurgitation

Among 40 patients, 6 (15%) patients were found to have Regurgitation. Out of the 6 patients
- In 4 (67%) cases complete relief was found.
- In 2 (33%) cases there was reduction in symptom was present.

22. Incidence with Blood grouping:

Among the 40 patients included in the study
- 18 (45%) belongs to the O+ Blood group,
- 11 (27.5%) belongs to the A+ Blood group,
- 8 (20%) belongs to the B+ Blood group and
- 1 (2.5%) each belongs to the blood groups AB+, A- and O- respectively

23. Observation with reference to symptom score according to vaezl, Grading and Staging in Gastroenterology.

Among the 40 patients
- 1 (2.5%) patient was found to be in level 2 and 39 (97.5%) patients were found to be in Level 3 during the induction for treatment.
- After treatment 28 (70%) patients were in level 1, 7 (17.5%) patients were in Level 2 and 5 (12.5%) patients were in Level 3.
- This reduction in score after the treatment reveals the efficacy of the drug in the treatment of Vaayu Kunnam.

24. STATISTICAL ANALYSIS

I. SYMPTOM SCORE BEFORE AND AFTER TREATMENT.

BIO STATISTICAL ANALYSIS

The clinical trials of the drug Vediyuppu kattu (Internal) is differentiated in terms of percentages. The effectiveness of the drug is assessed by using paired comparison test (paired t test). The responses of the patients to the drug are analyzed.
Assessment of the effectiveness of drug:

The effectiveness of the drug was assessed by the relief of the patients from clinical symptoms, and which is measured using symptom score.

Inference: The test drug was statistically significant (p>0.001) it shows its effectiveness in the treatment of Vaayu kunmam (Gastritis).

25. ENDOSCOPIC EVALUATION

Among the 5 patients with endoscopic evaluation

Before the treatment 2 patients had the impression of Gastritis, 1 patient with Antral Gastritis, 1 patient with Gastritis associated with inflammation in the body of stomach and 1 patient with Gastritis associated with Duodenal ulcers and Deodenitis.

After the treatment all the 5 patients showed considerable improvement in the endoscopic evaluation and found to have normal endoscopic study.

BIOCHEMICAL ANALYSIS:

- Qualitative analysis of Vediyuppu kattu done in NIS biochemical lab revealed that it contains inevitable constituents like calcium, Iron and sulphate
- Quantitative analysis revealed that it contains chiefly
  - \( 2.325 \text{ mg/L of Sulphur.} \)
  - \( 8.654 \text{ mg/L of Phosphorous.} \)
  - \( 5.231 \text{ mg/L of Aluminium} \)
  - \( 15.45 \text{ mg/L of Sodium} \)
  - \( 200.528 \text{ mg/L of Potassium.} \)
  - \( 9.564 \text{ mg/L of Silicate} \)
- The SEM is carried out by using FEI-Quanta FEG 200-High Resolution Instrument the PPM (PARTICLE PER MILLION) size seems to be \( 0.5 - 2\mu \).
TOXICITY STUDY:

ACUTE TOXICITY:

Acute toxicity studies done in National Institute of Siddha, as per WHO guidelines revealed the safety of the drug in oral dose (28.8mg/animal for mice) as it did not produce any adverse effects in the animals. There were no abnormalities detected in the internal organs on necropsy.

CHRONIC TOXICITY:

Chronic toxicity- Long term toxicity studies done in National Institute of Siddha, as per WHO guidelines did not reveal any adverse effects in the animal. Animal behavior, metabolic functions (food and water intake, defaecation, urination etc) did not reveal any abnormality. Blood investigation parameters and histopathological examination did not show any abnormal variations.

Hence it can be concluded from the study that up to maximum dose (288 mg/animal for wister rat) the drug was proved to be safe.
SUMMARY

- The aim of the study was to evaluate the safety and efficacy of the drug Vediyuppu Kattu in the treatment of Vaayu Gunnam.
- Before initiating the clinical trial, approval was got from the Institutional Animal Ethical Committee IAEC : 1248/ac/09/CPCSEA/4-06/2011 – 6 Dt. 20.12.2011 and Institutional Ethical Committee IEC : NIS/IEC/2011/3/06 – Dt. 24.12.2011 for conducting the pre clinical studies and clinical studies respectively by submitting the well defined protocol and proforma.
- The raw drugs were authenticated by the concerned department and the trial drug was prepared in the Gunapadam lab of National Institute of Siddha as per the Standard Operating Procedure mentioned in the protocol.
- The medicine was then subjected to toxicity studies (Acute and long term toxicity studies) as per the protocol and the safety of the drug was ensured.
- The qualitative and quantitative bio chemical studies were done at the bio chemistry lab of National Institute of Siddha.
- SEM analysis and trace metals detection were done at Sophisticated Analytical Instrument Facility, IIT, Chennai.
- Among the 70 cases screened at the OPD of department of Maruthuvam NIS, 40 cases were recruited for the trial as per the inclusion and exclusion criteria.
- Clinical diagnosis of Vaayu Gunnam was made by Siddha and Modern methodology.
- Before inducement into the trial informed consent was obtained from the patients. Out of the 40 cases 28 cases were treated in OPD and 12 cases in IPD.
- A day before the trial drug administration, puragation was given to correct the elevated Vatha thathu and bring other two deranged thathus to equilibrium.
- The clinical trial was conducted with the trial medicine Vediyuppu Kattu 800 mg b.i.d with Thiri Kadugu Chooranam 400mg internal, for a period of 48 days, referred under the Siddha literature Yaakoobu Vaidhiya Chinthamani 700 respectively.
- Diet restriction was strictly followed during the period of drug administration. as per noted in the form IV E (Dietary advice form).
Required lab investigations were carried out before and after the treatment and the concerned data was recorded in the proforma.

Clinical assessment was done daily in all the IP patients and in OP patients it was assessed once in 7 days.

During the study period, there was no event of any adverse reactions owing to the drug or disease.

In these studies out of 40 cases, 35 cases (87.5%) were found to be relieved from the clinical symptoms. In 3 cases (7.5%) the clinical symptoms were found to be reduced and no reduction was found in 2 cases (5%).

As per the Siddha Literature and modern science reviews and research articles, the ingredients of the trial drugs were found to have the property of controlling the disease Vaayu Gunnam.

Endoscopic evaluation of the patients before and after treatment shows the reduction of inflammation in the stomach. This showed the therapeutic effect of the drug in controlling the disease to a greater extent.

Statistical analysis showed significant reduction in symptoms and health assessment score assessed before and after the treatment (P< 0.010). Statistical analysis on lab parameters and toxicity studies also showed significant outcome.

Oral toxicity studies conducted ensured the safety usage of the drug to animals up to a maximum dose of 28.8 mg/animal for mice and 288mg/animal for wister rat.

Bio chemical analysis showed the presence of inevitable constituents like Calcium, Iron, Sulphate which plays a role in repairing and preventing the Gastric mucosal damage and inflammation in the disease.

The minimum particle size (0.5 - 2µ) unveiled in the (Particle Per Million size) PPM analysis shows the existence of the drug in micro particle size which contributes its therapeutic effect by the increased bio availability.
CONCLUSION

- The safety studies (the acute toxicity and long term toxicity) conducted revealed that the trial drug was safe even at higher dosage of 28.8 mg/animal for mice and 288 mg/animal for wister rat. There were no abnormalities found in blood investigation and histopathological examination. Hence it can be reasonably assumed that the drug is safe for human.

- Clinical study revealed the therapeutic efficacy of the trial drug by showing, complete relief in 87.5% (35) cases and reduction of symptoms in 3 (7.5%) cases out of 40 cases.

- Improvement was noted in the Endoscopic evaluation of patients after the treatment when compared with before, revealing the control of the disease.

- There were no adverse reactions observed during the trial.

- Because of the encouraging clinical outcome, the study may be further carried out with the same drug in a large number of cases of Vaayu kunmam.
BIBLIOGRAPHY


2. Yougi munivar, Yougi Vaithiya Chindhamani, Directorate of Indian Medicine and Homeopathy, 2nd edition, pg:80, 81


4. Dr.M.Shanmugavelu, Noinalnoimudhalnadai, 2nd edition, 1988, pg 254, 262


15. Metric Measurements, guidelines of TKDL


22. Dr.K.M.Nadkarni’s, Indian material medica, Vol-1,3rd edition- 2005,pg965, 969 and 1308

23. OPTIMA 5000 SERIES Hardware Guide.


## BIO-CHEMICAL ANALYSIS OF VEDIYUPPU KATTU

**ANALYSED AT NATIONAL INSTITUTE OF SIDDHA**

<table>
<thead>
<tr>
<th>S.No</th>
<th>EXPERIMENT</th>
<th>OBSERVATION</th>
<th>INFERENCES</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Physical Appearance of sample</td>
<td>White in colour</td>
<td></td>
</tr>
<tr>
<td>2.</td>
<td><strong>Solubility:</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>a. A little (500mg) of the sample is shaken well with distilled water.</td>
<td>Completely soluble</td>
<td>Absence of Silicate</td>
</tr>
<tr>
<td></td>
<td>b. A little (500mg) of the sample is shaken well with con. HCl/Con. H$_2$SO$_4$.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3.</td>
<td><strong>Action of Heat:</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>A small amount (500mg) of the sample is taken in a dry test tube and heated gently at first and then strong.</td>
<td>White fumes evolved</td>
<td>Presence of Carbonate</td>
</tr>
<tr>
<td>4.</td>
<td><strong>Flame Test:</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>A small amount (500mg) of the sample is made into a paste with con. HCl in a watch glass and introduced into non-luminous part of the Bunsen flame.</td>
<td>No Bluish green flame appeared.</td>
<td>Absence of Copper</td>
</tr>
<tr>
<td>5.</td>
<td><strong>Ash Test:</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>A filter paper is soaked into a mixture of sample and dil. cobalt nitrate solution and introduced into the Bunsen flame and ignited</td>
<td>No Yellow colour flame</td>
<td>Absence of Sodium</td>
</tr>
</tbody>
</table>
Preparation of Extract:

5gm of Vediyuppu Kattu is weighed accurately and placed in a 250ml clean beaker and added with 50ml of distilled water. Then it is boiled well for about 10 minutes. Then it is cooled and filtered in a 100ml volumetric flask and made up to 100ml with distilled water.

<table>
<thead>
<tr>
<th>S.No</th>
<th>EXPERIMENT</th>
<th>OBSERVATION</th>
<th>INFERIENCE</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td><strong>Test For Acid Radicals</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1.</td>
<td><strong>Test For Sulphate:</strong></td>
<td>Cloudy appearance present</td>
<td>Present</td>
</tr>
<tr>
<td></td>
<td>2ml of the above prepared extract is taken in a test tube to this added 2ml of 4% dil ammonium oxalate solution.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2.</td>
<td><strong>Test For Chloride:</strong></td>
<td>No Cloudy appearance present</td>
<td>Absent</td>
</tr>
<tr>
<td></td>
<td>2ml of the above prepared extracts is added with 2ml of dil-HCl is added until the effervescence ceases off.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3.</td>
<td><strong>Test For Phosphate:</strong></td>
<td>No Yellow appearance present</td>
<td>Absent</td>
</tr>
<tr>
<td></td>
<td>2ml of the extract is treated with 2ml of dil.ammonium molybdate solution and 2ml of con.HNo3.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4.</td>
<td><strong>Test For Carbonate:</strong></td>
<td>No Cloudy appearance present</td>
<td>Absent</td>
</tr>
<tr>
<td></td>
<td>2ml of the extract is treated with 2mldil. magnesium sulphate solution.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>5.</td>
<td><strong>Test For Nitrate:</strong></td>
<td>No Brown gas is evolved</td>
<td>Absent</td>
</tr>
<tr>
<td></td>
<td>1gm of the substance is heated with copper turning and concentrated H2So4 and viewed the test tube vertically down.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>6.</td>
<td><strong>Test For Sulphide:</strong></td>
<td>No Rotten Egg Smelling gas evolved</td>
<td>Absent</td>
</tr>
<tr>
<td></td>
<td>1gm of the substance is treated with 2ml of con. HCL</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Test</td>
<td>Description</td>
<td>Result</td>
<td></td>
</tr>
<tr>
<td>------</td>
<td>-------------</td>
<td>--------</td>
<td></td>
</tr>
<tr>
<td>7. Test For Fluoride &amp; Oxalate:</td>
<td>2ml of extract is added with 2ml of dil. Acetic acid and 2ml dil. calcium chloride solution and heated.</td>
<td>No Cloudy appearance</td>
<td>Absent</td>
</tr>
<tr>
<td>8. Test For Nitrite:</td>
<td>3 drops of the extract is placed on a filter paper, on that-2 drops of dil. acetic acid and 2 drops of dil. Benzidine solution is placed.</td>
<td>No Characteristic changes</td>
<td>Absent</td>
</tr>
<tr>
<td>9. Test For Borate:</td>
<td>2 pinches (50mg) of the substance is made into paste by using dil. sulphuric acid and alcohol (95%) and introduced into the blue flame.</td>
<td>Bluish green colour flame not appeared</td>
<td>Absent</td>
</tr>
</tbody>
</table>

II. Test For Basic Radicals

<table>
<thead>
<tr>
<th>Test</th>
<th>Description</th>
<th>Result</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Test For Lead:</td>
<td>2ml of the extract is added with 2ml of dil. potassium iodine solution.</td>
<td>No Yellow precipitate is obtained.</td>
</tr>
<tr>
<td>2. Test For Copper:</td>
<td>a. One pinch (50mg) of substance is made into paste with con. HCl in a watch glass and introduced into the non-luminous part of the flame.</td>
<td>No Blue colour flame</td>
</tr>
<tr>
<td>3. Test For Aluminium:</td>
<td>To the 2ml of extract dil. sodium hydroxide is added in 5 drops to excess.</td>
<td>No Yellow colour appeared</td>
</tr>
<tr>
<td>4. Test For Iron:</td>
<td>a. To the 2ml of extract add 2ml of dil. ammonium solution</td>
<td>Mild Red colour appeared</td>
</tr>
<tr>
<td></td>
<td>b. To the 2ml of extract 2ml thiocyanate solution and 2ml of con HNo3 is added</td>
<td></td>
</tr>
<tr>
<td>5. Test For Zinc:</td>
<td>To 2ml of the extract dil. sodium hydroxide solution is added in 5 drops to excess and dil. ammonium chloride is added.</td>
<td>White precipitate is not formed</td>
</tr>
<tr>
<td>No.</td>
<td>Test For Calcium:</td>
<td>Cloudy appearance and white precipitate is obtained</td>
</tr>
<tr>
<td>-----</td>
<td>-------------------------------------------</td>
<td>----------------------------------------------------</td>
</tr>
<tr>
<td>6.</td>
<td>2ml of the extract is added with 2ml of 4% dil.ammonium oxalate solution</td>
<td></td>
</tr>
<tr>
<td>7.</td>
<td>Test For Magnesium:</td>
<td>No White precipitate is obtained</td>
</tr>
<tr>
<td></td>
<td>To 2ml of extract dil.sodium hydroxide solution is added in drops to excess.</td>
<td></td>
</tr>
<tr>
<td>8.</td>
<td>Test For Ammonium:</td>
<td>No Brown colour appeared</td>
</tr>
<tr>
<td></td>
<td>To 2ml of extract 1 ml of Nessler's reagent and excess of dil.sodium hydroxide solution are added.</td>
<td></td>
</tr>
<tr>
<td>9.</td>
<td>Test For Potassium:</td>
<td>No Yellowish precipitate is obtained.</td>
</tr>
<tr>
<td></td>
<td>A pinch (25mg) of substance is treated of with 2ml of dil.sodium nitrite solution and then treated with 2ml of dil.cobalt nitrate in 30% dil.glacial acetic acid.</td>
<td></td>
</tr>
<tr>
<td>10.</td>
<td>Test For Sodium:</td>
<td>No Yellow colour flame appeared</td>
</tr>
<tr>
<td></td>
<td>2 pinches (50mg) of the substance is made into paste by using HCl and introduced into the blue flame of Bunsen burner.</td>
<td></td>
</tr>
<tr>
<td>11.</td>
<td>Test For Mercury:</td>
<td>No yellow precipitate is obtained</td>
</tr>
<tr>
<td></td>
<td>2ml of the extract is treated with 2ml of dil.sodium hydroxide solution.</td>
<td></td>
</tr>
<tr>
<td>12.</td>
<td>Test For Arsenic:</td>
<td>No brownish red precipitate is obtained.</td>
</tr>
<tr>
<td></td>
<td>2ml of the extract is treated with 2ml of dil.sodium hydroxide solution.</td>
<td></td>
</tr>
</tbody>
</table>
### III. Miscellaneous

1. **Test For Starch:**
   - 2ml of extract is treated with weak dil.iodine solution
   - No Blue colour developed
   - Present

2. **Test For Reducing Sugar:**
   - 5ml of Benedict's qualitative solution is taken in a test tube and allowed to boil for 2 minutes and added 8 to 10 drops of the extract and again boil it for 2 minutes. The colour changes are noted.
   - Brick red colour not developed
   - Absent

3. **Test For The Alkaloids:**
   - a) 2ml of the extract is treated with 2ml of dil.potassium iodide solution.
   - b) 2ml of the extract is treated with 2ml of dil.picric acid.
   - c) 2ml of the extract is treated with 2ml of dil.phosphotungstic acid.
   - No Yellow colour developed
   - Absent

4. **Test For Tannic Acid:**
   - 2ml of extract is treated with 2ml of dil.ferric chloride solution
   - No black precipitate is obtained
   - Present

5. **Test For Unsaturated Compound:**
   - To the 2ml of extract 2ml of dil.Potassium permanganate solution is added.
   - Potassium permanganate is not decolourised
   - Absent

6. **Test For Amino Acid:**
   - 2 drops of the extract is placed on a filter paper and dried well. 20ml of Biurette reagent is added.
   - No Violet colour developed
   - Absent
7. **Test For Type Of Compound:**

2ml of the extract is treated with 2 ml of dil.ferric chloride solution.

