A STUDY ON DIAGNOSTIC METHODOLOGY AND SYMPTOMATOLOGY OF KAAKKAI VALI (GRANDMAL EPILEPSY) (DISSERTATION SUBJECT)

For the partial fulfilment of the requirements to the Degree of DOCTOR OF MEDICINE (SIDDHA) BRANCH V – NOI NAADAL DEPARTMENT NATIONAL INSTITUTE OF SIDDHA CHENNAI – 47

AFFILIATED TO THE TAMIL NADU Dr. M.G.R.MEDICAL UNIVERSITY CHENNAI - 32 APRIL – 2013
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ACKNOWLEDGEMENT

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

I dedicate my dissertation work to my beloved Mother Mrs. Thulasibai and father C. Appanraj and grandmother V.R. Saraswathi Bai.
INTRODUCTION

Siddha system of medicine is an ancient and holistic medical system among all systems of medicine in the world. This system was developed by the Sagely Siddhars whose life goal was to attain salvation. It is a system which deals not only to cure the disease, but also with prevention from the disease and provide the ways for fulfillment in life. It deals with the Physical health of an individual and also with the mind. This System of medicine aims in equalizing the deranged panchaboothas, tridoshas of the body and restores a stable healthy equilibrium.

According to Siddha fundamental philosophy, the entire universe is made up of Pancha Boothangal, so any changes in the cosmos will be reflected in the human body. The five basic elements combined to form three Humours namely Vatham, Pitham and Kabam. Any derangement in these humours results in development of Disease. In Siddha system, diseases are diagnosed mainly by the main diagnostic tools namely Naa, Niram, Mozhi, Vizhi, Naadi, Neerkuri, Neikkuri and Manikkadai nool.

According to Siddha system of medicine, the diseases are numbered as 4448. Sage Agathiyar classified many diseases based on the clinical signs and symptoms along with the humoral pathology. Valippu Noi is one among them. Kaakkai Vali is one among the types of Valippu Noi. It’s signs and symptoms may be correlated with Grandmal Epilepsy in modern science.

The clinical presentation of the disease is mainly due to vatha Kaba humour. Kaba humour will be deranged by Emotional Stress, increased sexual indulgence, increased intake of cold foods. Clinically the disease is manifested with symptoms like Periodic Episodes of Seizures, Hypertonicity of the limbs, Epileptic aura, History of Urinary incontinence, History of faecal incontinence and dryness of the tongue.

Epilepsy is a brief recurrent disorder of Cerebral function usually associated with disturbance of Consciousness and accompanied by a sudden excessive electrical discharge of Cerebral neurons. It is not a Contagious disease and is not caused by mental illness or mental retardation. One in ten individuals will have
single Seizure at some time in their lives. The Prevalence of Epilepsy is 1% and the incidence is 0.1%.

Recent Studies in developed countries suggest an annual incidence of epilepsy of approximately 50 per 100,000 of the general population. However, studies in developing countries suggest that this incidence is nearly double that at 100 per 100,000.

Grandmal Epilepsy is a common form of Epilepsy. It comes under the type of Generalised Seizures which are always associated with loss of awareness of the surroundings. These type of Seizures are recognized as Epileptic Fits by laymen.

In this dissertation, the author tries to expound this **Kaakkai Vali** with a detailed analytical approach through Siddha Diagnostic methods.
2.1. AIM

To conduct a study on Kaakkai vali as mentioned in Agathiyar Vaithiya Kaandam, thereby to evolve a diagnostic methodology for Kaakkai vali in Siddha system of medicine.

2.2. OBJECTIVES

2.2.1. PRIMARY OBJECTIVES:

1. To conduct the cause and clinical course of disease by keen observation on the symptoms of Kaakkai vali.
2. To elucidate a diagnostic methodology for Kaakkai vali.