<table>
<thead>
<tr>
<th>No</th>
<th>Constituents</th>
<th>Inference</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Silicate</td>
<td>Absent</td>
</tr>
<tr>
<td>2.</td>
<td>Carbonate</td>
<td>Absent</td>
</tr>
<tr>
<td>3.</td>
<td>Copper</td>
<td>Absent</td>
</tr>
<tr>
<td>4.</td>
<td>Sodium</td>
<td>Absent</td>
</tr>
<tr>
<td>5.</td>
<td>Sulphate</td>
<td>Present</td>
</tr>
<tr>
<td>6.</td>
<td>Chloride</td>
<td>Absent</td>
</tr>
<tr>
<td>7.</td>
<td>Phosphate</td>
<td>Absent</td>
</tr>
</tbody>
</table>

**Absence of oxy quinole pinephrine and pyro catechol.**

**Anti pyrine, Aliphatic amino acids and meconic acid are absent**

**Apomorphine salicylate and Resorcinol are absent.**

**Morphine, Phenol cresol and hydrouinone are absent.**

---

**Preliminary Qualitative Phyto chemical tests procedure and Interpretation of results**

<table>
<thead>
<tr>
<th>S.NO</th>
<th>Constituents</th>
<th>Inference</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Silicate</td>
<td>Absent</td>
</tr>
<tr>
<td>2.</td>
<td>Carbonate</td>
<td>Absent</td>
</tr>
<tr>
<td>3.</td>
<td>Copper</td>
<td>Absent</td>
</tr>
<tr>
<td>4.</td>
<td>Sodium</td>
<td>Absent</td>
</tr>
<tr>
<td>5.</td>
<td>Sulphate</td>
<td>Present</td>
</tr>
<tr>
<td>6.</td>
<td>Chloride</td>
<td>Absent</td>
</tr>
<tr>
<td>7.</td>
<td>Phosphate</td>
<td>Absent</td>
</tr>
<tr>
<td></td>
<td>Substance</td>
<td>Status</td>
</tr>
<tr>
<td>---</td>
<td>----------------</td>
<td>---------</td>
</tr>
<tr>
<td>8</td>
<td>Carbonate</td>
<td>Absent</td>
</tr>
<tr>
<td>9</td>
<td>Fluoride</td>
<td>Absent</td>
</tr>
<tr>
<td>10</td>
<td>Oxalate</td>
<td>Absent</td>
</tr>
<tr>
<td>11</td>
<td>Nitrate</td>
<td>Absent</td>
</tr>
<tr>
<td>12</td>
<td>Sulphide</td>
<td>Absent</td>
</tr>
<tr>
<td>13</td>
<td>Nitrite</td>
<td>Absent</td>
</tr>
<tr>
<td>14</td>
<td>Borate</td>
<td>Absent</td>
</tr>
<tr>
<td>15</td>
<td>Lead</td>
<td>Absent</td>
</tr>
<tr>
<td>16</td>
<td>Copper</td>
<td>Absent</td>
</tr>
<tr>
<td>17</td>
<td>Aluminium</td>
<td>Absent</td>
</tr>
<tr>
<td>18</td>
<td>Iron</td>
<td>Present</td>
</tr>
<tr>
<td>19</td>
<td>Zinc</td>
<td>Absent</td>
</tr>
<tr>
<td>20</td>
<td>Calcium</td>
<td>Present</td>
</tr>
<tr>
<td>21</td>
<td>Magnesium</td>
<td>Absent</td>
</tr>
<tr>
<td>22</td>
<td>Ammonium</td>
<td>Absent</td>
</tr>
<tr>
<td>23</td>
<td>Sodium</td>
<td>Absent</td>
</tr>
<tr>
<td>24</td>
<td>Mercury</td>
<td>Absent</td>
</tr>
<tr>
<td>25</td>
<td>Arsenic</td>
<td>Absent</td>
</tr>
<tr>
<td>26</td>
<td>Starch</td>
<td>Present</td>
</tr>
<tr>
<td>27</td>
<td>Reducing Sugar</td>
<td>Absent</td>
</tr>
<tr>
<td>28</td>
<td>Alkaloids</td>
<td>Absent</td>
</tr>
<tr>
<td>29</td>
<td>Tannic acid</td>
<td>Present</td>
</tr>
<tr>
<td>30</td>
<td>Unsaturated Compound</td>
<td>Absent</td>
</tr>
<tr>
<td>31</td>
<td>Amino acids</td>
<td>Absent</td>
</tr>
</tbody>
</table>
### Table-1

**Colour characters of Vediyuppu Kattu.**

<table>
<thead>
<tr>
<th>S No</th>
<th>Solvent used</th>
<th>Under ordinary light</th>
<th>Under ultra violet light</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>PM</td>
<td>White</td>
<td>White</td>
</tr>
</tbody>
</table>

PM-Powdered material

### Table-2

**Physicochemical properties of Vediyuppu Kattu.**

<table>
<thead>
<tr>
<th>S. No.</th>
<th>Parameters</th>
<th>Values obtained (%w/w)</th>
<th>Heavy/ toxic metals</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Total ash value</td>
<td>9.66</td>
<td>Lead</td>
</tr>
<tr>
<td>2</td>
<td>Acid insoluble ash</td>
<td>0.84</td>
<td>Cadmium</td>
</tr>
<tr>
<td>3</td>
<td>Water soluble ash</td>
<td>5.26</td>
<td>Mercury</td>
</tr>
<tr>
<td>4</td>
<td>Moisture content</td>
<td>10.47</td>
<td>Arsenic</td>
</tr>
</tbody>
</table>

BDL-Below detection limit

### Table-3

**Colour, nature and percent yields of extracts of Vediyuppu Kattu.**

<table>
<thead>
<tr>
<th>S.No.</th>
<th>Extract Solvents</th>
<th>Colour</th>
<th>Nature</th>
<th>% Yield(w/w)</th>
<th>SEM-Micro graph partical size range in micron</th>
<th>pH</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Water</td>
<td>White</td>
<td>Solid</td>
<td>48</td>
<td>0.5 – 2 micron</td>
<td>8.9 – 9.1</td>
</tr>
</tbody>
</table>
Introduction

Inductively coupled plasma optical emission spectrometry (ICP-OES), is an analytical technique used for the detection of trace metals. It is a type of emission spectroscopy that uses the inductively coupled plasma to produce excited atoms and ions that emit electromagnetic radiation at wavelengths characteristic of a particular element. The intensity of this emission is indicative of the concentration of the element within the sample.

Principle

A Perkin-Elmer Optima ICP spectrometer is used for routine ICP-OES analysis. First, a high-energy radio frequency field is impinged upon a stream of argon gas. Then, a spark is used to ionize the argon gas, which forms a sustained plasma due to inductive coupling with the high energy radio frequency field and the continuous supply of fresh argon to the plasma torch. This plasma has solutions passed into it in the form of a fine aerosol. The aerosol is dried, the dried particles broken apart, and the individual elements are excited by interaction with the excited state argon in the plasma. As each atom returns to its ground state from the excited state, they emit light at wavelengths characteristic of the elements from which they originate. The emission intensity for each element is monitored for each standard solution and a calibration curve of emission intensity versus element concentration can be constructed.

Extraction of information

Obtaining qualitative information, i.e., what elements are present in the sample, involves identifying the presence of emission at the wavelengths characteristic of the elements of interest. Obtaining quantitative information, i.e., how much of an element is in the sample, can be accomplished using plots of emission intensity versus concentration called calibration curves. Typical calibration graph is illustrated below.
Typical ICP Calibration curve

**Experimental Procedure: Done at SAIF, IIT Madras, Chennai-36**
Perkin Elmer Oplima 5300DV
40 M Hz RF generator
Range: 165-782 nm;
Detection limit: upto ppb level using SCD detector

**Sample preparation – Microwave Digestion**

- Weigh 0.25g of test sample and transfer into a liner provided with the instrument.
- Slowly add 9ml of Nitric acid or Sulphuric acid such that no piece of sample sticks on the slides.
- Mix thoroughly and allow reacting for few minutes.
- Place the liner in the vessel jacket.
- Close the screw cap hand-tight in clockwise direction.
- Seal the vessel and place in the rotor fixed in microwave.
- Set temperature to 180°C for 5 minutes; hold at 180°C for least 10 minutes.
- Allow the vessels to cool down to a vessel interior temperature below 60°C and to a vessel surface temperature (IR) below 50°C before removing the rotor.
- The digested sample was made upto 100ml with millipore water.
- If visible insoluble particles exist, solution could be filtered through whatmann filter paper.
- Transfer the digested solution into plastic containers and label them properly.
Advantages:

Good general-purpose technique
Good dynamic range
Accommodates organic solvents
Multi-elemental technique

Disadvantages

Cost of the instrument
Limits of detection
Sample volume requirements
Spectral interferences for unknown/complicated matrices

Sample description: Vediyuppu Kattu

Instrument : PERKIN ELMER OPTIMA 5300DV ICP-OES

<table>
<thead>
<tr>
<th>Analyte</th>
<th>Mean</th>
</tr>
</thead>
<tbody>
<tr>
<td>As</td>
<td>193.696</td>
</tr>
<tr>
<td>Al</td>
<td>308.215</td>
</tr>
<tr>
<td>Ca</td>
<td>317.933</td>
</tr>
<tr>
<td>Cd</td>
<td>226.502</td>
</tr>
<tr>
<td>Cu</td>
<td>324.754</td>
</tr>
<tr>
<td>Hg</td>
<td>253.652</td>
</tr>
<tr>
<td>Fe</td>
<td>238.204</td>
</tr>
<tr>
<td>K</td>
<td>766.491</td>
</tr>
<tr>
<td>Na</td>
<td>588.995</td>
</tr>
<tr>
<td>Mg</td>
<td>257.610</td>
</tr>
<tr>
<td>P</td>
<td>214.914</td>
</tr>
<tr>
<td>Pb</td>
<td>230.204</td>
</tr>
<tr>
<td>S</td>
<td>181.975</td>
</tr>
<tr>
<td>Si</td>
<td>251.611</td>
</tr>
</tbody>
</table>

BDL = Below Detection Limit
HR SEM-METHODOLOGY:

An SEM is essentially a high magnification microscope, which uses a focussed scanned electron beam to produce images of the sample, both top-down and, with the necessary sample preparation, cross-sections. The primary electron beam interacts with the sample in a number of key ways:-

- Primary electrons generate low energy secondary electrons, which tend to emphasize the topographic nature of the specimen.
- Primary electrons can be backscattered which produces images with a high degree of atomic number (Z) contrast.
- Ionized atoms can relax by electron shell-to-shell transitions, which lead to either X-ray emission or Auger electron ejection. The X-rays emitted are characteristic of the elements in the top few μm of the sample.

SAMPLE PREPARATION:

Sample preparation can be minimal or elaborate for SEM analysis, depending on the nature of the samples and the data required. Minimal preparation includes acquisition of a sample that will fit into the SEM chamber and some accommodation to prevent charge build-up on electrically insulating samples. Most electrically insulating samples are coated with a thin layer of conducting material, commonly carbon, gold, or some other metal or alloy. The choice of material for conductive coatings depends on the data to be acquired: carbon is most desirable if elemental analysis is a priority, while metal coatings are most effective for high resolution electron imaging applications. Alternatively, an electrically insulating sample can be examined without a conductive coating in an instrument capable of "low vacuum" operation.

The SEM is carried out by using FEI-Quanta FEG 200-High Resolution Instrument.

Resolution : 1.2 nm gold particle separation on a carbon substrate
Magnification: From a min of 12x to greater than 1, 00,000 X
**Application**: To evaluate grain size, particle size distributions, material homogeneity and inter metallic distributions.

**Experimental Procedure**: Done at SAIF, IIT Madras, Chennai-36

**Sample preparation:**

Sample preparation can be minimal or elaborate for SEM analysis, depending on the nature of the samples and the data required. Minimal preparation includes acquisition of a sample that will fit into the SEM chamber and some accommodation to prevent charge build-up on electrically insulating samples. Most electrically insulating samples are coated with a thin layer of conducting material, commonly carbon, gold, or some other metal or alloy. The choice of material for conductive coatings depends on the data to be acquired: carbon is most desirable if elemental analysis is a priority, while metal coatings are most effective for high resolution electron imaging applications. Alternatively, an electrically insulating sample can be examined without a conductive coating in an instrument capable of "low vacuum" operation.

**PARTICLE PER MILLION SIZE OF VEDIYUPPU KATTU**

![Image of particle per million size of Vediyuppu Kattu](image)

**PARTICLE PER MILLION SIZE 0.5 - 2 MICRON**
TOXICOLOGICAL EVALUATION OF VEDIYUPPU KATTU

ACUTE TOXICITY STUDY OF VEDIYUPPU KATTU

[WHO guidelines, 1993]

Principle:

Acute toxicity was carried out in Swiss albino mice with a single exposure of 10 times of the recommended therapeutic dose of test compound. The study duration was 14 days.

Animal species : Swiss albino mice
Age / Weight / Size : 6 weeks. Mice-20-25 gms.
Gender : Both male and female
Number of Animals : Mice: 20
Acclimatization Period : 7 Days

<table>
<thead>
<tr>
<th>S.No</th>
<th>Group</th>
<th>No of mice</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Vehicle control</td>
<td>10 (5 male, 5 female)</td>
</tr>
<tr>
<td>2</td>
<td>Toxic dose 10X therapeutic dose (28.8 mg)</td>
<td>10 (5 male, 5 female)</td>
</tr>
</tbody>
</table>

Test Animals

Test animals were obtained from the animal laboratory of the King institute, Chennai and stocked at Animal house, National institute of Siddha, Chennai. All the animals were kept under standard environmental condition (27+ or − 2 degree c). The animals had free access to water and standard pellet diet (Sai meera foods pvt.ltd, Bangalore). The principles of laboratory animal care were followed and the Institutional Animal ethical committee approved the use of animals and the study design. (1248/ac/09/CPCSEA/4-06/2011 – 6 Dt. 20.12.2011).
Route of administration:

Oral route was selected, because it is the normal route of clinical administration.

Test substance and vehicle

The test substance (Vediyuppu kattu & Thirikadugu Chooranam) was insoluble in water. In order to obtain and ensure the uniformity in drug distribution, the drug was dissolved by aqueous Tween 80 solution (7%).

Administration of doses:

The test substance was suspended in aqueous Tween 80 solution (7%), with uniform mixing and it was administered to the groups in a single oral dose. The control groups received equal volume of the vehicle. The animals were weighed before giving the drug. The dose level was calculated according to body weight, and surface area. Since the clinical dose was 800 mg/day. It was converted to animal dose (28.8 mg) and then administered. The principle of laboratory animal care was followed.

Observations

Observations were made and recorded systematically and continuously observed as per the guideline after substance administration. Animals were observed individually. Visual observations included skin changes, alertness, grooming, aggressiveness, sensitivity to sound, touch and pain, restlessness, tremors, convulsion, righting reflex, gripping reflex, pinna reflex, corneal reflex, writhing reflex, papillary reflex, urination, salivation, lacrimation for first 4 hrs, then periodically during the first 24 hrs. Animals were observed for body weight and mortality for 14 days. If animals dye during the period of study, the animals were sacrificed. At the end of the 14th day all animals were sacrificed and necroscopy was done.

Body Weight

Individual weights of animals were determined before the test substance was administered and daily for 14 days. Weight changes were calculated and recorded. At the end of the test surviving animals were weighed and sacrificed.
Results: Vediyuppu Kattu at the dose 28.8mg/animal did not exhibit any mortality in mice.

No behavior changes were noted for the first 4 hours and for the next 24 hours and throughout the study period of 14 days. No weight reduction was noted before and after the acute study duration. Reflexes were found to be normal before and after the study. All other observations were found to be normal before and after the study. In Necropsy, the organs of the animal such as Liver, Heart, Lungs, Pancreas, Spleen, Stomach, Intestine, Kidney, Urinary bladder, Uterus all appeared normal.

LONG TERM TOXICITY STUDY OF VEDIYUPPU KATTU:

Animals: Male and Female Wistar albino rats
Age: 6-8 weeks
Weight: 150-200 gms
Gender: Both male and female
Number of animals: Rat: 40
Acclimatization period: 7 Days
Clinical duration: 90 days

<table>
<thead>
<tr>
<th>S. No</th>
<th>Group</th>
<th>No of Rats</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Vehicle control</td>
<td>10 (5 male, 5 female)</td>
</tr>
<tr>
<td>2</td>
<td>1XTherapeutic dose (28.8 mg)</td>
<td>10 (5 male, 5 female)</td>
</tr>
<tr>
<td>3</td>
<td>5XTherapeutic dose (144 mg)</td>
<td>10 (5 male, 5 female)</td>
</tr>
<tr>
<td>4</td>
<td>10XTherapeutic dose (288 mg)</td>
<td>10 (5 male, 5 female)</td>
</tr>
</tbody>
</table>

Animal source:

Test animals were obtained from the animal laboratory of the King institute, Chennai, and stocked at Animal house, National Institute of Siddha, Chennai. All the animals were kept under standard environmental condition (27+ or – 2 degree c) .The animals had free access to water and standard pellet diet (Sai meera foods pvt.ltd, Bangalore). The principles of laboratory animal care were followed and the Institutional
Animal ethical committee approved the use of animals and the study design. (1248/ac/09/CPCSEA/4-06/2011 – 6 Dt. 20.12.2011).

Identification of animal:

By cage number, animal number and individual marking on fur.

Housing & Environment:

The animals were housed in polypropylene cages provided with bedding of husk. Dark and light cycle each of 12 hours.

Administration period:

The period of administration of the test substance to animals depends on the expected period of clinical use. Since the clinical dose of the test drug is 48 days and as per WHO guidelines the administration period is reported to be 90 days.

Dose selection:

The results of acute toxicity studies in Swiss albino mice indicated that **Vediyuppu Kattu** was non toxic and no behavioral changes, mortality was observed. On the basis of these results, the doses were selected for the study as per WHO guidelines.

Preparation and administration of dose:

The test substance Vediyuppu Kattu & Tirikadugu Chooranam was suspended in aqueous twin 80 solution (7%). It was administered to animals at dose levels of 1Xtherapeutic dose (28.8 mg), 5XTherapeutic dose (144 mg) and 10XTherapeutic dose (288 mg). The control animals were administered vehicle only. Administration was by oral (gavage) once a day for 90 days.

METHODOLOGY:

Randomization, numbering and grouping of animal:

The animals were randomly divided into four groups for dosing up to 90 days. Each group consist of 10 animals (5 per sex in each group) were allowed acclimatization period of 7 days to laboratory conditions prior to the initiation of treatment. Each animal was fur marked with picric acid. The females were nulliparous and non pregnant.
OBSERVATION:

Experimental animals were kept under observation throughout the course of study for the following:

**Body weight:**

Weight of each rat was recorded on day 1 and at weekly intervals throughout the course of study and at termination to calculate relative organ weights. From the data mean body weights and percent body gain were calculated.