2.2.2. SECONDARY OBJECTIVES:

1. The Objective of this dissertation work includes literary and observational study on the etiology, pathogenesis and Clinical presentation of Kaakkai vali.
2. By evolving a diagnostic method for the disease, it helps the clinicians to derive a proper line of treatment and adopt preventive measures based on Siddha system of medicines.
3. This study is also to correlate clinically, the symptoms of Kaakkai vali with that of closely resembling condition Grandmal Epilepsy in modern medical literature which in turn helps in globalization of Siddha system.
3. A.1. SUGARANA NILAI (PHYSIOLOGICAL STATE) IN SIDDHA MEDICINE

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

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

“அத்தூண்டு கருணை பிள்ளையாரின்; 
பிள்ளையாரின் கருணை அத்தூண்டு”

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

"நிலவே நின்று நிறையிலிருந்து நோக்குவது கோயிலே குடியில் மகளில்”

-திருச்சரங்கோயில்
As per the above lines, the universe and the human body are made of five basic elements.

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

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

1. BOOTHAM – 5 (ELEMENTS)

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

2. PORI – 5 (SENSE ORGANS)

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

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

4. KANMENTHIRIYAM – 5 (MOTOR ORGANS)

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

5. KARANAM – 4 (INTELLECTUAL FACULTIES)

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

6. ARIVU – 1 (WISDOM OF SELF REALIZATION)

To analyze good and bad

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

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

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

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

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

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

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

5. **Samaanan (Nadu kaal)**
   This is responsible for the neutralization of the other 4 Valis i.e. Piran, Aban, Viyan and Uthan. Moreover it is responsible for the nutrients and water balance of the body.

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

7. **Koorman**
   It is responsible for the opening and closing of the eyelids and also vision. It is responsible for yawning.
8. Kirukaran

It is responsible for the salivation of the tongue and also nasal secretion.
Responsible for cough and sneezing and induces hunger.

9. Devathathan

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

10. Dhanancheyan

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

9. AASAYAM – 5 (VISCERAL CAVITIES)

1. Amarvasayam (Reservoir Organ) - Stomach. It lodges the ingested food.

2. Pakirvasayam (Absorption Site)-Small intestine. The digestion and assimilation of food, absorption of saaram from the digested food are done by this Asayam.

3. Malavasayam (Excretory organ for solid waste) -Large Intestine, especially rectum, the place where the expulsion of undigested food parts and flatus takes place.


5. Sukkilavasyam (Genital organs.) –Site of production and development of spermatazoa and ovum.

10. KOSAM – 5 (FIVE STATUS OF THE HUMAN BODY OR SHEATH)

1. Annamaya Kosam -Gastro intestinal system

2. Pranamaya Kosam - Respiratory system

3. Manomaya Kosam - Mental System
4. **Vignanamaya Kosam** - Nervous system and higher intellect

5. **Aananthamaya Kosam** - Reproductive system

11. **AATHARAM – 6 (STATIONS OF SOUL)** "அஞ்சல் ராம் அ ஐ ஐம் பூ”

1. **Moolatharam**

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

2. **Swathitanam**

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

3. **Manipooragam**

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

4. **Anakatham**

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

5. **Visuthi**

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

6. **Aakinai**

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

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

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

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

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

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

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

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

14. THODAM- 3 (THREE HUMOURS)

1. Vali (Vatham) - It is the creative force formed by combination of Vaayu and Aakaya bootham

2. Azhal (Pitham) - It is the protective force. Formed by Thee bootham

3. Iyam (Kabam) - It is the destructive force. Formed by Mann and Neer Bootham

15. EADANAI -3 (PHYSICAL BINDINGS)

1. Porul Patru - Materialistic affinity

2. Puthalvar Patru - Sibbling / Familial bonding

3. Ulaga Patru - Worldly affections
16. GUNAM – 3 (THREE COSMIC QUALITIES)

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

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

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

17. VINAI – 2 (ACT)

1. **Nalvinai** - Good Acts (Meritorious acts)
2. **Theevinai** - Bad Acts (Sinful acts)

18. RAGAM – 8 (THE EIGHT PASSIONS)

1. **Kaamam** - Lust
2. **Kurotham** - Grudge / Hatred
3. **Ulobam** - Stingy
4. **Moham** - Infatuation
5. **Matham** - Rut (The feeling of high ego towards oneself)
6. **Marcharyam** - Internal Conflict, Envy
7. **Idumbai** - Mockery
8. **Ahankaram** - High Ego

19. AVATHAI – 5 (FIVE STATES OF CONSCIOUSNESS)

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

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

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

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

3. A.3. THE UYIR THATHUKKAL

The physiological units of the Human body are,

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

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

"டான்பீஸ் காற்றுருவகள் பொருளாக்கம் லியு அறிமுகத்தான்
பிரித்து காற்றுருவங்கள் பயிற்சிக்கு விளங்கியது
பார்வை காற்றுருவங்கள் விளக்கத் தமையாக
அப்படி நிறுவனந்த மாற்றங்கள் மேலும்பெற்று
இன்று காற்றுருவங்கள் அளவில் பொருளாக்கத்
மேலும் விளங்கிய மாற்றங்கள் அறிமுகம்"  

-புத்தாண்டை கிறித்து பழு சால்கிறோம்
THE FORMATION OF UYIR THATHUKKAL,

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

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

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

I. Vāli (Vatham)

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

The sites of vāli

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

" vhithya thalai" vaithya thalai

Vaithya Sathakam, Vāli dwells in the following places:

"அரித்தின் மார் வாண்கு வருக்கின்"

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

Properties of Vali

"நுஞ்சிக்குல டாக்கு மாக்களைக் குழந்தை நலம் வந்து வாண்கின் பல விபரிப்படி முயற்சிவின
நெல் முகம் முக்குருது மேல் செறுவை
வாண்கின் வருக்கு மார்"

The following are the natural properties of Vali

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

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

II. Azhal (Pitham)

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

The sites of Azhal

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

The character of Azhal

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

The functions of Azhal

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

1. Aakkanal – Anila Pitham or Prasaka pitham – The fire of digestion.
   It lies between the stomach and the intestine and causes digestion and dries up the moist ingested substance.

2. Vanna eri – Ranjaga pitham – Blood promoting fire
   This fire lies in the stomach and gives red colour to the chyle and produces blood. It improves blood.

3. Aatralanki – Saathaga pitham – The fire of achievement
   It gives energy to do the work.

   It gives colour, complexion and lustre to the skin.

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

III. Iyyam (Kapam)

The nature of Iyyam

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

Sites of Iyyam

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

The natural quality of Iyyam

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

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

Five types of Iyyam

1. Azhal Iyyam - Avalambagam

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

2. Neerpi iyyam - Kilethagam

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

3. Suvai kaan iyyam – pothagam

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

4. Niraivur iyyam – Tharpagam

It gives coolness to the eyes.

5. Ondri iyyam – Santhigam

It gives lubrication to the bones particularly in the joints.

3. A.4. THE UDAL THATHUKKAL

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

SEVEN PHYSICAL CONSTITUENTS OF THE BODY

1. Saaram - This gives mental and physical perseverance.

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

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

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

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

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

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

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

1. **Samaakkini**

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

2. **Vishamaakkini**

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

3. **Deeshaakkini**

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

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

3. A.6. THINAI

There are five thinai (the land)

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

3. A.7. KAALAM

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

Perumpozhudhu:

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

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

A day is divided into six yamams. They are,

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

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

3. A.8.FOURTEEN NATURAL REFLEXES/ URGES

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

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

12. Kaneer (Tears)

13. Sukilam (Semen)

14. Suvasam (Breathing)

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

3.B.1. KUGARANA NILAI IN SIDDHA MEDICINE

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

3. B.2. DISEASE

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

3.B.3. THE CHARACTERISTICS FEATURE OF DISEASE

Diseases are of two kinds:

i. Pertaining to the body

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

1. Causes of Disease

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

"பிரீதியா தம்பூவா கூட்பித்து குரியாங்கு மரியாவ வாணாவதி கழுத்து"

-உதயவாயை

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

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

As per Theraiyar, the cause of disease is vitiated Vatha, Pitha and Kaba, increased appetite, increased thirst, excessive hot, anger, constipation, dysuria polluted water.
2. QUANTITATIVE CHANGES OF UYIR THATHUKKAL

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

These are the changes produced when Udal thathukkal are affected.