**Food and water consumption:**

The quantity of food consumed by groups consisting of an animal for different doses were recorded at weekly intervals. Food consumed per animal was calculated for control and the treated dose groups.

**Clinical sings**

All animals were observed daily for clinical signs. The time of onset, intensity and duration of the symptom if any were recorded.

**Mortality:**

All animals were observed twice daily for any mortality during entire course of study.

**TERMINAL STUDIES:**

**LABORATORY INVESTIGATIONS:**

Following laboratory investigations were carried out on day 91 in animals fasted over night. Blood samples were collected by cardiac puncture using sodium heparin (200 IU/ml) for blood chemistry and potassium EDTA (1.5 mg/ml) for hematology anticoagulant. Blood sample were centrifuged at 3000 r. p .m for 10 minutes.

**Hematological investigations:**

Hematological parameters were determined by manual methods at the Tami Nadu Veterinary & Animal Sciences University, Chennai.
Biochemical investigations:

The effect of Vediyuppu Kattu on certain biochemical parameters were examined and compared with those of the control group. The blood samples collected with heparinized bottles were centrifuged at 5000 rpm for 10 minutes to obtain clear serum for the following investigation. Glucose was estimated using commercial Glucose estimation kit (Span Diagnostics) by the method of Barham et al., (1972) and Tenscher. et al., (1971). Haemoglobin PCV, RBC, Erythocyte count was estimated by Hemocytometer method of Ghai (1995). Total Leukocyte Count was estimated by Hemocytometer method of John (1972). Total (bilirubin test kid- malloy& evelyn 1937) direct and indirect bilirubin were determined. Alkaline phosphatase, Alanine amino tranferase (ALT) and Aspartate amino transferase (AST) were measured by using ALT and AST test kit (kind & king). Total protein TP concentration was determined. Albumin was determined based on its reaction with bromocresol green (binding method). Urea was determined according to urease – berthelot method and plasma creatinine was estimated using jaffe rection. Results of biochemical investigations conducted on day 91 revealed significant changes in the values of different parameters studied when compared with those of respective controls.

Statistical analysis done for the above said biochemical investigations did not reveal any significant difference in values between the control groups and test groups stating that the provided test drug is non toxic.

NECROPSY:

All the animals were sacrificed on day 91 under ether anesthesia. Necropsy of all animals was carried out and the weights of the organs including liver, kidneys, brain, stomach, heart, and lungs were recorded.

HISTOPATHOLOGY:

Tissue samples of organs from control and treated animals were preserved in 10% formalin for preparation of sections using microtome. The organs included liver, kidneys, heart, lungs and stomach of the animals were preserved and they were subjected to histological examination.
The organ pieces (3-5 micron) were fixed in 10% formalin for 24 hours and washed in running water for 24 hours. Samples were dehydrated in tissue processor and then cleaned in benzene to remove absolute alcohol. Embedding was done by passing the cleared sample through three cups containing molten paraffin at 50 degree c and then a cubical block of paraffin made by the L moulds it was followed by microtome and the slides were stained with haematoxylin–eosin stain. Stained sections of each organ were examined under light microscope at high (40X) power magnification. All the histopathological slides were prepared at Dept of Veterinary Pathology, Tamil Nadu Veterinary & Animal Science University,

Results:

GROUP - I – Control

Liver: Multifocal mononuclear cell infiltration.
Lung: Pulmonary congestion, peribronchial and interstitial mononuclear cell infiltration.
Kidney: Shows normal appearing tubules and glomeruli.
Stomach: Shows gastric mucosa with glands lined by tall columnar cell.
Heart: No abnormality detected.
Spleen: No abnormality detected.

Impression: Normal study.

GROUP - II – 1 X Therapeutic Dose (28.8 mg)

Liver: Shows central veins with radiating cords of hepatocytes, portal trials and kupfer cells appear normal.
Lungs: Shows bronchioles, alveoli, the alveolar septa with normal histology
Kidney: Shows normal appearing tubules and glomeruli.
Stomach: Shows gastric mucosa with glands lined by tall columnar cell
Heart: No abnormality detected.
Spleen: No abnormality detected.

Impression: Normal study.
GROUP - III – 5 X Therapeutic Dose (144 mg)

Liver: Multifocal mononuclear cell infiltration.
Lung: Pulmonary congestion, peribronchial and interstitial mononuclear cell infiltration.
Kidney: Mild tubular epithelial cell degeneration.
Stomach: Non – glandular stomach; Neutrophilic and mononuclear cell infiltration in the lamina propria.
Heart: No abnormality detected.
Spleen: No abnormality detected.

Impression: Normal study

GROUP - IV – 10 X Therapeutic Dose (288 mg)

Liver: Multifocal mononuclear cell infiltration and mild periportal mononuclear cell infiltration.
Lung: Pulmonary congestion, peribronchial and interstitial mononuclear cell infiltration.
Kidney: Tubular epithelial cell degeneration.
Stomach: Non – glandular stomach; Neutrophilic and mononuclear cell infiltration in the lamina propria.
Heart: No abnormality detected.
Spleen: Haemosiderosis.

Impression: Normal study.

The histopathological studies did not reveal any abnormalities in the animals in both control and test groups stating that the drug is non toxic.
Hematological parameters after 90 days treatment with *Vediyuppu Kattu* in rats.

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Group I</th>
<th>Group II</th>
<th>Group III</th>
<th>Group IV</th>
</tr>
</thead>
<tbody>
<tr>
<td>RBC (X10^6/µL)</td>
<td>8.20±0.63</td>
<td>8.72±0.80</td>
<td>9.22±1.10</td>
<td>9.03±0.52</td>
</tr>
<tr>
<td>HB (%)</td>
<td>14.16±1.24</td>
<td>15.10±1.22</td>
<td>15.84±0.99</td>
<td>15.12±1.18</td>
</tr>
<tr>
<td>Leukocyte (X10^3/µL)</td>
<td>7.37±1.32</td>
<td>7.50±1.31</td>
<td>6.89±0.93</td>
<td>6.62±0.54</td>
</tr>
<tr>
<td>Platelets (X10^3/µL)</td>
<td>840.4±80.42</td>
<td>816.25±87.74</td>
<td>837.1±87.14</td>
<td>780.76±70.32</td>
</tr>
<tr>
<td>MCV (gl)</td>
<td>51.24±5.08</td>
<td>50.16±4.32</td>
<td>51.60±5.41</td>
<td>56.14±4.86</td>
</tr>
<tr>
<td>N</td>
<td>23.22±2.16</td>
<td>22.53±3.70</td>
<td>24.74±3.62</td>
<td>25.18±3.11</td>
</tr>
<tr>
<td>L</td>
<td>69.82±6.15</td>
<td>67.46±6.55</td>
<td>66.24±6.28</td>
<td>66.12±3.18</td>
</tr>
<tr>
<td>M</td>
<td>2.0±0.34</td>
<td>2.0±0.35</td>
<td>2.24±0.28</td>
<td>2.32±0.26</td>
</tr>
<tr>
<td>E</td>
<td>1.42±0.54</td>
<td>1.61±0.60</td>
<td>1.28±0.42</td>
<td>1.00±0.11</td>
</tr>
<tr>
<td>B</td>
<td>0.00±0.00</td>
<td>0.00±0.00</td>
<td>0.00±0.00</td>
<td>0.00±0.00</td>
</tr>
<tr>
<td>ESR (mm)</td>
<td>1±00</td>
<td>1±00</td>
<td>1±00</td>
<td>1±00</td>
</tr>
<tr>
<td>PCV</td>
<td>42.10±1.02</td>
<td>44.6±3.7</td>
<td>44.04±2.2</td>
<td>45±1.8</td>
</tr>
</tbody>
</table>

Values are mean ± S.E.M. (Dunnett's test). *P<0.05; **P<0.01. N=6.

**Lipid Profile**

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Group I</th>
<th>Group II</th>
<th>Group III</th>
<th>Group IV</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total cholestrol (mg/dL)</td>
<td>75.28±4.4</td>
<td>78.10±7.6</td>
<td>82.20±8.10</td>
<td>82.64±6.2</td>
</tr>
<tr>
<td>HDL (mg/dL)</td>
<td>114.5±0.47</td>
<td>161.57±0.38**</td>
<td>150.39±0.49**</td>
<td>140.02±0.37**</td>
</tr>
<tr>
<td>LDL (mg/dL)</td>
<td>32.40±4.71</td>
<td>95.62±0.64</td>
<td>71.70±3.52**</td>
<td>86.43±0.57**</td>
</tr>
<tr>
<td>VLDL (mg/dl)</td>
<td>16.32±2.42</td>
<td>15.27±2.24</td>
<td>16.10±1.44</td>
<td>15.06±1.11</td>
</tr>
<tr>
<td>Triglycerides (mg/dl)</td>
<td>66.56±1.50</td>
<td>83.29±1.04**</td>
<td>118.30±1.02**</td>
<td>113.15±1.05**</td>
</tr>
<tr>
<td>Blood glucose (mg/dl)</td>
<td>90.77±0.48</td>
<td>81.16±0.32**</td>
<td>58.56±0.45**</td>
<td>52.00±1.00**</td>
</tr>
</tbody>
</table>

Values are mean ± S.E.M. (Dunnett's test). *P<0.05; **P<0.01. Vs. control
Effect of *Vediyuppu Kattu* biochemical parameters.

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Group I</th>
<th>Group II</th>
<th>Group III</th>
<th>Group IV</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total Bilirubin (µmol/l)</td>
<td>17.12±2.16</td>
<td>16.70±1.10</td>
<td>15.12±1.15</td>
<td>20.66±1.35</td>
</tr>
<tr>
<td>Bilirubin direct (µmol/l)</td>
<td>13.64±1.21</td>
<td>11.74±1.04</td>
<td>10.78±0.86</td>
<td>10.12±0.73*</td>
</tr>
<tr>
<td>ALP (U/L)</td>
<td>60.11±3.12</td>
<td>85.11±2.62**</td>
<td>102.10±1.92**</td>
<td>105.45±2.31**</td>
</tr>
<tr>
<td>SGOT (U/L)</td>
<td>84.02±6.2</td>
<td>90.16±8.45</td>
<td>87.52±6.31</td>
<td>96.2±7.52</td>
</tr>
<tr>
<td>SGPT(U/L)</td>
<td>71.72±7.2</td>
<td>74.31±6.2</td>
<td>82.2±7.10</td>
<td>93.5±7.50</td>
</tr>
<tr>
<td>Total Protein(g/dl)</td>
<td>8.21±0.25</td>
<td>7.55±0.23</td>
<td>7.55±0.72</td>
<td>7.18±0.61</td>
</tr>
<tr>
<td>Albumin(g/dl)</td>
<td>2.62±0.18</td>
<td>2.54±0.17</td>
<td>2.52±0.16</td>
<td>2.65±0.10</td>
</tr>
<tr>
<td>Globulin(g/dl)</td>
<td>6.82±0.28</td>
<td>5.18±0.28**</td>
<td>4.78±0.22**</td>
<td>4.73±0.30**</td>
</tr>
<tr>
<td>Urea(mg/dL)</td>
<td>6.35±0.25</td>
<td>7.30±0.19*</td>
<td>7.58±0.25**</td>
<td>8.85±0.22**</td>
</tr>
<tr>
<td>Creatinine (mg/dL)</td>
<td>0.17±0.04</td>
<td>0.22±0.05</td>
<td>0.50±0.05**</td>
<td>0.52±0.04**</td>
</tr>
<tr>
<td>Uric acid (mg/dL)</td>
<td>1.92±0.07</td>
<td>2.12±0.08</td>
<td>1.39±0.08**</td>
<td>1.29±0.07**</td>
</tr>
<tr>
<td>Na m.mol</td>
<td>148.00±1.10</td>
<td>147.36±1.12</td>
<td>146.28±0.54</td>
<td>145.20±0.50</td>
</tr>
<tr>
<td>K m.mol</td>
<td>6.12±0.88</td>
<td>5.90±1.00</td>
<td>5.68±0.78</td>
<td>5.82±0.69</td>
</tr>
<tr>
<td>Cl m.mol</td>
<td>100.05±4.26</td>
<td>101.27±5.51</td>
<td>99.82±4.72</td>
<td>100.14±5.10</td>
</tr>
</tbody>
</table>