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

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

<table>
<thead>
<tr>
<th>KALAM</th>
<th>KUTTRAM</th>
<th>STATE OF KUTTRAM</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>1. Karkaalam</strong> (Rainy season)</td>
<td>Vatham ↑↑</td>
<td>Ectopic escalation</td>
</tr>
<tr>
<td>(Aavani – Puratasi)</td>
<td>Pitham ↑</td>
<td>Insitu escalation</td>
</tr>
<tr>
<td>(Aug 16 – Oct 15)</td>
<td>Kabam (--)</td>
<td>Restitution</td>
</tr>
<tr>
<td><strong>2. Koothir Kaalam</strong> (Postrainy season)</td>
<td>Vatham (--)</td>
<td>Restitution</td>
</tr>
<tr>
<td>(Iypasi – Karthigai)</td>
<td>Pitham ↑↑</td>
<td>Ectopic escalation</td>
</tr>
<tr>
<td>(Oct 16 – Dec 15)</td>
<td>Kabam (--)</td>
<td>Restitution</td>
</tr>
<tr>
<td><strong>3. Munpani Kaalam</strong> (Winter season)</td>
<td>Vatham (--)</td>
<td>Restitution</td>
</tr>
<tr>
<td>(Markazhi – Thai)</td>
<td>Pitham (--)</td>
<td>Restitution</td>
</tr>
<tr>
<td>(Dec 16 – Feb 15)</td>
<td>Kabam (--)</td>
<td>Restitution</td>
</tr>
<tr>
<td><strong>4. Pinpani Kaalam</strong> (Post winter)</td>
<td>Vatham (--)</td>
<td>Restitution</td>
</tr>
<tr>
<td>(Masi – Panguni)</td>
<td>Pitham (--)</td>
<td>Restitution</td>
</tr>
<tr>
<td>(Feb 16 – Apr 15)</td>
<td>Kabam ↑</td>
<td>Insitu escalation</td>
</tr>
<tr>
<td><strong>5. Elavenir Kaalam</strong> (Summer)</td>
<td>Vatham (--)</td>
<td>Restitution</td>
</tr>
<tr>
<td>(Chithirai–Vaikasi)</td>
<td>Pitham (--)</td>
<td>Restitution</td>
</tr>
<tr>
<td>(Apr 16 – Jun 15)</td>
<td>Kabam ↑↑</td>
<td>Ectopic escalation</td>
</tr>
<tr>
<td><strong>6. Mudhuvenir Kaalam</strong> (Post summer)</td>
<td>Vatham ↑</td>
<td>Insitu escalation</td>
</tr>
<tr>
<td>(Aani – Aadi)</td>
<td>Kabam (--)</td>
<td>Restitution</td>
</tr>
<tr>
<td>(Jun 16 – Aug 15)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
5. THINAI

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

6. Alteration in Reflexes (14 VEGANGAL)

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

1. **Vatham (Flatus)**

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

2. **Thummal (Sneezing)**

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

3. **Siruneer (Urine)**

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

4. **Malam (Faeces)**

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

5. **Kottavi (Yawning)**

   If restrained, it leads to indigestion, leucorrhoea, and abdominal disorders.
6. **Pasi (Hunger)**

   If restrained, it leads to the tiredness of all organs, emaciation, syncope, apathetic face and joint pain.

7. **Neer vetkai (Thirst)**

   If restrained, it leads to the affection of all organs and pain may supervene.

8. **Kaasam (Cough)**

   If it is restrained, severe cough, bad breath and heart diseases will be resulted.

9. **Ilaippu (Exhaustiveness)**

   If restrained, it will lead to fainting, urinary disorders and rigor.

10. **Nithirai (Sleep)**

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

11. **Vaanthi (Vomiting)**

    If restrained, it leads to itching and symptoms of increased Pitham.

12. **Kanneer (Tears)**

    If it is restrained, it will lead to Sinusitis, headache, eye diseases and Chest pain.

13. **Sukkilam (Semen)**

    If it is restrained, there will be joint pain, difficulty in urination, fever and chest pain.

14. **Swaasam (Breathing)**

    If it is restrained, there will be cough, abdominal discomfort and Anorexia.
The Diagnostic methodology in Siddha system is unique as it is made purely on the basis of clinical acumen of the physician. The diagnosis is arrived from,

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

**PORIYAL ARIDHAL**

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

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

**PULANAL ARITHAL**

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

1. **Hearing** - Ear
2. **Vision** - Eye
3. **Taste** - Tongue
4. **Sensation** - Skin
5. **Smell** - Nose
VINAADHAL (INTERROGATION)

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

ENVAGAI THERVUGAL

"அகதியர் வாதிய கருத்து அடையாளாகத் பல்லிக்கொள்ள போட்டியில் போட்டியில் புத்தகம் - திருச்சொல் நிலை
காலைக்கல் விளக்கநிலைகளை குறிப்பிட்டு வென்று விளக்கம் ரா
நூற்றாண்டு பது முறையில்”

- அகதியர் வாதிய கிரு஠ானி ஜோமாநார் - 4000

According to Agathiyar Vaithiya Sinthaamani Venba – 4000, the Envagaithervu Includes Naadi (Pulse) Naa (Tongue), Niram (Color), Mozhi (Voice), Vizhi (Eyes), Malam (Faeces), Neer (Urine) and Sparisam (Touch & palpation).

"நைந்து வேதித் தவறு விளக்கமாக
மேம் குறிப்பிட்டு சுருக்கமரபும்"

-சென்றும்.

"அவ்வந்திற்கு விளக்கானி விளக்கத்தில் கான்து"

-சென்றும்.

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

புதியான் கிரு஠ானி ஜோமாநார் சான்றன

"பாஷாஜார் புதியான் கிரு஠ானி ஜோமாநார் பராயான பல்லிக்கொள்ள போட்டியில் போட்டியில் புத்தகம் - திருச்சொல் நிலை
காலைக்கல் விளக்கநிலைகளை குறிப்பிட்டு வென்று விளக்கம் ரா
நூற்றாண்டு பது முறையில்”

-புதியான் கிரு஠ானி ஜோமாநார் சான்றன

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

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

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

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

1. TONGUE EXAMINATION

“From the tongue, we can know the condition of the body. The tongue makes the diagnosis of the disease. - Agathiyar Vaithiya Sinthaamani Venba – 4000

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

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

2. EXAMINATION OF COMPLEXION (வேல் சீர்க் சோர்)

"காக்கிக்காண பாலேசம் கரசிப்பிள்ளிக் கரசி
அலவேசம் கல்லறிவிற்கான தலம் - அறும
காக்கிக்காண பாலேசம் வாழிச்சிகளேழும் கரசி
காக்கிக்காண பாலேசம் பாலேசம் - 4000"
In Vali, Azhal and Iyyam vitiations, the colour of the body will be dark, yellow or red and fair respectively.

3. VOICE EXAMINATION (துனை தொகுதி)

"அச்சங்கள் மருந்தும் மானியம் இந்த இனரின் வழிகாட்டி தந்நாளில் சாத்தியம் - மெல்லியினால் பிள்ளின் கிளையுருக்கு பாவமான என்று கூறியுள்ள கதை.