Values are mean ± S.E.M. (Dunnett's test). *P<0.05; **P<0.01. Vs. control
<table>
<thead>
<tr>
<th>S.No</th>
<th>OPD/ IPD No</th>
<th>Hb g/dl</th>
<th>T.Rbc Mil/cu</th>
<th>ESR ½ - 1hr</th>
<th>T.Count Cells/cu</th>
<th>P</th>
<th>L</th>
<th>M</th>
<th>E</th>
<th>B</th>
<th>Plt Lak</th>
<th>F</th>
<th>PP</th>
<th>R</th>
<th>Total</th>
<th>HDL</th>
<th>LDL</th>
<th>VLDL</th>
<th>TGL</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>C 73051</td>
<td>16.2</td>
<td>5.1</td>
<td>2/6</td>
<td>8800</td>
<td>54</td>
<td>45</td>
<td>-</td>
<td>1</td>
<td>-</td>
<td>2.4</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>103</td>
<td>63</td>
<td>84</td>
<td>52</td>
<td>256</td>
</tr>
<tr>
<td>2</td>
<td>C73216</td>
<td>15.2</td>
<td>5.1</td>
<td>2/6</td>
<td>5100</td>
<td>37</td>
<td>62</td>
<td>-</td>
<td>1</td>
<td>-</td>
<td>1.9</td>
<td>86</td>
<td>-</td>
<td>-</td>
<td>220</td>
<td>36</td>
<td>133</td>
<td>51</td>
<td>253</td>
</tr>
<tr>
<td>3</td>
<td>C 73371</td>
<td>14.3</td>
<td>4.9</td>
<td>4/8</td>
<td>8900</td>
<td>67</td>
<td>32</td>
<td>-</td>
<td>1</td>
<td>-</td>
<td>3.1</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>117</td>
<td>221</td>
<td>38</td>
<td>127</td>
<td>56</td>
</tr>
<tr>
<td>4</td>
<td>C 73442</td>
<td>14.0</td>
<td>4.9</td>
<td>4/8</td>
<td>11000</td>
<td>60</td>
<td>38</td>
<td>-</td>
<td>2</td>
<td>-</td>
<td>3.2</td>
<td>78</td>
<td>-</td>
<td>-</td>
<td>135</td>
<td>36</td>
<td>78</td>
<td>21</td>
<td>103</td>
</tr>
<tr>
<td>5</td>
<td>C 73666</td>
<td>14.1</td>
<td>4.8</td>
<td>2/6</td>
<td>5300</td>
<td>65</td>
<td>28</td>
<td>-</td>
<td>7</td>
<td>-</td>
<td>2.6</td>
<td>80</td>
<td>-</td>
<td>-</td>
<td>203</td>
<td>34</td>
<td>109</td>
<td>36</td>
<td>162</td>
</tr>
<tr>
<td>6</td>
<td>C 73671</td>
<td>16.0</td>
<td>5.1</td>
<td>2/6</td>
<td>11000</td>
<td>60</td>
<td>34</td>
<td>-</td>
<td>6</td>
<td>-</td>
<td>2.4</td>
<td>85</td>
<td>-</td>
<td>-</td>
<td>190</td>
<td>54</td>
<td>38</td>
<td>33</td>
<td>120</td>
</tr>
<tr>
<td>7</td>
<td>C 73826</td>
<td>14.2</td>
<td>5.0</td>
<td>6/12</td>
<td>7700</td>
<td>60</td>
<td>36</td>
<td>-</td>
<td>4</td>
<td>-</td>
<td>2.9</td>
<td>81</td>
<td>-</td>
<td>-</td>
<td>209</td>
<td>55</td>
<td>42</td>
<td>66</td>
<td>124</td>
</tr>
<tr>
<td>8</td>
<td>C 73822</td>
<td>12.4</td>
<td>3.8</td>
<td>8/18</td>
<td>9300</td>
<td>54</td>
<td>40</td>
<td>2</td>
<td>4</td>
<td>-</td>
<td>3.2</td>
<td>99</td>
<td>-</td>
<td>-</td>
<td>178</td>
<td>38</td>
<td>56</td>
<td>48</td>
<td>66</td>
</tr>
<tr>
<td>9</td>
<td>C 73988</td>
<td>16.3</td>
<td>5.4</td>
<td>2/4</td>
<td>7400</td>
<td>59</td>
<td>39</td>
<td>-</td>
<td>2</td>
<td>-</td>
<td>2.5</td>
<td>79</td>
<td>-</td>
<td>-</td>
<td>210</td>
<td>42</td>
<td>56</td>
<td>60</td>
<td>875</td>
</tr>
<tr>
<td>10</td>
<td>C 74492</td>
<td>17.1</td>
<td>4.7</td>
<td>2/4</td>
<td>8500</td>
<td>65</td>
<td>29</td>
<td>-</td>
<td>6</td>
<td>-</td>
<td>2.8</td>
<td>96</td>
<td>-</td>
<td>-</td>
<td>247</td>
<td>68</td>
<td>120</td>
<td>66</td>
<td>325</td>
</tr>
<tr>
<td>11</td>
<td>C 75067</td>
<td>14.4</td>
<td>4.9</td>
<td>2/10</td>
<td>10600</td>
<td>50</td>
<td>44</td>
<td>2</td>
<td>4</td>
<td>-</td>
<td>1.9</td>
<td>101</td>
<td>-</td>
<td>-</td>
<td>203</td>
<td>46</td>
<td>145</td>
<td>42</td>
<td>263</td>
</tr>
<tr>
<td>12</td>
<td>C 76023</td>
<td>13.2</td>
<td>4.7</td>
<td>6/14</td>
<td>6800</td>
<td>65</td>
<td>30</td>
<td>-</td>
<td>5</td>
<td>-</td>
<td>2.6</td>
<td>94</td>
<td>-</td>
<td>-</td>
<td>158</td>
<td>35</td>
<td>106</td>
<td>17</td>
<td>85</td>
</tr>
<tr>
<td>13</td>
<td>C 75948</td>
<td>14.4</td>
<td>4.6</td>
<td>4/8</td>
<td>4500</td>
<td>63</td>
<td>32</td>
<td>-</td>
<td>5</td>
<td>-</td>
<td>1.8</td>
<td>76</td>
<td>-</td>
<td>-</td>
<td>165</td>
<td>40</td>
<td>110</td>
<td>15</td>
<td>75</td>
</tr>
<tr>
<td>14</td>
<td>C 76327</td>
<td>15.9</td>
<td>4.8</td>
<td>4/8</td>
<td>10500</td>
<td>68</td>
<td>30</td>
<td>-</td>
<td>2</td>
<td>-</td>
<td>2.2</td>
<td>101</td>
<td>-</td>
<td>-</td>
<td>164</td>
<td>30</td>
<td>124</td>
<td>10</td>
<td>50</td>
</tr>
<tr>
<td>15</td>
<td>C 76329</td>
<td>14.4</td>
<td>4.6</td>
<td>4/8</td>
<td>6400</td>
<td>58</td>
<td>40</td>
<td>-</td>
<td>2</td>
<td>-</td>
<td>1.8</td>
<td>105</td>
<td>-</td>
<td>-</td>
<td>236</td>
<td>49</td>
<td>174</td>
<td>13</td>
<td>66</td>
</tr>
<tr>
<td>16</td>
<td>C 76330</td>
<td>14.8</td>
<td>4.7</td>
<td>4/8</td>
<td>6100</td>
<td>44</td>
<td>52</td>
<td>-</td>
<td>4</td>
<td>-</td>
<td>2.2</td>
<td>94</td>
<td>-</td>
<td>-</td>
<td>179</td>
<td>30</td>
<td>139</td>
<td>10</td>
<td>50</td>
</tr>
<tr>
<td>17</td>
<td>C 76467</td>
<td>13.8</td>
<td>5.2</td>
<td>4/8</td>
<td>8200</td>
<td>62</td>
<td>35</td>
<td>-</td>
<td>3</td>
<td>-</td>
<td>3.1</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>108</td>
<td>188</td>
<td>35</td>
<td>119</td>
<td>34</td>
</tr>
<tr>
<td>18</td>
<td>C 75970</td>
<td>15.5</td>
<td>5.4</td>
<td>18/36</td>
<td>5500</td>
<td>44</td>
<td>50</td>
<td>1</td>
<td>5</td>
<td>-</td>
<td>1.4</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>103</td>
<td>125</td>
<td>30</td>
<td>87</td>
<td>8</td>
</tr>
<tr>
<td>19</td>
<td>C 77289</td>
<td>10.9</td>
<td>4.0</td>
<td>6/14</td>
<td>6700</td>
<td>45</td>
<td>49</td>
<td>-</td>
<td>6</td>
<td>-</td>
<td>2.6</td>
<td>82</td>
<td>-</td>
<td>-</td>
<td>182</td>
<td>30</td>
<td>142</td>
<td>10</td>
<td>50</td>
</tr>
<tr>
<td>20</td>
<td>C 77311</td>
<td>10.7</td>
<td>3.5</td>
<td>4/10</td>
<td>6800</td>
<td>59</td>
<td>36</td>
<td>-</td>
<td>5</td>
<td>-</td>
<td>2.6</td>
<td>83</td>
<td>-</td>
<td>-</td>
<td>179</td>
<td>30</td>
<td>129</td>
<td>20</td>
<td>100</td>
</tr>
<tr>
<td>S.No</td>
<td>OPD/ IPD No</td>
<td>Hb g/dl</td>
<td>T.Rbc Mil/cu</td>
<td>ESR ½ - 1hr</td>
<td>T.Count Cells/cu</td>
<td>P</td>
<td>L</td>
<td>M</td>
<td>E</td>
<td>B</td>
<td>Plt Lak</td>
<td>F</td>
<td>PP</td>
<td>R</td>
<td>Total</td>
<td>HDL</td>
<td>LDL</td>
<td>VLDL</td>
<td>TGL</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>
<td>---</td>
<td>---</td>
<td>---</td>
<td>--------</td>
<td>-----</td>
<td>-----</td>
<td>------</td>
<td>-----</td>
</tr>
<tr>
<td>21</td>
<td>C 77487</td>
<td>12.0</td>
<td>3.9</td>
<td>2/6</td>
<td>5600</td>
<td>50</td>
<td>43</td>
<td>2</td>
<td>5</td>
<td>-</td>
<td>3.9</td>
<td>98</td>
<td>-</td>
<td>-</td>
<td>180</td>
<td>31</td>
<td>135</td>
<td>14</td>
<td>72</td>
</tr>
<tr>
<td>22</td>
<td>C 77703</td>
<td>14.4</td>
<td>4.3</td>
<td>2/3</td>
<td>107000</td>
<td>64</td>
<td>31</td>
<td>-</td>
<td>5</td>
<td>-</td>
<td>2.7</td>
<td>-</td>
<td>-</td>
<td>110</td>
<td>151</td>
<td>30</td>
<td>85</td>
<td>36</td>
<td>183</td>
</tr>
<tr>
<td>23</td>
<td>C 77718</td>
<td>13.3</td>
<td>4.3</td>
<td>4/8</td>
<td>5500</td>
<td>60</td>
<td>33</td>
<td>1</td>
<td>6</td>
<td>-</td>
<td>1.5</td>
<td>88</td>
<td>-</td>
<td>-</td>
<td>156</td>
<td>37</td>
<td>103</td>
<td>16</td>
<td>81</td>
</tr>
<tr>
<td>24</td>
<td>C 77719</td>
<td>12.1</td>
<td>3.7</td>
<td>2/4</td>
<td>6500</td>
<td>68</td>
<td>29</td>
<td>-</td>
<td>3</td>
<td>-</td>
<td>2.1</td>
<td>87</td>
<td>-</td>
<td>-</td>
<td>197</td>
<td>30</td>
<td>153</td>
<td>14</td>
<td>74</td>
</tr>
<tr>
<td>25</td>
<td>C 84062</td>
<td>14.4</td>
<td>4.5</td>
<td>4/8</td>
<td>6600</td>
<td>62</td>
<td>33</td>
<td>-</td>
<td>5</td>
<td>-</td>
<td>2.5</td>
<td>79</td>
<td>-</td>
<td>-</td>
<td>155</td>
<td>24</td>
<td>143</td>
<td>21</td>
<td>105</td>
</tr>
<tr>
<td>26</td>
<td>C 84584</td>
<td>14.4</td>
<td>4.7</td>
<td>2/4</td>
<td>5800</td>
<td>55</td>
<td>36</td>
<td>1</td>
<td>8</td>
<td>-</td>
<td>2.3</td>
<td>-</td>
<td>-</td>
<td>121</td>
<td>149</td>
<td>30</td>
<td>103</td>
<td>69</td>
<td>345</td>
</tr>
<tr>
<td>27</td>
<td>C 86714</td>
<td>9.8</td>
<td>3.6</td>
<td>2/16</td>
<td>7500</td>
<td>62</td>
<td>33</td>
<td>-</td>
<td>5</td>
<td>-</td>
<td>2.6</td>
<td>100</td>
<td>-</td>
<td>-</td>
<td>132</td>
<td>24</td>
<td>78</td>
<td>16</td>
<td>81</td>
</tr>
<tr>
<td>28</td>
<td>C 86747</td>
<td>12.4</td>
<td>4.1</td>
<td>4/8</td>
<td>6000</td>
<td>65</td>
<td>32</td>
<td>-</td>
<td>3</td>
<td>-</td>
<td>2.4</td>
<td>83</td>
<td>-</td>
<td>-</td>
<td>143</td>
<td>26</td>
<td>80</td>
<td>22</td>
<td>114</td>
</tr>
<tr>
<td>29</td>
<td>C 75922</td>
<td>16.6</td>
<td>3.9</td>
<td>6/17</td>
<td>9500</td>
<td>43</td>
<td>46</td>
<td>1</td>
<td>10</td>
<td>-</td>
<td>3.0</td>
<td>84</td>
<td>-</td>
<td>-</td>
<td>149</td>
<td>30</td>
<td>126</td>
<td>12</td>
<td>63</td>
</tr>
<tr>
<td>30</td>
<td>C 95104</td>
<td>12</td>
<td>4.5</td>
<td>6/18</td>
<td>5300</td>
<td>50</td>
<td>40</td>
<td>2</td>
<td>8</td>
<td>-</td>
<td>2.1</td>
<td>101</td>
<td>-</td>
<td>-</td>
<td>124</td>
<td>30</td>
<td>42</td>
<td>67</td>
<td>239</td>
</tr>
<tr>
<td>31</td>
<td>C 73542</td>
<td>12.3</td>
<td>4.0</td>
<td>6/14</td>
<td>9400</td>
<td>65</td>
<td>26</td>
<td>-</td>
<td>9</td>
<td>-</td>
<td>89</td>
<td>-</td>
<td>-</td>
<td>89</td>
<td>185</td>
<td>38</td>
<td>119</td>
<td>28</td>
<td>138</td>
</tr>
<tr>
<td>32</td>
<td>C 74676</td>
<td>13.5</td>
<td>4.7</td>
<td>2/8</td>
<td>7500</td>
<td>61</td>
<td>34</td>
<td>-</td>
<td>5</td>
<td>-</td>
<td>3.2</td>
<td>91</td>
<td>-</td>
<td>-</td>
<td>167</td>
<td>39</td>
<td>111</td>
<td>47</td>
<td>185</td>
</tr>
<tr>
<td>33</td>
<td>C 75699</td>
<td>13.4</td>
<td>4.7</td>
<td>6/12</td>
<td>5800</td>
<td>59</td>
<td>35</td>
<td>1</td>
<td>5</td>
<td>-</td>
<td>2.5</td>
<td>68</td>
<td>-</td>
<td>-</td>
<td>210</td>
<td>45</td>
<td>129</td>
<td>136</td>
<td>182</td>
</tr>
<tr>
<td>34</td>
<td>C 93380</td>
<td>13.3</td>
<td>4.7</td>
<td>8/18</td>
<td>10300</td>
<td>60</td>
<td>34</td>
<td>-</td>
<td>6</td>
<td>-</td>
<td>2.9</td>
<td>106</td>
<td>-</td>
<td>-</td>
<td>139</td>
<td>32</td>
<td>100</td>
<td>28</td>
<td>141</td>
</tr>
<tr>
<td>35</td>
<td>C 64949</td>
<td>14.8</td>
<td>5.0</td>
<td>2/8</td>
<td>6400</td>
<td>73</td>
<td>21</td>
<td>-</td>
<td>5</td>
<td>-</td>
<td>2.4</td>
<td>91</td>
<td>104</td>
<td>-</td>
<td>180</td>
<td>41</td>
<td>88</td>
<td>39</td>
<td>197</td>
</tr>
<tr>
<td>36</td>
<td>C 95029</td>
<td>12.4</td>
<td>4.3</td>
<td>6/20</td>
<td>6800</td>
<td>57</td>
<td>33</td>
<td>1</td>
<td>9</td>
<td>-</td>
<td>2.4</td>
<td>97</td>
<td>-</td>
<td>-</td>
<td>110</td>
<td>27</td>
<td>35</td>
<td>10</td>
<td>50</td>
</tr>
<tr>
<td>37</td>
<td>C 94846</td>
<td>13.4</td>
<td>4.6</td>
<td>12/24</td>
<td>6700</td>
<td>49</td>
<td>47</td>
<td>-</td>
<td>4</td>
<td>-</td>
<td>2.0</td>
<td>92</td>
<td>-</td>
<td>-</td>
<td>114</td>
<td>27</td>
<td>88</td>
<td>19</td>
<td>97</td>
</tr>
<tr>
<td>38</td>
<td>C 93333</td>
<td>16.5</td>
<td>5.2</td>
<td>2/10</td>
<td>6700</td>
<td>64</td>
<td>32</td>
<td>-</td>
<td>4</td>
<td>-</td>
<td>2.4</td>
<td>97</td>
<td>131</td>
<td>-</td>
<td>129</td>
<td>30</td>
<td>77</td>
<td>34</td>
<td>170</td>
</tr>
<tr>
<td>39</td>
<td>C 95846</td>
<td>10</td>
<td>3.4</td>
<td>2/12</td>
<td>7000</td>
<td>55</td>
<td>40</td>
<td>-</td>
<td>5</td>
<td>-</td>
<td>3.6</td>
<td>93</td>
<td>-</td>
<td>-</td>
<td>205</td>
<td>43</td>
<td>97</td>
<td>31</td>
<td>157</td>
</tr>
<tr>
<td>40</td>
<td>D 01526</td>
<td>15.4</td>
<td>4.7</td>
<td>2/4</td>
<td>8500</td>
<td>54</td>
<td>34</td>
<td>-</td>
<td>2</td>
<td>-</td>
<td>2.9</td>
<td>80</td>
<td>-</td>
<td>-</td>
<td>198</td>
<td>37</td>
<td>87</td>
<td>20</td>
<td>101</td>
</tr>
<tr>
<td>S.NO</td>
<td>OPD/IPD No</td>
<td>Rh Type</td>
<td>Blood Group</td>
<td>RFT (mg/dl)</td>
<td>LFT (mg/dl)</td>
<td>Serum (gm/dl)</td>
<td>(IU/L)</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>------</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></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Urea</td>
<td>Creat</td>
<td>U.acid</td>
<td>T.Bil</td>
<td>Dir</td>
<td>Ind</td>
<td>Tota l</td>
<td>Alb</td>
<td>Glb</td>
<td>Cal</td>
<td>Phos</td>
<td>OT</td>
<td>PT</td>
<td>ALKP</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1.</td>
<td>C 73051</td>
<td>O -</td>
<td>Rh</td>
<td>21</td>
<td>0.6</td>
<td>6.6</td>
<td>0.6</td>
<td>0.4</td>
<td>0.2</td>
<td>7.6</td>
<td>5.5</td>
<td>2.1</td>
<td>-</td>
<td>-</td>
<td>33</td>
<td>41</td>
<td>155</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2.</td>
<td>C 73216</td>
<td>O +</td>
<td></td>
<td>15</td>
<td>0.6</td>
<td>5.1</td>
<td>0.8</td>
<td>0.5</td>
<td>0.3</td>
<td>7.3</td>
<td>5.2</td>
<td>2.1</td>
<td>-</td>
<td>-</td>
<td>36</td>
<td>38</td>
<td>180</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3.</td>
<td>C 73371</td>
<td>O +</td>
<td></td>
<td>29</td>
<td>0.7</td>
<td>9.7</td>
<td>0.6</td>
<td>0.4</td>
<td>0.2</td>
<td>6.9</td>
<td>5.2</td>
<td>1.7</td>
<td>-</td>
<td>-</td>
<td>29</td>
<td>37</td>
<td>144</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4.</td>
<td>C 73442</td>
<td>O +</td>
<td></td>
<td>17</td>
<td>0.6</td>
<td>3.9</td>
<td>0.5</td>
<td>0.3</td>
<td>0.2</td>
<td>7.9</td>
<td>5.5</td>
<td>2.4</td>
<td>-</td>
<td>-</td>
<td>18</td>
<td>14</td>
<td>159</td>
<td></td>
<td></td>
</tr>
<tr>
<td>5.</td>
<td>C 73666</td>
<td>O +</td>
<td></td>
<td>23</td>
<td>0.6</td>
<td>-</td>
<td>0.6</td>
<td>0.3</td>
<td>0.3</td>
<td>7.8</td>
<td>5.4</td>
<td>2.4</td>
<td>-</td>
<td>-</td>
<td>23</td>
<td>41</td>
<td>183</td>
<td></td>
<td></td>
</tr>
<tr>
<td>6.</td>
<td>C 73671</td>
<td>O +</td>
<td></td>
<td>38</td>
<td>0.8</td>
<td>-</td>
<td>0.6</td>
<td>0.3</td>
<td>0.3</td>
<td>8.1</td>
<td>5.8</td>
<td>2.3</td>
<td>-</td>
<td>-</td>
<td>20</td>
<td>17</td>
<td>187</td>
<td></td>
<td></td>
</tr>
<tr>
<td>7.</td>
<td>C 73826</td>
<td>A +</td>
<td></td>
<td>24</td>
<td>0.7</td>
<td>-</td>
<td>0.5</td>
<td>0.3</td>
<td>0.2</td>
<td>7.7</td>
<td>5.0</td>
<td>2.7</td>
<td>-</td>
<td>-</td>
<td>35</td>
<td>31</td>
<td>116</td>
<td></td>
<td></td>
</tr>
<tr>
<td>8.</td>
<td>C 73822</td>
<td>B +</td>
<td></td>
<td>16</td>
<td>0.7</td>
<td>-</td>
<td>0.4</td>
<td>0.2</td>
<td>0.2</td>
<td>7.8</td>
<td>4.6</td>
<td>3.2</td>
<td>-</td>
<td>-</td>
<td>20</td>
<td>15</td>
<td>193</td>
<td></td>
<td></td>
</tr>
<tr>
<td>9.</td>
<td>C 73988</td>
<td>B +</td>
<td></td>
<td>24</td>
<td>0.6</td>
<td>-</td>
<td>0.6</td>
<td>0.3</td>
<td>0.3</td>
<td>7.1</td>
<td>4.0</td>
<td>3.1</td>
<td>-</td>
<td>-</td>
<td>29</td>
<td>30</td>
<td>163</td>
<td></td>
<td></td>
</tr>
<tr>
<td>10.</td>
<td>C 74492</td>
<td>A +</td>
<td></td>
<td>28</td>
<td>0.7</td>
<td>-</td>
<td>0.9</td>
<td>0.6</td>
<td>0.3</td>
<td>6.7</td>
<td>3.5</td>
<td>3.2</td>
<td>-</td>
<td>-</td>
<td>34</td>
<td>39</td>
<td>154</td>
<td></td>
<td></td>
</tr>
<tr>
<td>11.</td>
<td>C 75067</td>
<td>A +</td>
<td></td>
<td>14</td>
<td>0.5</td>
<td>-</td>
<td>0.4</td>
<td>0.2</td>
<td>0.2</td>
<td>7.9</td>
<td>4.9</td>
<td>3.0</td>
<td>-</td>
<td>-</td>
<td>23</td>
<td>25</td>
<td>152</td>
<td></td>
<td></td>
</tr>
<tr>
<td>12.</td>
<td>C 76023</td>
<td>O +</td>
<td></td>
<td>29</td>
<td>0.8</td>
<td>-</td>
<td>1.0</td>
<td>0.4</td>
<td>0.6</td>
<td>6.3</td>
<td>4.6</td>
<td>1.7</td>
<td>-</td>
<td>-</td>
<td>23</td>
<td>25</td>
<td>164</td>
<td></td>
<td></td>
</tr>
<tr>
<td>13.</td>
<td>C 75948</td>
<td>B +</td>
<td></td>
<td>16</td>
<td>0.5</td>
<td>-</td>
<td>0.6</td>
<td>0.2</td>
<td>0.4</td>
<td>6.4</td>
<td>4.9</td>
<td>1.5</td>
<td>-</td>
<td>-</td>
<td>24</td>
<td>26</td>
<td>170</td>
<td></td>
<td></td>
</tr>
<tr>
<td>14.</td>
<td>C 76327</td>
<td>A +</td>
<td></td>
<td>20</td>
<td>0.6</td>
<td>-</td>
<td>0.9</td>
<td>0.4</td>
<td>0.5</td>
<td>6.2</td>
<td>4.9</td>
<td>1.3</td>
<td>-</td>
<td>-</td>
<td>30</td>
<td>28</td>
<td>184</td>
<td></td>
<td></td>
</tr>
<tr>
<td>15.</td>
<td>C 76329</td>
<td>B +</td>
<td></td>
<td>21</td>
<td>0.7</td>
<td>-</td>
<td>1.4</td>
<td>0.6</td>
<td>0.8</td>
<td>6.9</td>
<td>4.9</td>
<td>2.0</td>
<td>-</td>
<td>-</td>
<td>18</td>
<td>20</td>
<td>185</td>
<td></td>
<td></td>
</tr>
<tr>
<td>16.</td>
<td>C 76330</td>
<td>B +</td>
<td></td>
<td>24</td>
<td>0.8</td>
<td>-</td>
<td>0.8</td>
<td>0.2</td>
<td>0.6</td>
<td>6.9</td>
<td>4.0</td>
<td>2.9</td>
<td>-</td>
<td>-</td>
<td>13</td>
<td>15</td>
<td>183</td>
<td></td>
<td></td>
</tr>
<tr>
<td>17.</td>
<td>C 76467</td>
<td>A +</td>
<td></td>
<td>21</td>
<td>0.7</td>
<td>-</td>
<td>0.4</td>
<td>0.2</td>
<td>0.2</td>
<td>7.7</td>
<td>5.1</td>
<td>2.6</td>
<td>9.9</td>
<td>2.8</td>
<td>28</td>
<td>30</td>
<td>204</td>
<td></td>
<td></td>
</tr>
<tr>
<td>18.</td>
<td>C 75970</td>
<td>A +</td>
<td></td>
<td>16</td>
<td>0.5</td>
<td>-</td>
<td>1.1</td>
<td>0.5</td>
<td>0.6</td>
<td>6.7</td>
<td>4.7</td>
<td>2.0</td>
<td>-</td>
<td>-</td>
<td>19</td>
<td>22</td>
<td>189</td>
<td></td>
<td></td>
</tr>
<tr>
<td>19.</td>
<td>C 77289</td>
<td>O +</td>
<td></td>
<td>18</td>
<td>0.5</td>
<td>5.5</td>
<td>0.4</td>
<td>0.2</td>
<td>0.2</td>
<td>7.0</td>
<td>5.0</td>
<td>2.0</td>
<td>-</td>
<td>-</td>
<td>32</td>
<td>33</td>
<td>168</td>
<td></td>
<td></td>
</tr>
<tr>
<td>20.</td>
<td>C 77311</td>
<td>AB +</td>
<td></td>
<td>20</td>
<td>0.6</td>
<td>-</td>
<td>0.4</td>
<td>0.2</td>
<td>0.2</td>
<td>7.1</td>
<td>4.4</td>
<td>2.7</td>
<td>-</td>
<td>-</td>
<td>13</td>
<td>15</td>
<td>170</td>
<td></td>
<td></td>
</tr>
<tr>
<td>S.NO</td>
<td>OPD/IPD No</td>
<td>Rh Type</td>
<td>Urea</td>
<td>Creat</td>
<td>U.acid</td>
<td>T.Bil</td>
<td>Dir</td>
<td>Ind</td>
<td>RFT (mg/dl)</td>
<td>LFT (mg/dl)</td>
<td>Serum (gm/dl)</td>
<td>(IU/L)</td>
<td>O</td>
<td>PT</td>
<td>ALKP</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>
<td>---------------</td>
<td>--------</td>
<td>---</td>
<td>---</td>
<td>------</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>19.</td>
<td>C 77749</td>
<td>O +</td>
<td>23</td>
<td>0.7</td>
<td>6.0</td>
<td>0.4</td>
<td>0.2</td>
<td>0.2</td>
<td>7.0</td>
<td>5.0</td>
<td>2.0</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>27</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>20.</td>
<td>C 77713</td>
<td>O +</td>
<td>17</td>
<td>0.5</td>
<td>6.0</td>
<td>0.6</td>
<td>0.3</td>
<td>0.3</td>
<td>7.2</td>
<td>4.8</td>
<td>2.4</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>25</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>21.</td>
<td>C 77719</td>
<td>B +</td>
<td>28</td>
<td>0.8</td>
<td>6.0</td>
<td>0.9</td>
<td>0.3</td>
<td>0.6</td>
<td>6.8</td>
<td>4.0</td>
<td>2.8</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>34</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>22.</td>
<td>C 77726</td>
<td>A +</td>
<td>24</td>
<td>0.7</td>
<td>4.2</td>
<td>0.4</td>
<td>0.2</td>
<td>0.2</td>
<td>5.8</td>
<td>3.4</td>
<td>2.4</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>22</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>23.</td>
<td>C 77718</td>
<td>B +</td>
<td>24</td>
<td>0.7</td>
<td>6.2</td>
<td>0.6</td>
<td>0.2</td>
<td>0.4</td>
<td>7.6</td>
<td>5.0</td>
<td>2.6</td>
<td>10.6</td>
<td>2.9</td>
<td>-</td>
<td>12</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>24.</td>
<td>C 77719</td>
<td>A +</td>
<td>20</td>
<td>0.6</td>
<td>4.0</td>
<td>0.6</td>
<td>0.2</td>
<td>0.4</td>
<td>7.0</td>
<td>5.0</td>
<td>2.0</td>
<td>11</td>
<td>3.0</td>
<td>-</td>
<td>19</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>25.</td>
<td>C 77726</td>
<td>A +</td>
<td>14</td>
<td>0.4</td>
<td>5.9</td>
<td>0.5</td>
<td>0.2</td>
<td>0.3</td>
<td>6.0</td>
<td>4.0</td>
<td>2.0</td>
<td>10.5</td>
<td>3.0</td>
<td>-</td>
<td>17</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>26.</td>
<td>C 77726</td>
<td>O +</td>
<td>25</td>
<td>0.8</td>
<td>5</td>
<td>0.5</td>
<td>0.2</td>
<td>0.3</td>
<td>6.9</td>
<td>4.3</td>
<td>2.6</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>18</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>27.</td>
<td>C 77726</td>
<td>O +</td>
<td>19</td>
<td>0.6</td>
<td>5.6</td>
<td>0.4</td>
<td>0.2</td>
<td>0.4</td>
<td>6.2</td>
<td>3.8</td>
<td>2.4</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>22</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>28.</td>
<td>C 77726</td>
<td>A +</td>
<td>20</td>
<td>0.7</td>
<td>2.9</td>
<td>0.6</td>
<td>0.4</td>
<td>0.2</td>
<td>7.1</td>
<td>5.1</td>
<td>2.0</td>
<td>10.7</td>
<td>3.9</td>
<td>-</td>
<td>27</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>29.</td>
<td>C 77726</td>
<td>A +</td>
<td>18</td>
<td>0.7</td>
<td>-</td>
<td>0.4</td>
<td>0.2</td>
<td>0.2</td>
<td>6.1</td>
<td>4.6</td>
<td>1.5</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>18</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>30.</td>
<td>C 77726</td>
<td>O +</td>
<td>23</td>
<td>0.7</td>
<td>-</td>
<td>0.6</td>
<td>0.2</td>
<td>0.4</td>
<td>6.9</td>
<td>4.5</td>
<td>2.4</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>11</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>31.</td>
<td>C 77726</td>
<td>O +</td>
<td>20</td>
<td>0.5</td>
<td>3.7</td>
<td>0.5</td>
<td>0.2</td>
<td>0.3</td>
<td>6.5</td>
<td>3.6</td>
<td>2.9</td>
<td>11</td>
<td>3.1</td>
<td>-</td>
<td>25</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>32.</td>
<td>C 77726</td>
<td>A1-</td>
<td>38</td>
<td>1.0</td>
<td>2.9</td>
<td>0.7</td>
<td>0.3</td>
<td>0.4</td>
<td>7.1</td>
<td>4.7</td>
<td>2.4</td>
<td>10.6</td>
<td>2.9</td>
<td>-</td>
<td>17</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>33.</td>
<td>C 77726</td>
<td>O +</td>
<td>22</td>
<td>0.6</td>
<td>4.1</td>
<td>0.5</td>
<td>0.2</td>
<td>0.3</td>
<td>5.2</td>
<td>3.2</td>
<td>2.0</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>18</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>34.</td>
<td>C 77726</td>
<td>O +</td>
<td>20</td>
<td>0.6</td>
<td>3.5</td>
<td>0.5</td>
<td>0.2</td>
<td>0.3</td>
<td>7.4</td>
<td>4.0</td>
<td>3.4</td>
<td>10.4</td>
<td>3.0</td>
<td>-</td>
<td>17</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>35.</td>
<td>C 77726</td>
<td>A1 +</td>
<td>25</td>
<td>0.6</td>
<td>3.1</td>
<td>0.4</td>
<td>0.2</td>
<td>0.2</td>
<td>6.6</td>
<td>3.7</td>
<td>2.9</td>
<td>11.0</td>
<td>3.1</td>
<td>-</td>
<td>26</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>36.</td>
<td>C 77726</td>
<td>O +</td>
<td>19</td>
<td>0.5</td>
<td>3.0</td>
<td>0.4</td>
<td>0.2</td>
<td>0.2</td>
<td>6.6</td>
<td>4.0</td>
<td>2.6</td>
<td>11</td>
<td>3.0</td>
<td>-</td>
<td>36</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>37.</td>
<td>C 77726</td>
<td>O +</td>
<td>20</td>
<td>0.5</td>
<td>3.6</td>
<td>0.4</td>
<td>0.2</td>
<td>0.2</td>
<td>7.0</td>
<td>4.0</td>
<td>3.0</td>
<td>10.6</td>
<td>2.8</td>
<td>-</td>
<td>12</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>38.</td>
<td>C 77726</td>
<td>A1 +</td>
<td>16</td>
<td>0.5</td>
<td>3.6</td>
<td>0.4</td>
<td>0.2</td>
<td>0.2</td>
<td>7.0</td>
<td>4.0</td>
<td>3.0</td>
<td>10.6</td>
<td>2.8</td>
<td>-</td>
<td>12</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>S.NO</td>
<td>OPD / IPD No</td>
<td>URINE</td>
<td>Motion</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></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>
<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>Alb</td>
<td>Sug</td>
<td>Pus</td>
<td>Epi</td>
<td>B.S</td>
<td>B.P</td>
<td>Ova</td>
<td>Cyst</td>
<td>Occult Blood</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>C 73051</td>
<td>NIL</td>
<td>NIL</td>
<td>1-2</td>
<td>2-3</td>
<td>NIL</td>
<td>NEG</td>
<td>NIL</td>
<td>NIL</td>
<td>NIL</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2.</td>
<td>C 73216</td>
<td>NIL</td>
<td>NIL</td>
<td>2-3</td>
<td>2-3</td>
<td>NIL</td>
<td>NEG</td>
<td>NIL</td>
<td>NIL</td>
<td>NIL</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3.</td>
<td>C 73371</td>
<td>NIL</td>
<td>NIL</td>
<td>3-4</td>
<td>3-4</td>
<td>NIL</td>
<td>NEG</td>
<td>NIL</td>
<td>NIL</td>
<td>NIL</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4.</td>
<td>C 73442</td>
<td>NIL</td>
<td>NIL</td>
<td>2-3</td>
<td>2-3</td>
<td>NIL</td>
<td>NEG</td>
<td>NIL</td>
<td>NIL</td>
<td>NIL</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5.</td>
<td>C 73666</td>
<td>NIL</td>
<td>NIL</td>
<td>2-4</td>
<td>2-4</td>
<td>NIL</td>
<td>NEG</td>
<td>NIL</td>
<td>NIL</td>
<td>NIL</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6.</td>
<td>C 73671</td>
<td>NIL</td>
<td>NIL</td>
<td>2-3</td>
<td>2-3</td>
<td>NIL</td>
<td>NEG</td>
<td>NIL</td>
<td>NIL</td>
<td>NIL</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>7.</td>
<td>C 73826</td>
<td>NIL</td>
<td>NIL</td>
<td>1-2</td>
<td>1-2</td>
<td>NIL</td>
<td>NEG</td>
<td>NIL</td>
<td>NIL</td>
<td>NIL</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>8.</td>
<td>C 73822</td>
<td>NIL</td>
<td>NIL</td>
<td>1-2</td>
<td>1-2</td>
<td>NIL</td>
<td>NEG</td>
<td>NIL</td>
<td>NIL</td>
<td>NIL</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>9.</td>
<td>C 73988</td>
<td>NIL</td>
<td>NIL</td>
<td>1-2</td>
<td>1-2</td>
<td>NIL</td>
<td>NEG</td>
<td>NIL</td>
<td>NIL</td>
<td>NIL</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>10.</td>
<td>C 74492</td>
<td>TRACE</td>
<td>NIL</td>
<td>1-2</td>
<td>1-2</td>
<td>NIL</td>
<td>NEG</td>
<td>NIL</td>
<td>NIL</td>
<td>NIL</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>11.</td>
<td>C 75067</td>
<td>NIL</td>
<td>NIL</td>
<td>1-2</td>
<td>2-3</td>
<td>NIL</td>
<td>NEG</td>
<td>NIL</td>
<td>NIL</td>
<td>NIL</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>12.</td>
<td>C 76023</td>
<td>NIL</td>
<td>NIL</td>
<td>2-3</td>
<td>2-3</td>
<td>NIL</td>
<td>NEG</td>
<td>NIL</td>
<td>NIL</td>
<td>NIL</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>13.</td>
<td>C 75948</td>
<td>NIL</td>
<td>NIL</td>
<td>2-3</td>
<td>2-3</td>
<td>NIL</td>
<td>NEG</td>
<td>NIL</td>
<td>NIL</td>
<td>NIL</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>14.</td>
<td>C 76327</td>
<td>NIL</td>
<td>NIL</td>
<td>1-2</td>
<td>1-2</td>
<td>NIL</td>
<td>NEG</td>
<td>NIL</td>
<td>NIL</td>
<td>NIL</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>15.</td>
<td>C 76329</td>
<td>NIL</td>
<td>NIL</td>
<td>0-1</td>
<td>1-2</td>
<td>NIL</td>
<td>NEG</td>
<td>NIL</td>
<td>NIL</td>
<td>NIL</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>16.</td>
<td>C 76330</td>
<td>NIL</td>
<td>NIL</td>
<td>1-2</td>
<td>0-1</td>
<td>NIL</td>
<td>NEG</td>
<td>NIL</td>
<td>NIL</td>
<td>NIL</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>17.</td>
<td>C 76467</td>
<td>NIL</td>
<td>NIL</td>
<td>2-3</td>
<td>5-6</td>
<td>NIL</td>
<td>NEG</td>
<td>NIL</td>
<td>NIL</td>
<td>NIL</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>18.</td>
<td>C 75970</td>
<td>NIL</td>
<td>NIL</td>
<td>2-3</td>
<td>2-3</td>
<td>NIL</td>
<td>NEG</td>
<td>NIL</td>
<td>NIL</td>
<td>NIL</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>19.</td>
<td>C 77289</td>
<td>NIL</td>
<td>NIL</td>
<td>2-4</td>
<td>2-4</td>
<td>NIL</td>
<td>NEG</td>
<td>NIL</td>
<td>NIL</td>
<td>NIL</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>20.</td>
<td>C 77311</td>
<td>NIL</td>
<td>NIL</td>
<td>1-2</td>
<td>1-2</td>
<td>NIL</td>
<td>NEG</td>
<td>NIL</td>
<td>NIL</td>
<td>NIL</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>S.NO</td>
<td>OPD / IPD No</td>
<td>URINE</td>
<td>Motion</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></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>
<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>ALB</td>
<td>Sug</td>
<td>Pus</td>
<td>Epi</td>
<td>B.S</td>
<td>B.P</td>
<td>Ova</td>
<td>Cyst</td>
<td>Occult Blood</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>C 77487</td>
<td>NIL</td>
<td>NIL</td>
<td>1 – 2</td>
<td>2 - 3</td>
<td>NIL</td>
<td>NEG</td>
<td>NIL</td>
<td>NIL</td>
<td>NIL</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>22.</td>
<td>C 77703</td>
<td>NIL</td>
<td>NIL</td>
<td>1 – 2</td>
<td>2 - 3</td>
<td>NIL</td>
<td>NEG</td>
<td>NIL</td>
<td>NIL</td>
<td>NIL</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>23.</td>
<td>C 77718</td>
<td>NIL</td>
<td>NIL</td>
<td>1 – 2</td>
<td>1 – 2</td>
<td>NIL</td>
<td>NEG</td>
<td>NIL</td>
<td>NIL</td>
<td>NIL</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>24.</td>
<td>C 77719</td>
<td>NIL</td>
<td>NIL</td>
<td>2 – 4</td>
<td>2 - 4</td>
<td>NIL</td>
<td>NEG</td>
<td>NIL</td>
<td>NIL</td>
<td>NIL</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>25.</td>
<td>C 84062</td>
<td>NIL</td>
<td>NIL</td>
<td>1 – 2</td>
<td>2 - 3</td>
<td>NIL</td>
<td>NEG</td>
<td>NIL</td>
<td>NIL</td>
<td>NIL</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>26.</td>
<td>C 84584</td>
<td>NIL</td>
<td>NIL</td>
<td>2 – 4</td>
<td>2 - 4</td>
<td>NIL</td>
<td>NEG</td>
<td>NIL</td>
<td>NIL</td>
<td>NIL</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>27.</td>
<td>C 86714</td>
<td>NIL</td>
<td>NIL</td>
<td>3 - 4</td>
<td>3 - 4</td>
<td>NIL</td>
<td>NEG</td>
<td>NIL</td>
<td>NIL</td>
<td>NIL</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>28.</td>
<td>C 86747</td>
<td>NIL</td>
<td>NIL</td>
<td>2 – 3</td>
<td>2 - 3</td>
<td>NIL</td>
<td>NEG</td>
<td>NIL</td>
<td>NIL</td>
<td>NIL</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>29.</td>
<td>C 75922</td>
<td>NIL</td>
<td>NIL</td>
<td>2 – 3</td>
<td>1 – 2</td>
<td>NIL</td>
<td>NEG</td>
<td>NIL</td>
<td>NIL</td>
<td>NIL</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>30.</td>
<td>C 95104</td>
<td>NIL</td>
<td>NIL</td>
<td>2 – 4</td>
<td>2 - 4</td>
<td>NIL</td>
<td>NEG</td>
<td>NIL</td>
<td>NIL</td>
<td>NIL</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>31.</td>
<td>C 73542</td>
<td>NIL</td>
<td>NIL</td>
<td>4 – 5</td>
<td>5 – 6</td>
<td>NIL</td>
<td>NEG</td>
<td>NIL</td>
<td>NIL</td>
<td>NIL</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>32.</td>
<td>C 74676</td>
<td>NIL</td>
<td>NIL</td>
<td>1 – 2</td>
<td>1 – 2</td>
<td>NIL</td>
<td>NEG</td>
<td>NIL</td>
<td>NIL</td>
<td>NIL</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>33.</td>
<td>C 75699</td>
<td>NIL</td>
<td>NIL</td>
<td>0 - 1</td>
<td>2 - 4</td>
<td>NIL</td>
<td>NEG</td>
<td>NIL</td>
<td>NIL</td>
<td>NIL</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>34.</td>
<td>C 93380</td>
<td>NIL</td>
<td>NIL</td>
<td>2 – 4</td>
<td>2 - 4</td>
<td>NIL</td>
<td>NEG</td>
<td>NIL</td>
<td>NIL</td>
<td>NIL</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>35.</td>
<td>C 64949</td>
<td>NIL</td>
<td>NIL</td>
<td>2 – 4</td>
<td>2 - 4</td>
<td>NIL</td>
<td>NEG</td>
<td>NIL</td>
<td>NIL</td>
<td>NIL</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>36.</td>
<td>C 95029</td>
<td>NIL</td>
<td>NIL</td>
<td>1 – 2</td>
<td>2 - 3</td>
<td>NIL</td>
<td>NEG</td>
<td>NIL</td>
<td>NIL</td>
<td>NIL</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>37.</td>
<td>C 94846</td>
<td>NIL</td>
<td>NIL</td>
<td>4 – 5</td>
<td>4 – 5</td>
<td>NIL</td>
<td>NEG</td>
<td>NIL</td>
<td>NIL</td>
<td>NIL</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>38.</td>
<td>C 93333</td>
<td>NIL</td>
<td>NIL</td>
<td>2 – 3</td>
<td>1 – 2</td>
<td>NIL</td>
<td>NEG</td>
<td>NIL</td>
<td>NIL</td>
<td>NIL</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>39.</td>
<td>C 95846</td>
<td>NIL</td>
<td>NIL</td>
<td>2 – 4</td>
<td>2 - 4</td>
<td>NIL</td>
<td>NEG</td>
<td>NIL</td>
<td>NIL</td>
<td>NIL</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>40.</td>
<td>D 01526</td>
<td>NIL</td>
<td>NIL</td>
<td>2 – 4</td>
<td>2 - 4</td>
<td>NIL</td>
<td>NEG</td>
<td>NIL</td>
<td>NIL</td>
<td>NIL</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
### Lab Parameters After Treatment