-அக்கிரம் கால்கிரம் கிளையார் நூற்றாண்டு - 4000

"மருந்தும் கால்கிரம் கிளையார் வழிகாட்டியது பாவமானம் தந்நாளில்

- பெருமாளும் பிள்ளியுருக்கு வழிகாட்டியது

- மற்றும் பெருமாளும் பிள்ளியுருக்கு வழிகாட்டியது

- பெருமாளும் வழிகாட்டியது

- பெருமாளும் வழிகாட்டியது

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

4. THE EYE EXAMINATION (கண்ட வருத்தை)

"கண்டவிதை வளர்ச்சியின் காரணம் முன்னெச்சரிக்கையின்
காலப்பட்டு பிரம்பிய வளாய்ப்பு - கண்டவிதை
சால், விளையாட்டுச் சிகிச்சையும் பிள்ளையாரின்
திண்டத்தை போக்கும் பக்தத்து"  
-அத்தியார் கண்டவிதை சிகிச்சை விளையாட்டு - 4000

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

" விதையார் கண்டவிதையின் பக்தத்தை பாண்டு
2-பக்தத்து குடும்பங்கள் இன்னும் காலத்து
ஆணாகதும் பிள்ளையாரின் பிள்ளையாரின் காலத்து
சால், விளையாட்டு பிள்ளையார் காலத்து"
In Vali disease, the tears is darkened, in Azhal disease they are yellow, in Iyya disease they are whitish in colour and in Thontha disease the tears are multicoloured. In Vali disease there will be excessive tears (epiphora). In disturbance of all the three humours, eyes would be inflamed and reddish.

5. **FAECES EXAMINATION** (அகரம்)

"அகரம் பற்றியவற்றைக் காண்பது
அகரம் வல்விகளைக் காண்பது - வல்வி விளக்கத் தொடர்பு
அகரம் பற்றியவற்றை விளக்கத் தொடர்பு
பற்றிய காரணிகளே."

- அகரம் வல்விகளை விளக்கத்தொடர்பு - 4000

As per Agathiyar Vaithiya Sinthaamani Venba – 4000, in vitiated Vali, the stool is hard and black. In vitiated Azhal, it is hot and red. In vitiated Iyyam it is cool and watery.

"அகரம் வல்வியதை விளக்கத்தொடர்பு
அகரம் வல்வியதை விளக்கத்தொடர்பு
அகரம் வல்விகளை விளக்கத்தொடர்பு
அகரம் விளக்கத்தொடர்பு வல்விய விளக்கத் தொடர்பு
In excacerbated Vali, faeces is hard, dry and black in colour. In Azhal vitiation, it is yellow. In Iyyam, disturbance it is pale.

6. URINE EXAMINATION (Neer Kuri)

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

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

“வாசிக்கம் பாடுபிற்று மருத்துவக்கோட்டு
வாசிக்கம் பாடுபிற்று மருத்துவக் - வாசிக்க
தூய்து மாதிரி ஒன்றாகும்றால் வழக்குகள்
புதிய தாழ்வு பட்டா.”

- சிறிக்காராத்தா தீபம்

As per Sikicharathna Theepam,

COLOUR OF URINE - PROGNOSIS

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

NEIKKURI (நைக்கூரி)

“அய்வை பெறுவாம் அதிசயதாம்
அவ்வாம் அவ்வாம் அவ்வாம் மணிபொதுதாம்
குருவா பழந்து வணிகம் கலந்து
அடைவாது காளியும் காடிபாம்
சேரும் காணும் கூறுமால்பறும் நீதியா
நிக்கூரி வெளிக்கான வியங்கள் காவிகள்”

“அறையா காதல் பெருந்தைமை
அவ்வாம் பருவாக அவ்வாம் போட்டே
பழந்து நைக்கூரி வெளிக்கான காவிகள்”

-அக்கியா காக்கிய ரூபியா சாம்காம்
The spreading pattern of oil drop is the indicative of Vali, Azhal and Iyyam diseases e.g

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

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

"இன்று எதிர் சூழ்வு முன்னிலிங்கம் மிகுந்த பாதகத்தில் வாழக்காய் அவ்வகாய் சீட்டு மற்றும் காலக்கூட்டு சாலையில் நிலையில் பார்ப்பிடிப்பு பின்னால் விளையாடும் நிறந்து காலம்.