<table>
<thead>
<tr>
<th>S.No</th>
<th>OPD/ IPD No</th>
<th>Hb (g/dl)</th>
<th>T.Rbc (Mil/cu)</th>
<th>ESR (½ - 1 hr)</th>
<th>T.Count (Cells/cu)</th>
<th>P</th>
<th>L</th>
<th>M</th>
<th>E</th>
<th>B</th>
<th>Plt Lak</th>
<th>F</th>
<th>PP</th>
<th>R</th>
<th>Total HDL</th>
<th>LDL</th>
<th>VLDL</th>
<th>TGL</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>C 73051</td>
<td>16.2</td>
<td>5.1</td>
<td>4/10</td>
<td>9700</td>
<td>52</td>
<td>40</td>
<td>3</td>
<td>5</td>
<td>-</td>
<td>2.0</td>
<td>86</td>
<td>101</td>
<td>-</td>
<td>142</td>
<td>28</td>
<td>71</td>
<td>30</td>
</tr>
<tr>
<td>2.</td>
<td>C73216</td>
<td>16.4</td>
<td>5.2</td>
<td>2/6</td>
<td>9500</td>
<td>56</td>
<td>38</td>
<td>3</td>
<td>3</td>
<td>-</td>
<td>2.3</td>
<td>88</td>
<td>106</td>
<td>-</td>
<td>150</td>
<td>32</td>
<td>70</td>
<td>33</td>
</tr>
<tr>
<td>3.</td>
<td>C 73371</td>
<td>13.3</td>
<td>4.5</td>
<td>2/4</td>
<td>9400</td>
<td>74</td>
<td>20</td>
<td>6</td>
<td>-</td>
<td>-</td>
<td>3.1</td>
<td>-</td>
<td>156</td>
<td>-</td>
<td>208</td>
<td>26</td>
<td>97</td>
<td>68</td>
</tr>
<tr>
<td>4.</td>
<td>C 73442</td>
<td>16.2</td>
<td>5.4</td>
<td>2/4</td>
<td>6100</td>
<td>40</td>
<td>49</td>
<td>2</td>
<td>9</td>
<td>-</td>
<td>2.7</td>
<td>87</td>
<td>-</td>
<td>-</td>
<td>177</td>
<td>30</td>
<td>141</td>
<td>37</td>
</tr>
<tr>
<td>5.</td>
<td>C73666</td>
<td>13.8</td>
<td>4.8</td>
<td>2/4</td>
<td>5500</td>
<td>60</td>
<td>35</td>
<td>-</td>
<td>5</td>
<td>-</td>
<td>2.7</td>
<td>84</td>
<td>-</td>
<td>-</td>
<td>160</td>
<td>34</td>
<td>101</td>
<td>23</td>
</tr>
<tr>
<td>6.</td>
<td>C 73671</td>
<td>14.3</td>
<td>4.7</td>
<td>20/40</td>
<td>10500</td>
<td>61</td>
<td>31</td>
<td>-</td>
<td>8</td>
<td>-</td>
<td>2.4</td>
<td>77</td>
<td>-</td>
<td>-</td>
<td>131</td>
<td>27</td>
<td>102</td>
<td>31</td>
</tr>
<tr>
<td>7.</td>
<td>C 73826</td>
<td>14.1</td>
<td>5.1</td>
<td>8/16</td>
<td>8100</td>
<td>59</td>
<td>25</td>
<td>1</td>
<td>15</td>
<td>-</td>
<td>3.2</td>
<td>88</td>
<td>-</td>
<td>-</td>
<td>145</td>
<td>30</td>
<td>102</td>
<td>30</td>
</tr>
<tr>
<td>8.</td>
<td>C 73822</td>
<td>17.1</td>
<td>5.2</td>
<td>6/12</td>
<td>4600</td>
<td>65</td>
<td>33</td>
<td>-</td>
<td>2</td>
<td>-</td>
<td>1.5</td>
<td>102</td>
<td>-</td>
<td>-</td>
<td>191</td>
<td>35</td>
<td>82</td>
<td>137</td>
</tr>
<tr>
<td>9.</td>
<td>C 73988</td>
<td>17.4</td>
<td>5.8</td>
<td>2/4</td>
<td>7500</td>
<td>61</td>
<td>36</td>
<td>-</td>
<td>3</td>
<td>-</td>
<td>2.8</td>
<td>74</td>
<td>-</td>
<td>-</td>
<td>193</td>
<td>36</td>
<td>169</td>
<td>55</td>
</tr>
<tr>
<td>10.</td>
<td>C 74492</td>
<td>16.9</td>
<td>4.8</td>
<td>6/14</td>
<td>7800</td>
<td>58</td>
<td>33</td>
<td>-</td>
<td>9</td>
<td>-</td>
<td>3.0</td>
<td>82</td>
<td>-</td>
<td>-</td>
<td>210</td>
<td>45</td>
<td>128</td>
<td>68</td>
</tr>
<tr>
<td>11.</td>
<td>C 75067</td>
<td>16.2</td>
<td>5.1</td>
<td>8/18</td>
<td>8800</td>
<td>60</td>
<td>32</td>
<td>1</td>
<td>7</td>
<td>-</td>
<td>2.0</td>
<td>82</td>
<td>-</td>
<td>-</td>
<td>132</td>
<td>25</td>
<td>88</td>
<td>52</td>
</tr>
<tr>
<td>12.</td>
<td>C 76023</td>
<td>13.6</td>
<td>4.7</td>
<td>2/12</td>
<td>8100</td>
<td>66</td>
<td>22</td>
<td>2</td>
<td>10</td>
<td>-</td>
<td>2.5</td>
<td>104</td>
<td>-</td>
<td>-</td>
<td>138</td>
<td>24</td>
<td>76</td>
<td>21</td>
</tr>
<tr>
<td>13.</td>
<td>C 75948</td>
<td>14.7</td>
<td>4.4</td>
<td>2/6</td>
<td>6100</td>
<td>58</td>
<td>34</td>
<td>-</td>
<td>3</td>
<td>-</td>
<td>2.6</td>
<td>94</td>
<td>-</td>
<td>-</td>
<td>152</td>
<td>32</td>
<td>96</td>
<td>34</td>
</tr>
<tr>
<td>14.</td>
<td>C 76327</td>
<td>16.9</td>
<td>5.1</td>
<td>2/4</td>
<td>10400</td>
<td>74</td>
<td>23</td>
<td>-</td>
<td>3</td>
<td>-</td>
<td>2.7</td>
<td>-</td>
<td>-</td>
<td>109</td>
<td>140</td>
<td>31</td>
<td>60</td>
<td>25</td>
</tr>
<tr>
<td>15.</td>
<td>C 76329</td>
<td>14.2</td>
<td>4.7</td>
<td>4/10</td>
<td>7300</td>
<td>55</td>
<td>40</td>
<td>-</td>
<td>5</td>
<td>-</td>
<td>2.0</td>
<td>96</td>
<td>163</td>
<td>-</td>
<td>146</td>
<td>33</td>
<td>68</td>
<td>28</td>
</tr>
<tr>
<td>16.</td>
<td>C 76330</td>
<td>15.1</td>
<td>4.9</td>
<td>2/10</td>
<td>10200</td>
<td>63</td>
<td>33</td>
<td>-</td>
<td>4</td>
<td>-</td>
<td>3.0</td>
<td>-</td>
<td>-</td>
<td>113</td>
<td>200</td>
<td>34</td>
<td>131</td>
<td>26</td>
</tr>
<tr>
<td>17.</td>
<td>C 76467</td>
<td>12.2</td>
<td>4.5</td>
<td>6/18</td>
<td>9300</td>
<td>62</td>
<td>33</td>
<td>-</td>
<td>5</td>
<td>-</td>
<td>3.3</td>
<td>80</td>
<td>-</td>
<td>-</td>
<td>132</td>
<td>26</td>
<td>86</td>
<td>41</td>
</tr>
<tr>
<td>18.</td>
<td>C 75970</td>
<td>16.5</td>
<td>5.6</td>
<td>2/4</td>
<td>4300</td>
<td>49</td>
<td>41</td>
<td>4</td>
<td>9</td>
<td>-</td>
<td>1.5</td>
<td>77</td>
<td>-</td>
<td>-</td>
<td>126</td>
<td>27</td>
<td>50</td>
<td>24</td>
</tr>
<tr>
<td>19.</td>
<td>C 77289</td>
<td>12.9</td>
<td>4.4</td>
<td>10/22</td>
<td>6200</td>
<td>55</td>
<td>42</td>
<td>-</td>
<td>3</td>
<td>-</td>
<td>2.3</td>
<td>98</td>
<td>-</td>
<td>-</td>
<td>152</td>
<td>34</td>
<td>68</td>
<td>54</td>
</tr>
<tr>
<td>20.</td>
<td>C 77311</td>
<td>14.3</td>
<td>3.9</td>
<td>6/12</td>
<td>5500</td>
<td>54</td>
<td>41</td>
<td>-</td>
<td>5</td>
<td>-</td>
<td>2.3</td>
<td>90</td>
<td>-</td>
<td>-</td>
<td>182</td>
<td>36</td>
<td>120</td>
<td>32</td>
</tr>
<tr>
<td>S.No</td>
<td>OPD/IPD No</td>
<td>Hb g/dl</td>
<td>T.Rbc Mil/cu</td>
<td>ESR ½ - 1hr</td>
<td>T.Count Cells/cu</td>
<td>D.C %</td>
<td>Blood Sugar (mg/dl)</td>
<td>Serum Cholesterol (mg/dl)</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>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>21.</td>
<td>C 77487</td>
<td>17.6</td>
<td>5.2</td>
<td>2/4</td>
<td>9700</td>
<td>66 22 - 8 4</td>
<td>3.8 101 - 81 66</td>
<td>168 34 106 36 184</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>22.</td>
<td>C 77703</td>
<td>17.2</td>
<td>5.3</td>
<td>4/8</td>
<td>11100</td>
<td>64 32 - 4 - 3.4 - 116 123 28 98 48 244</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>23.</td>
<td>C 77718</td>
<td>16.3</td>
<td>5.2</td>
<td>2/6</td>
<td>6600</td>
<td>63 30 1 6 - 1.3 102 - 146 30 102 19 97</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>24.</td>
<td>C 77719</td>
<td>13.1</td>
<td>3.5</td>
<td>2/6</td>
<td>4200</td>
<td>66 30 - 4 - 1.4 81 - 200 34 160 30 90</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>25.</td>
<td>C 84062</td>
<td>15.1</td>
<td>4.6</td>
<td>2/4</td>
<td>6300</td>
<td>65 30 - 5 - 2.3 77 - 146 38 100 23 115</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>26.</td>
<td>C 84584</td>
<td>14.6</td>
<td>4.7</td>
<td>2/4</td>
<td>5800</td>
<td>55 36 1 8 - 2.3 - 121 149 30 103 69 345</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>27.</td>
<td>C 86714</td>
<td>10.6</td>
<td>3.9</td>
<td>4/10</td>
<td>7800</td>
<td>60 35 - 5 - 2.6 92 - 108 30 52 16 83</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>28.</td>
<td>C 86747</td>
<td>12.5</td>
<td>4.0</td>
<td>2/10</td>
<td>6600</td>
<td>65 32 - 3 - 2.9 104 - 188 42 82 53 266</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>29.</td>
<td>C 75922</td>
<td>17.3</td>
<td>5.5</td>
<td>2/6</td>
<td>5200</td>
<td>52 39 1 8 - 2.1 85 - 191 30 102 21 108</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>30.</td>
<td>C 95104</td>
<td>11.5</td>
<td>4.4</td>
<td>2/6</td>
<td>6000</td>
<td>62 33 - 5 - 2.2 106 - 231 38 101 22 110</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>31.</td>
<td>C 73542</td>
<td>12.5</td>
<td>3.9</td>
<td>6/12</td>
<td>7600</td>
<td>41 49 1 10 - 83 - 165 30 70 19 98</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>32.</td>
<td>C 74676</td>
<td>12.9</td>
<td>4.6</td>
<td>2/4</td>
<td>8800</td>
<td>64 30 - 6 - 91 169 27 98 44 220</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>33.</td>
<td>C 75699</td>
<td>13.1</td>
<td>4.5</td>
<td>2/6</td>
<td>5500</td>
<td>50 40 2 8 - 1.8 70 - 169 34 80 58 290</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>34.</td>
<td>C 93380</td>
<td>11.5</td>
<td>4.7</td>
<td>2/6</td>
<td>11200</td>
<td>62 33 - 5 - 2.5 95 - 138 33 72 37 185</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>35.</td>
<td>C 64949</td>
<td>15.2</td>
<td>5.2</td>
<td>2/4</td>
<td>4800</td>
<td>60 35 - 5 - 1.6 91 - 158 34 78 40 485</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>36.</td>
<td>C 95029</td>
<td>11.8</td>
<td>4.6</td>
<td>3/6</td>
<td>9500</td>
<td>50 45 - 5 - 3.0 95 - 176 32 102 39 198</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>37.</td>
<td>C 94846</td>
<td>11.9</td>
<td>4.6</td>
<td>6/12</td>
<td>7100</td>
<td>43 45 - 12 - 2.4 104 - 177 36 82 34 173</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>38.</td>
<td>C 93333</td>
<td>16.3</td>
<td>5.2</td>
<td>2/4</td>
<td>4900</td>
<td>55 40 - 5 - 2.2 88 - 154 32 76 12 63</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>39.</td>
<td>C 95846</td>
<td>12.7</td>
<td>3.3</td>
<td>4/6</td>
<td>7100</td>
<td>55 38 - 7 - 3.2 86 - 225 43 112 16 83</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>40.</td>
<td>D 01526</td>
<td>16.4</td>
<td>4.8</td>
<td>2/4</td>
<td>8400</td>
<td>56 32 - 2 - 3.2 84 - 200 36 88 24 90</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>S.NO</td>
<td>OPD/ IPD No</td>
<td>Urea</td>
<td>Creat</td>
<td>U.acid</td>
<td>T.Bil</td>
<td>Dir</td>
<td>Ind</td>
<td>Tota l</td>
<td>Alb</td>
<td>Glb</td>
<td>Cal</td>
<td>Phos</td>
<td>OT</td>
<td>PT</td>
<td>ALKP</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>
<td>-----</td>
<td>------</td>
<td>----</td>
<td>----</td>
<td>------</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1.</td>
<td>C 73051</td>
<td>16</td>
<td>0.8</td>
<td>4.7</td>
<td>0.4</td>
<td>0.2</td>
<td>0.2</td>
<td>6.9</td>
<td>4.5</td>
<td>2.4</td>
<td>-</td>
<td>-</td>
<td>20</td>
<td>24</td>
<td>164</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2.</td>
<td>C73216</td>
<td>15</td>
<td>0.7</td>
<td>4.5</td>
<td>0.5</td>
<td>0.3</td>
<td>0.2</td>
<td>6.6</td>
<td>4.5</td>
<td>2.1</td>
<td>-</td>
<td>-</td>
<td>20</td>
<td>21</td>
<td>154</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3.</td>
<td>C 73371</td>
<td>25</td>
<td>0.8</td>
<td>8.6</td>
<td>0.4</td>
<td>0.2</td>
<td>0.2</td>
<td>6.8</td>
<td>3.1</td>
<td>3.6</td>
<td>-</td>
<td>-</td>
<td>50</td>
<td>48</td>
<td>146</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4.</td>
<td>C 73442</td>
<td>25</td>
<td>0.7</td>
<td>6.7</td>
<td>1.0</td>
<td>0.5</td>
<td>0.5</td>
<td>6.6</td>
<td>4.0</td>
<td>2.6</td>
<td>-</td>
<td>-</td>
<td>15</td>
<td>16</td>
<td>176</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5.</td>
<td>C73666</td>
<td>21</td>
<td>0.7</td>
<td>-</td>
<td>0.6</td>
<td>0.2</td>
<td>0.4</td>
<td>6.4</td>
<td>4.2</td>
<td>2.2</td>
<td>-</td>
<td>-</td>
<td>20</td>
<td>25</td>
<td>194</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6.</td>
<td>C 73671</td>
<td>25</td>
<td>0.8</td>
<td>-</td>
<td>0.6</td>
<td>0.2</td>
<td>0.4</td>
<td>6.9</td>
<td>3.9</td>
<td>3.0</td>
<td>-</td>
<td>-</td>
<td>7</td>
<td>8</td>
<td>243</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>7.</td>
<td>C 73826</td>
<td>17</td>
<td>0.6</td>
<td>-</td>
<td>0.5</td>
<td>0.3</td>
<td>0.2</td>
<td>7.0</td>
<td>5.0</td>
<td>2.0</td>
<td>-</td>
<td>-</td>
<td>22</td>
<td>24</td>
<td>213</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>8.</td>
<td>C 73827</td>
<td>14</td>
<td>0.5</td>
<td>-</td>
<td>0.4</td>
<td>0.2</td>
<td>0.2</td>
<td>6.8</td>
<td>4.8</td>
<td>2.0</td>
<td>-</td>
<td>-</td>
<td>4.0</td>
<td>26</td>
<td>196</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>9.</td>
<td>C 73988</td>
<td>29</td>
<td>0.8</td>
<td>6.0</td>
<td>0.7</td>
<td>0.3</td>
<td>0.4</td>
<td>6.9</td>
<td>4.0</td>
<td>2.9</td>
<td>-</td>
<td>-</td>
<td>29</td>
<td>30</td>
<td>160</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>10.</td>
<td>C 74492</td>
<td>21</td>
<td>0.6</td>
<td>5.0</td>
<td>0.4</td>
<td>0.2</td>
<td>0.2</td>
<td>7.6</td>
<td>3.4</td>
<td>4.2</td>
<td>-</td>
<td>-</td>
<td>27</td>
<td>28</td>
<td>180</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>11.</td>
<td>C 75067</td>
<td>21</td>
<td>0.6</td>
<td>6.8</td>
<td>1.3</td>
<td>0.6</td>
<td>0.7</td>
<td>7.2</td>
<td>4.1</td>
<td>3.1</td>
<td>12</td>
<td>3.6</td>
<td>14</td>
<td>15</td>
<td>142</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>12.</td>
<td>C 76023</td>
<td>18</td>
<td>0.5</td>
<td>5.4</td>
<td>0.5</td>
<td>0.2</td>
<td>0.3</td>
<td>6.8</td>
<td>3.6</td>
<td>2.0</td>
<td>11</td>
<td>3.0</td>
<td>11</td>
<td>12</td>
<td>156</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>13.</td>
<td>C 75948</td>
<td>18</td>
<td>0.5</td>
<td>5.7</td>
<td>0.5</td>
<td>0.2</td>
<td>0.3</td>
<td>7.3</td>
<td>5.2</td>
<td>2.1</td>
<td>11.7</td>
<td>3.2</td>
<td>18</td>
<td>19</td>
<td>166</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>14.</td>
<td>C 76327</td>
<td>15</td>
<td>0.5</td>
<td>5.8</td>
<td>1.5</td>
<td>0.6</td>
<td>0.9</td>
<td>6.2</td>
<td>4.2</td>
<td>2.0</td>
<td>10.0</td>
<td>3.1</td>
<td>28</td>
<td>29</td>
<td>170</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>15.</td>
<td>C 76329</td>
<td>23</td>
<td>0.7</td>
<td>8.6</td>
<td>0.5</td>
<td>0.2</td>
<td>0.3</td>
<td>7.7</td>
<td>5.1</td>
<td>2.6</td>
<td>11.4</td>
<td>3.4</td>
<td>22</td>
<td>23</td>
<td>164</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>16.</td>
<td>C 76330</td>
<td>31</td>
<td>0.9</td>
<td>6.1</td>
<td>0.6</td>
<td>0.3</td>
<td>0.3</td>
<td>7.1</td>
<td>5.1</td>
<td>2.0</td>
<td>11.9</td>
<td>3.5</td>
<td>36</td>
<td>28</td>
<td>195</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>17.</td>
<td>C 76467</td>
<td>24</td>
<td>0.7</td>
<td>3.0</td>
<td>0.6</td>
<td>0.2</td>
<td>0.4</td>
<td>7.0</td>
<td>5.0</td>
<td>2.0</td>
<td>11.0</td>
<td>3.2</td>
<td>10</td>
<td>11</td>
<td>145</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>18.</td>
<td>C 75970</td>
<td>14</td>
<td>0.6</td>
<td>4.7</td>
<td>1.4</td>
<td>0.9</td>
<td>0.5</td>
<td>7.4</td>
<td>4.4</td>
<td>3.0</td>
<td>10.0</td>
<td>3.2</td>
<td>25</td>
<td>26</td>
<td>165</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>19.</td>
<td>C 77289</td>
<td>24</td>
<td>0.8</td>
<td>5.9</td>
<td>0.5</td>
<td>0.2</td>
<td>0.3</td>
<td>7.2</td>
<td>5.2</td>
<td>2.0</td>
<td>11.3</td>
<td>3.0</td>
<td>29</td>
<td>30</td>