நோயின் காதல் காந்தை கண்டெடுள்ள காலம் மிகுந்த பாதகத்தில் வாழக்காய் அவ்வகாய் சீட்டு மற்றும் காலக்கூட்டு சாலையில் நிலையில் பார்ப்பிடிப்பு பின்னால் விளையாடும் நிறந்து காலம்.

நோயின் காதல் காந்தை கண்டெடுள்ள காலம் மிகுந்த பாதகத்தில் வாழக்காய் அவ்வகாய் சீட்டு மற்றும் காலக்கூட்டு சாலையில் நிலையில் பார்ப்பிடிப்பு பின்னால் விளையாடும் நிறந்து காலம்.

- தொகுப்பு மின்னியோ - தொகுப்பு மின்னியோ

**SPREADING PATTERN OF OIL** - **INTERVENTION**

- Lengthening - Vali
- Splits - Azhal
- Sieve - Iyyam
- Stands as a drop - Poor prognosis
- Slowly spreads - Good prognosis
- Drop immerses into the urine - Incurable disease
In Vali disease, some regions of the body felt chill and in some areas they are hot. In Azhal disease, we can feel heat. In Iyya disease, chillness can be felt. In Thontham diseases, we can feel altered sensations.

8. NAADI (நாடி)

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

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

Naadi is felt by,

Vali - Tip of index finger
Azhal - Tip of middle finger
Iyyam - Tip of ring finger
The pulse is measured in wheat/grain expansile heights. The normal unit of pulse diagnosis is 1 for Vali (Vatham), ½ for Azhal (Pitham) and ¼ for Iyyam (Kapham).

**THE PULSE PLAY**

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

“பறவைக் கேட்டல் விளக்கம் வெளியாகும் கத்திக் காட்டல்
சுற்றி விளக்கம் வெளியாகும் பிற்குத்தை கத்திக் காட்டல்
மீனை துளைக் காட்டல் வெளியாகும் கோபுரோச்சைக் காட்டல்”

-நெருங்கிய காட்டல் தெருக் பாடல்

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

“பறவைக் கேட்டல் விளக்கம் வெளியாகும் கத்திக் காட்டல்
சுற்றி விளக்கம் வெளியாகும் பிற்குத்தை கத்திக் காட்டல்

-அகதந்தி காட்டிக் பிரிக்காலி தையொட்டம் - 4000

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

9. MANIKADAI NOOL (Wrist circumetric sign)

**Agathiya soodamanikayaru ..**

“அகதந்தி பிரிக்காலி தையொட்டம் காட்டிக் பிரிக்காலி
மீனை துளைக் காட்டல் வெளியாகும்
மீனை துளைக் காட்டல் வெளியாகும் காட்டல்
அகதந்தி காட்டிக் பிரிக்காலி தையொட்டம்