<td>178</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>20.</td>
<td>C 77311</td>
<td>14</td>
<td>0.4</td>
<td>3.0</td>
<td>0.3</td>
<td>0.1</td>
<td>0.2</td>
<td>6.7</td>
<td>4.7</td>
<td>2.0</td>
<td>10</td>
<td>3</td>
<td>21</td>
<td>31</td>
<td>166</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>S.NO</td>
<td>OPD/IPD No</td>
<td>Urea</td>
<td>Creat</td>
<td>U.acid</td>
<td>T.Bil</td>
<td>Dir</td>
<td>Ind</td>
<td>Tota l</td>
<td>Alb</td>
<td>Glb</td>
<td>Cal</td>
<td>Phos</td>
<td>OT</td>
<td>PT</td>
<td>ALKP</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>
<td>-----</td>
<td>------</td>
<td>----</td>
<td>----</td>
<td>------</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>21.</td>
<td>C 77487</td>
<td>14</td>
<td>0.4</td>
<td>5.9</td>
<td>0.6</td>
<td>0.2</td>
<td>0.4</td>
<td>7.0</td>
<td>5.0</td>
<td>2.0</td>
<td>11.0</td>
<td>3.0</td>
<td>11</td>
<td>12</td>
<td>150</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>22.</td>
<td>C 77703</td>
<td>14</td>
<td>0.4</td>
<td>5.9</td>
<td>0.5</td>
<td>0.2</td>
<td>0.3</td>
<td>5.5</td>
<td>3.2</td>
<td>2.3</td>
<td>10.2</td>
<td>3.1</td>
<td>15</td>
<td>16</td>
<td>156</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>23.</td>
<td>C 77718</td>
<td>14</td>
<td>0.4</td>
<td>6.5</td>
<td>0.5</td>
<td>0.2</td>
<td>0.3</td>
<td>7.0</td>
<td>5.0</td>
<td>2.0</td>
<td>10.9</td>
<td>3.0</td>
<td>22</td>
<td>19</td>
<td>168</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>24.</td>
<td>C 77719</td>
<td>14</td>
<td>0.4</td>
<td>6.2</td>
<td>0.4</td>
<td>0.2</td>
<td>0.2</td>
<td>6.5</td>
<td>4.5</td>
<td>2.0</td>
<td>12</td>
<td>3.5</td>
<td>19</td>
<td>20</td>
<td>165</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>25.</td>
<td>C 84062</td>
<td>19</td>
<td>0.5</td>
<td>3.2</td>
<td>0.4</td>
<td>0.2</td>
<td>0.2</td>
<td>6.0</td>
<td>3.4</td>
<td>2.6</td>
<td>10.6</td>
<td>3.2</td>
<td>17</td>
<td>19</td>
<td>149</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>26.</td>
<td>C 84584</td>
<td>20</td>
<td>0.6</td>
<td>5.0</td>
<td>0.5</td>
<td>0.2</td>
<td>0.3</td>
<td>5.6</td>
<td>2.8</td>
<td>2.8</td>
<td>10.8</td>
<td>2.9</td>
<td>13</td>
<td>15</td>
<td>146</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>27.</td>
<td>C 86714</td>
<td>14</td>
<td>0.4</td>
<td>3.1</td>
<td>0.4</td>
<td>0.2</td>
<td>0.2</td>
<td>6.1</td>
<td>4.1</td>
<td>2.0</td>
<td>11.5</td>
<td>3.1</td>
<td>12</td>
<td>15</td>
<td>182</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>28.</td>
<td>C 86747</td>
<td>23</td>
<td>0.7</td>
<td>3.4</td>
<td>0.6</td>
<td>0.2</td>
<td>0.4</td>
<td>5.7</td>
<td>3.4</td>
<td>2.4</td>
<td>10.6</td>
<td>3.6</td>
<td>13</td>
<td>15</td>
<td>145</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>29.</td>
<td>C 75922</td>
<td>15</td>
<td>0.6</td>
<td>4.9</td>
<td>0.6</td>
<td>0.2</td>
<td>0.4</td>
<td>7.4</td>
<td>4.0</td>
<td>3.4</td>
<td>10.1</td>
<td>3.9</td>
<td>19</td>
<td>20</td>
<td>168</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>30.</td>
<td>C 95104</td>
<td>14</td>
<td>0.6</td>
<td>4.1</td>
<td>0.6</td>
<td>0.2</td>
<td>0.4</td>
<td>6.7</td>
<td>4.3</td>
<td>2.4</td>
<td>10.8</td>
<td>2.9</td>
<td>16</td>
<td>18</td>
<td>170</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>31.</td>
<td>C 73542</td>
<td>22</td>
<td>0.7</td>
<td>2.3</td>
<td>0.4</td>
<td>0.2</td>
<td>0.2</td>
<td>6.8</td>
<td>4.2</td>
<td>2.6</td>
<td>-</td>
<td>-</td>
<td>29</td>
<td>30</td>
<td>196</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>32.</td>
<td>C 74676</td>
<td>21</td>
<td>0.7</td>
<td>6.0</td>
<td>0.6</td>
<td>0.2</td>
<td>0.4</td>
<td>5.6</td>
<td>3.1</td>
<td>2.5</td>
<td>-</td>
<td>-</td>
<td>15</td>
<td>16</td>
<td>150</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>33.</td>
<td>C 75699</td>
<td>14</td>
<td>0.4</td>
<td>2.6</td>
<td>0.7</td>
<td>0.3</td>
<td>0.4</td>
<td>7.4</td>
<td>4.8</td>
<td>2.6</td>
<td>10.4</td>
<td>3.0</td>
<td>13</td>
<td>14</td>
<td>149</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>34.</td>
<td>C 93380</td>
<td>14</td>
<td>0.5</td>
<td>3.2</td>
<td>0.8</td>
<td>0.3</td>
<td>0.5</td>
<td>6.0</td>
<td>3.9</td>
<td>2.1</td>
<td>10.7</td>
<td>3.0</td>
<td>12</td>
<td>14</td>
<td>152</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>35.</td>
<td>C 64949</td>
<td>15</td>
<td>0.5</td>
<td>4.2</td>
<td>0.4</td>
<td>0.2</td>
<td>0.2</td>
<td>6.3</td>
<td>4.1</td>
<td>2.2</td>
<td>10.7</td>
<td>2.7</td>
<td>49</td>
<td>42</td>
<td>215</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>36.</td>
<td>C 95029</td>
<td>15</td>
<td>0.4</td>
<td>4.1</td>
<td>0.5</td>
<td>0.2</td>
<td>0.3</td>
<td>5.1</td>
<td>3.0</td>
<td>2.1</td>
<td>10</td>
<td>2.9</td>
<td>28</td>
<td>30</td>
<td>194</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>37.</td>
<td>C 94846</td>
<td>15</td>
<td>0.5</td>
<td>4.3</td>
<td>0.6</td>
<td>0.2</td>
<td>0.4</td>
<td>6.2</td>
<td>4.0</td>
<td>2.2</td>
<td>10.9</td>
<td>3.4</td>
<td>20</td>
<td>22</td>
<td>180</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>38.</td>
<td>C 93333</td>
<td>14</td>
<td>0.5</td>
<td>3.3</td>
<td>0.5</td>
<td>0.2</td>
<td>0.3</td>
<td>6.3</td>
<td>4.2</td>
<td>2.1</td>
<td>10.2</td>
<td>3.3</td>
<td>24</td>
<td>26</td>
<td>185</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>39.</td>
<td>C 95846</td>
<td>16</td>
<td>0.6</td>
<td>3.0</td>
<td>0.5</td>
<td>0.2</td>
<td>0.3</td>
<td>5.9</td>
<td>3.3</td>
<td>2.6</td>
<td>10.0</td>
<td>2.8</td>
<td>26</td>
<td>28</td>
<td>183</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>40.</td>
<td>D 01526</td>
<td>16</td>
<td>0.4</td>
<td>3.8</td>
<td>0.4</td>
<td>0.2</td>
<td>0.2</td>
<td>7.2</td>
<td>4.1</td>
<td>3.1</td>
<td>10</td>
<td>2.6</td>
<td>14</td>
<td>16</td>
<td>170</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>S.NO</td>
<td>OPD / IPD No</td>
<td>URINE</td>
<td>Motion</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></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>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>AIB</td>
<td>Sug</td>
<td>Pus</td>
<td>Epi</td>
<td>B.S</td>
<td>B.P</td>
<td>Ova</td>
<td>Cyst</td>
<td>Occult Blood</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1.</td>
<td>C 73051</td>
<td>NIL</td>
<td>NIL</td>
<td>2 - 4</td>
<td>2 - 4</td>
<td>NIL</td>
<td>NEG</td>
<td>NIL</td>
<td>NIL</td>
<td>NIL</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2.</td>
<td>C73216</td>
<td>NIL</td>
<td>NIL</td>
<td>1 - 2</td>
<td>2 - 3</td>
<td>NIL</td>
<td>NEG</td>
<td>NIL</td>
<td>NIL</td>
<td>NIL</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3.</td>
<td>C 73371</td>
<td>NIL</td>
<td>NIL</td>
<td>2 - 4</td>
<td>2 - 4</td>
<td>NIL</td>
<td>NEG</td>
<td>NIL</td>
<td>NIL</td>
<td>NIL</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4.</td>
<td>C 73442</td>
<td>NIL</td>
<td>NIL</td>
<td>1 - 2</td>
<td>2 - 3</td>
<td>NIL</td>
<td>NEG</td>
<td>NIL</td>
<td>NIL</td>
<td>NIL</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5.</td>
<td>C73666</td>
<td>NIL</td>
<td>NIL</td>
<td>1 - 3</td>
<td>3 - 4</td>
<td>NIL</td>
<td>NEG</td>
<td>NIL</td>
<td>NIL</td>
<td>NIL</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6.</td>
<td>C 73671</td>
<td>NIL</td>
<td>NIL</td>
<td>2 - 3</td>
<td>2 - 3</td>
<td>NIL</td>
<td>NEG</td>
<td>NIL</td>
<td>NIL</td>
<td>NIL</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>7.</td>
<td>C 73826</td>
<td>NIL</td>
<td>NIL</td>
<td>1 - 2</td>
<td>1 - 2</td>
<td>NIL</td>
<td>NEG</td>
<td>NIL</td>
<td>NIL</td>
<td>NIL</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>8.</td>
<td>C 73822</td>
<td>NIL</td>
<td>NIL</td>
<td>2 - 3</td>
<td>2 - 3</td>
<td>NIL</td>
<td>NEG</td>
<td>NIL</td>
<td>NIL</td>
<td>NIL</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>9.</td>
<td>C 73988</td>
<td>NIL</td>
<td>NIL</td>
<td>1 - 2</td>
<td>1 - 2</td>
<td>NIL</td>
<td>NEG</td>
<td>NIL</td>
<td>NIL</td>
<td>NIL</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>10.</td>
<td>C 74492</td>
<td>NIL</td>
<td>NIL</td>
<td>3 - 4</td>
<td>2 - 3</td>
<td>NIL</td>
<td>NEG</td>
<td>NIL</td>
<td>NIL</td>
<td>NIL</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>11.</td>
<td>C 75067</td>
<td>NIL</td>
<td>NIL</td>
<td>2 - 4</td>
<td>2 - 4</td>
<td>NIL</td>
<td>NEG</td>
<td>NIL</td>
<td>NIL</td>
<td>NIL</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>12.</td>
<td>C 76023</td>
<td>NIL</td>
<td>NIL</td>
<td>2 - 4</td>
<td>2 - 4</td>
<td>NIL</td>
<td>NEG</td>
<td>NIL</td>
<td>NIL</td>
<td>NIL</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>13.</td>
<td>C 75948</td>
<td>NIL</td>
<td>NIL</td>
<td>1 - 2</td>
<td>1 - 2</td>
<td>NIL</td>
<td>NEG</td>
<td>NIL</td>
<td>NIL</td>
<td>NIL</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>14.</td>
<td>C 76327</td>
<td>NIL</td>
<td>NIL</td>
<td>2 - 4</td>
<td>2 - 4</td>
<td>NIL</td>
<td>NEG</td>
<td>NIL</td>
<td>NIL</td>
<td>NIL</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>15.</td>
<td>C 76329</td>
<td>NIL</td>
<td>NIL</td>
<td>2 - 4</td>
<td>2 - 4</td>
<td>NIL</td>
<td>NEG</td>
<td>NIL</td>
<td>NIL</td>
<td>NIL</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>16.</td>
<td>C 76330</td>
<td>NIL</td>
<td>NIL</td>
<td>2 - 3</td>
<td>2 - 3</td>
<td>NIL</td>
<td>NEG</td>
<td>NIL</td>
<td>NIL</td>
<td>NIL</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>17.</td>
<td>C 76467</td>
<td>NIL</td>
<td>NIL</td>
<td>2 - 4</td>
<td>2 - 4</td>
<td>NIL</td>
<td>NEG</td>
<td>NIL</td>
<td>NIL</td>
<td>NIL</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>18.</td>
<td>C 75970</td>
<td>NIL</td>
<td>NIL</td>
<td>1 - 2</td>
<td>1 - 2</td>
<td>NIL</td>
<td>NEG</td>
<td>NIL</td>
<td>NIL</td>
<td>NIL</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>19.</td>
<td>C 77289</td>
<td>NIL</td>
<td>NIL</td>
<td>1 - 2</td>
<td>1 - 2</td>
<td>NIL</td>
<td>NEG</td>
<td>NIL</td>
<td>NIL</td>
<td>NIL</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>20.</td>
<td>C 77311</td>
<td>NIL</td>
<td>NIL</td>
<td>2 - 4</td>
<td>2 - 4</td>
<td>NIL</td>
<td>NEG</td>
<td>NIL</td>
<td>NIL</td>
<td>NIL</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>S.NO</td>
<td>OPD / IPD No</td>
<td>URINE</td>
<td>Motion</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></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>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>ALB</td>
<td>Sug</td>
<td>Pus</td>
<td>Epi</td>
<td>B.S</td>
<td>B.P</td>
<td>Ova</td>
<td>Cyst</td>
<td>Occult Blood</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>C 77487</td>
<td>NIL</td>
<td>NIL</td>
<td>1 – 2</td>
<td>1 – 2</td>
<td>NIL</td>
<td>NEG</td>
<td>NIL</td>
<td>NIL</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>22.</td>
<td>C 77703</td>
<td>NIL</td>
<td>NIL</td>
<td>1 – 2</td>
<td>1 – 2</td>
<td>NIL</td>
<td>NEG</td>
<td>NIL</td>
<td>NIL</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>23.</td>
<td>C 77718</td>
<td>NIL</td>
<td>NIL</td>
<td>1 – 2</td>
<td>1 – 2</td>
<td>NIL</td>
<td>NEG</td>
<td>NIL</td>
<td>NIL</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>24.</td>
<td>C 77719</td>
<td>NIL</td>
<td>NIL</td>
<td>1 – 2</td>
<td>1 – 2</td>
<td>NIL</td>
<td>NEG</td>
<td>NIL</td>
<td>NIL</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>25.</td>
<td>C 84062</td>
<td>NIL</td>
<td>NIL</td>
<td>2 – 3</td>
<td>2 – 3</td>
<td>NIL</td>
<td>NEG</td>
<td>NIL</td>
<td>NIL</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>26.</td>
<td>C 84584</td>
<td>NIL</td>
<td>NIL</td>
<td>1 – 2</td>
<td>1 – 2</td>
<td>NIL</td>
<td>NEG</td>
<td>NIL</td>
<td>NIL</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>27.</td>
<td>C 86714</td>
<td>NIL</td>
<td>NIL</td>
<td>8 – 10</td>
<td>10 - 12</td>
<td>NIL</td>
<td>NEG</td>
<td>NIL</td>
<td>NIL</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>28.</td>
<td>C 86747</td>
<td>NIL</td>
<td>NIL</td>
<td>4 – 5</td>
<td>2 – 3</td>
<td>NIL</td>
<td>NEG</td>
<td>NIL</td>
<td>NIL</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>29.</td>
<td>C 75922</td>
<td>NIL</td>
<td>NIL</td>
<td>1 – 2</td>
<td>1 – 2</td>
<td>NIL</td>
<td>NEG</td>
<td>NIL</td>
<td>NIL</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>30.</td>
<td>C 95104</td>
<td>NIL</td>
<td>NIL</td>
<td>2 – 4</td>
<td>2 – 4</td>
<td>NIL</td>
<td>NEG</td>
<td>NIL</td>
<td>NIL</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>31.</td>
<td>C 73542</td>
<td>NIL</td>
<td>NIL</td>
<td>1 – 2</td>
<td>2 - 3</td>
<td>NIL</td>
<td>NEG</td>
<td>NIL</td>
<td>NIL</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>32.</td>
<td>C 74676</td>
<td>NIL</td>
<td>NIL</td>
<td>1 – 2</td>
<td>3 – 4</td>
<td>NIL</td>
<td>NEG</td>
<td>NIL</td>
<td>NIL</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>33.</td>
<td>C 75699</td>
<td>NIL</td>
<td>NIL</td>
<td>1 – 2</td>
<td>1 – 2</td>
<td>NIL</td>
<td>NEG</td>
<td>NIL</td>
<td>NIL</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>34.</td>
<td>C 93380</td>
<td>NIL</td>
<td>NIL</td>
<td>10 – 15</td>
<td>8 - 10</td>
<td>NIL</td>
<td>NEG</td>
<td>NIL</td>
<td>NIL</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>35.</td>
<td>C 64949</td>
<td>NIL</td>
<td>NIL</td>
<td>2 – 4</td>
<td>3 – 6</td>
<td>NIL</td>
<td>NEG</td>
<td>NIL</td>
<td>NIL</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>36.</td>
<td>C 95029</td>
<td>NIL</td>
<td>NIL</td>
<td>2 – 3</td>
<td>2 – 3</td>
<td>NIL</td>
<td>NEG</td>
<td>NIL</td>
<td>NIL</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>37.</td>
<td>C 94846</td>
<td>NIL</td>
<td>NIL</td>
<td>2 – 4</td>
<td>2 – 4</td>
<td>NIL</td>
<td>NEG</td>
<td>NIL</td>
<td>NIL</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>38.</td>
<td>C 93333</td>
<td>NIL</td>
<td>NIL</td>
<td>2 – 4</td>
<td>2 – 4</td>
<td>NIL</td>
<td>NEG</td>
<td>NIL</td>
<td>NIL</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>39.</td>
<td>C 95846</td>
<td>NIL</td>
<td>NIL</td>
<td>2 – 4</td>
<td>2 - 4</td>
<td>NIL</td>
<td>NEG</td>
<td>NIL</td>
<td>NIL</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>40.</td>
<td>D 01526</td>
<td>NIL</td>
<td>NIL</td>
<td>1 – 2</td>
<td>1 – 2</td>
<td>NIL</td>
<td>NEG</td>
<td>NIL</td>
<td>NIL</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Patient's Name: MR ARUMUGAM
Age: 36 Years  Sex: M(OP)
Referred by: Dr. V. Jeganathan, M.S., MAMS, FAMS, FICS, FACS, MACG, FRSH, FAGE.

OESOPHAGO - GASTRO - DUODENOSCOPY - REPORT

OESOPHAGUS: Normal
O-G JUNCTION: AT 38 cms. Lax.
STOMACH:
FUNDUS: Normal
BODY: Erosions, seen.
PYLORUS: Deformed.
DUODENUM:
I PART: Healing ulcers, inflamed mucosa.
II PART: Normal

IMPRESSSION/CONCLUSION:
DUODENAL ULCERS (HEALING),
DUODENITIS,
GASTRITIS.

DATE: 05/12/11

DR. V. HEMA VIJAYALAKSHMI,
DCH, DNB (PAED), D.M.,
GASTROENTEROLOGIST
# GASTRO-DUODENOSCOPY REPORT

**Findings**

- Cricopharynx is normal
- Esophagus shows normal mucosa
- GE junction is at 38 cm
- Fundus, body, and antrum of stomach are normal
- DI is normal
- DII is normal

**Conclusions**

Normal Gastro-duodenoscopy

---

DR. ARUNKUMAR.K., MBBS.MS.
UGI SCOPY REPORT

INSTRUMENT: VIDEO GASTROSCOPE - OLYMPUS CV60.

INDICATION : ULCER LIKE DYSEPSIA.

SEDATION : NOT USED.

PATIENT COOPERATION : GOOD.

BIOPSY : NOT TAKEN.

OESOPHAGUS : NORMAL.

OGJ : NORMAL.

STOMACH
FUNDUS / CARDIA : NORMAL.

BODY : NORMAL.

ANTRUM / PYLORUS : EROSIONS SEEN.

DUODENUM
PART-1 : NORMAL.
PART-2 : NORMAL.

IMPRESSION: ANTRAL GASTRITIS.

DR.M.MANIMARAN M.D.,D.M.,
CONSULTANT GASTROENTEROLOGIST.
9884824618.
LAKSHA HOSPITAL
MYLAPORE, CHENNAI.

Patient Name: Mrs. Mariammal  |  Age / Sex: 35/Female
Patient ID: 00000107  |  Visit Date: 17/09/2012
Referred By: NIS  |  Consulted By: Done By: DR. ARUN KUMAR  |  Medication

Oesophagogastro-Duodendoscopy

Upper Esophagus - Normal
Middle Esophagus - Normal
Lower Esophagus - Normal
OG Junction - Normal
Fundus - Normal
Body - Normal
Antrum - Normal
Pylorus - Normal
Duodenum 1st Part - Normal
Duodenum 2nd Part - Normal

FINAL IMPRESSION:
NORMAL STUDY.

[Signature]
GASTRO-DUODENOSCOPY REPORT

Findings

Cricopharynx is normal
Esophagus shows normal mucosa
GE junction is at 36 cm.
Fundus, body of stomach are normal. Antrum is inflamed.
Duodenal bulb is normal
D11 is normal

Conclusions

ANTRAL GASTRITIS

U. Sandep
DR. U. SANDEEP, M.S.,
Report on UPPER G.I. ENDOSCOPY

Referred By :

Instrument : AOHUA VME - 98.

Premedic : Nil

Findings : Oesophagus : Normal. LOS appears slightly tight.

: Stomach : Fudus shows mucosal fold partly around the cardia (status fundo plication). Mucosa normal.


IMPRESSION : NORMAL STATUS FUNDO PLICATION.

DR.S.RAJANIKANTH MD DM.,
ENDOSCOPIST.
Patient's Name: Mr. VENKATESH
Age: 30 Years
Sex: M(OP)
Referred by: Dr. V. Jeganathan, M.S., MAMS., FAMS., FICS., FACS., MACG., FRSH., FAGE.

OESOPHAGO - GASTRO - DUODENOSCOPY - REPORT

OESOPHAGUS: Normal
O-G JUNCTION: AT 38 cms

STOMACH:
FUNDUS: Normal
BODY: Inflamed.
ANTRUM: Erosions seen.
PYLORUS: Deformed.

DUODENUM:
I PART: Two ulcers seen in the inferior wall with surrounding edematous mucosa.
II PART: Normal

IMPRESSION/CONCLUSION:
MULTIPLE DUODENAL ULCER WITH DUODENITIS. GASTRITIS.

DATE: 20/04/2012

Dr. V. HEMA VIJAYALAKSHMI,
DCH., DNB (PAED.), D.M.
GASTROENTEROLOGIST
GASTRO-DUODENOSCOPY REPORT

Findings

Cricopharynx is normal
Esophagus shows normal mucosa
GE junction is at 38 cm
Fundus, body, and antrum of stomach are normal
Duodenal bulb is normal
DII is normal

Conclusions

Normal Gastro-duodenoscopy
Patient Name: JUBITHA
Contact #: 31974
Patient ID: 31974
Referred Dr: DR.RAJA
Procedure: UGI SCOPE
Age/Gender: 27Yrs, Female
Visit Date: 3/14/2012
Consulted Dr: DR.RAJA
Medication: 10% LIDOCAINE SPRAY

Esophagus: Normal, Lax LES, OGIS @ 35cm

Stomach
Fundus: Normal
Body: Inflamed
Antrum: Normal
Pylorus: Normal

Duodenum
D1: Normal
D2: Normal

Impression: GASTRITIS

Visit Summary
GERD
Dr.RAJA
CaptureITPro - www.ambaisoft.com
UPPER GI ENDOSCOPY REPORT

Esophagus:
- Mucosa: Normal
- Z line at: 37 cms

Stomach:
- Fundus: Normal
- Body: Normal
- Antrum: Normal

Duodenum:
- D1: Normal
- D2: Normal

Impression: Normal Mucosal Study

Dr. B. Mahadevan, MD, DM (Gastro)
Consultant Gastroenterologist
From 6th Feb. 2012 to 10th Feb. 2012,
The Tamil Nadu Dr. M.G.R. Medical University
organized by the Department of Siddha
for AVISH Post-Graduates & Researchers
on "Research Methodology & Biostatistics"
for participating as a Resource Person / Delegate in the VII Workshop

This Certificate is awarded to M.S./DR.
S. Senthil Karunakaran

69, Anna Salai, Guindy, Chennai-600 032
The Tamil Nadu Dr. M.G.R. Medical University
Name: Dr. S. Senthilkumar

Title: Preclinical and clinical study on "Uragu Kongam" (Gastritis) and the drug of choice is "Vediyuppo Kotta"


DECISSION

Opinion of the Institutional Ethics Committee – Please Check one

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>✔</td>
<td></td>
</tr>
</tbody>
</table>

________ Modifications required prior to approval (Please specify one space below)

________ Disapproval

Date of review: [ ]

Signed: [ ] (Please print name) Dr. V. Subramanian

Chair person

(Member Secretary)

(Please delete as appropriate, 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 be submitted to the IEC
CERTIFICATE

This is certify that the project title: "Pre-clinical and clinical study on "Vagulakram" (extract) and the drug of choice is "vediyapas kath" has been approved by the IAEC.

Prof. Dr. K. Mallikavasakam
Name of Chairman/Member Secretary IAEC: Dr. B. Jayachandran, DAV
Name of CPCSEA nominee:

Signature with date

[Signature]

Chairman/Member Secretary of IAEC: CPCSEA nominee:

(Kindly make sure that minutes of the meeting duly signed by all the participants are maintained by Office)
CERTIFICATE

Certified that the minerals submitted for identification by Dr. S. Senthil Karunakaran, II year Maruthuvam, National Institute of Siddha, Tambaram Sanatorium, Chennai-47 are identified as Vediyuppu – Potassium Nitrate and Seenam – Aluminium Potassium Sulphate.

(R. Shakila)
Research Officer (Chemistry)

(K. Meenakshi Sundara Moorthy)
Asst. Director - In charge
NATIONAL INSTITUTE OF SIDDHA, CHENNAI – 600047

CERTIFICATE OF BOTANICAL AUTHENTICITY

Certified that the following plant drugs used in the Siddha formulation 
Vediyuppu Kattu (Internal) for the management of Vaayu Kunnam (Gastritis) taken 
up for Post Graduation Dissertation studies by Dr. S. Senthil Karunakaran, M.D.(S), II 
year Department of Maruthuvam, 2011-12, are identified and authenticated through 
Visual inspection / Organoleptic characters / Experience, Education & Training/
Morphology / Micromorphology / Microscopical/ Taxonomical methods.

Zingiber officinale Rosc. (Zingiberaceae), Rhizome
Piper nigrum Linn. (Piperaceae), Fruit
Piper longum Linn. (Piperaceae), Fruit

Certificate No: NIS/MB/38/2012

Date: 21-3-12

Authorized Signatory
Dr. D. ARAVIND, M.D.(s), M.Sc.,
Assistant Professor
Department of Medicinal Botany
National Institute of Siddha
Chennai – 600 047, INDIA
<table>
<thead>
<tr>
<th></th>
<th>GROUP – I CONTROL</th>
<th>GROUP – II (1 X)</th>
<th>GROUP – III (5 X)</th>
<th>GROUP – IV (10 X)</th>
</tr>
</thead>
<tbody>
<tr>
<td>LIVER</td>
<td>![Liver Image]</td>
<td>![Liver Image]</td>
<td>![Liver Image]</td>
<td>![Liver Image]</td>
</tr>
<tr>
<td>LUNGS</td>
<td>![Lungs Image]</td>
<td>![Lungs Image]</td>
<td>![Lungs Image]</td>
<td>![Lungs Image]</td>
</tr>
<tr>
<td>STOMACH</td>
<td>![Stomach Image]</td>
<td>![Stomach Image]</td>
<td>![Stomach Image]</td>
<td>![Stomach Image]</td>
</tr>
<tr>
<td>HEART</td>
<td>![Heart Image]</td>
<td>![Heart Image]</td>
<td>![Heart Image]</td>
<td>![Heart Image]</td>
</tr>
<tr>
<td>SPLEEN</td>
<td>![Spleen Image]</td>
<td>![Spleen Image]</td>
<td>![Spleen Image]</td>
<td>![Spleen Image]</td>
</tr>
</tbody>
</table>
DIGESTIVE SYSTEM

NINE REGIONS OF THE ABDOMEN
ANATOMY OF THE STOMACH

STRUCTURE OF THE STOMACH
BLOOD SUPPLY

GLANDS OF STOMACH

<table>
<thead>
<tr>
<th>Cell Types</th>
<th>Substance Secreted</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mucous neck cell</td>
<td>Mucus (protects lining)</td>
</tr>
<tr>
<td></td>
<td>Bicarbonate</td>
</tr>
<tr>
<td>Parietal cells</td>
<td>Gastric acid (HCl)</td>
</tr>
<tr>
<td></td>
<td>Intrinsic factor (Ca++ absorption)</td>
</tr>
<tr>
<td>Enterochromaffin-like cell</td>
<td>Histamine (stimulates acid)</td>
</tr>
<tr>
<td>Chief cells</td>
<td>Pepsin(ogen)</td>
</tr>
<tr>
<td>D cells</td>
<td>Gastric lipase</td>
</tr>
<tr>
<td>G cells</td>
<td>Somatostatin (inhibits acid)</td>
</tr>
<tr>
<td></td>
<td>Gastrin (stimulates acid)</td>
</tr>
</tbody>
</table>
CERTIFICATE

Certified that the mineral drug Vediyuppu kattu formulated by Dr. S. Senthil Karunakaran, Dept of Maruthuvam, National Institute of Siddha, Tambaram Sanatorium, Chennai – 47 was analyzed (Quantitative) by Physico-Chemical, SEM, ICP and Phyto chemical methods at SAIF, IITM, Chennai – 36 during October 2012.

Dr. R. MURUGESAN
Scientific Officer Gr.-1
Sophisticated Analytical Instrument Facility
Indian Institute of Technology, Madras
Chennai-600 036