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

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

**MANIKKADAI -INFERENACE NOOL**

<table>
<thead>
<tr>
<th>Measurement</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>10 fbs</td>
<td>Pricking pain in chest and limbs, gastritis and ulcer result.</td>
</tr>
<tr>
<td>9 ¾ fbs</td>
<td>Fissure, dryness and cough will be resulted.</td>
</tr>
<tr>
<td>9 ½ fbs</td>
<td>Odema, increased body heat, burning sensation of eye, fever, Mega noi and anorexia.</td>
</tr>
<tr>
<td>9 ¼ fbs</td>
<td>Dysuria, insomnia, sinusitis and burning sensation of eye.</td>
</tr>
<tr>
<td>9 fbs</td>
<td>Impaired hearing, pain around waist, thigh pain, unable to walk.</td>
</tr>
<tr>
<td>8 ¾ fbs</td>
<td>Increased body heat, skin disease due to toxins, abdominal discomfort, cataract, sinusitis.</td>
</tr>
<tr>
<td>8 ½ fbs</td>
<td>Leucorrhoea, venereal disorder and Infertility will occur.</td>
</tr>
<tr>
<td>8 ¼ fbs</td>
<td>Stout and painful body. Headache. Sinusitis and toxins induced cough.</td>
</tr>
<tr>
<td>8 fbs</td>
<td>Abdominal discomfort, gastritis, anorexia and venereal diseases.</td>
</tr>
<tr>
<td>7 ¾ fbs</td>
<td>Piles, burning sensation of limbs, headache, numbness occur. Within 2 years cervical adenitis and epistaxis results.</td>
</tr>
<tr>
<td>7 ½ fbs</td>
<td>Osteoporosis, abdominal discomfort, burning sensation of eyes, increased body temperature. Within 6 days all the joints of the limbs presents a swelling.</td>
</tr>
<tr>
<td>7 ¼ fbs</td>
<td>Lumbar pain, increased pitha in head, anemia, eye pain, edema and somnolence</td>
</tr>
<tr>
<td>fbs</td>
<td>Symptom Description</td>
</tr>
<tr>
<td>-----</td>
<td>---------------------</td>
</tr>
<tr>
<td>7</td>
<td>Pitham ascends to head, haematemesis, phlegm, burning sensation of limbs and constipation.</td>
</tr>
<tr>
<td>6 ¾</td>
<td>Eye ache, dizziness, testis disorder. Within 3 years it causes anuria, pain and burning sensation over limbs, facial sweating results.</td>
</tr>
<tr>
<td>6 ½</td>
<td>Thirst, anorexia, increased body heat and vatham results.</td>
</tr>
<tr>
<td>6 ¼</td>
<td>Diarrhea, belching, vomiting and mucous dysentery</td>
</tr>
<tr>
<td>6</td>
<td>Reduced weight, phlegm in chest. It results in death within 20 days.</td>
</tr>
<tr>
<td>5 ¾</td>
<td>Delirium, dizziness, loss of consciousness. It results in death even if the patient takes gruel diet</td>
</tr>
<tr>
<td>5 ½</td>
<td>Severity of illness is increased. Toxins spread to the head. Tooth darkens. Patient will die in 10 days.</td>
</tr>
<tr>
<td>5 ¼</td>
<td>Patient seems to be sleepy and death results on the next day.</td>
</tr>
<tr>
<td>5</td>
<td>Pallor and dryness of the body. Kabam engorges the throat and the person will die.</td>
</tr>
<tr>
<td>4 ¾</td>
<td>Dryness of tongue and tremor present. Patient will die in 7 days.</td>
</tr>
<tr>
<td>4 ½</td>
<td>Shrunken eyes, odema will present and death results in 9 days.</td>
</tr>
<tr>
<td>4 ¼</td>
<td>Tremor, weakness of limbs and darkening of face occurs. Finally death results in two days.</td>
</tr>
<tr>
<td>4</td>
<td>Pedal odema will be present. Patient will die in 5 days.</td>
</tr>
</tbody>
</table>

10. THE ASTROLOGY

**Macrocosm and Microcosm**

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

"அன்புடையர்கள் பிறந்து
பிறந்துளையர்கள் அன்பு
அன்புடைய பிறந்து ந்தாரிள்
அருணா கால் பார்த்தே ருடிக்"

- சான்னி

**Astral influences:**

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

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

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

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

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

2. According to literature Thiruvalluvar periya sunthara sekaram.

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

11. The Impact of the Planets on the Human Organs

According to the literature Siddha Maruthuvanga Surukkam

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

1. Sani (Saturn)

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

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

3. **Sevvaai (Mars)**

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

4. **Sukkiran (Venus)**

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

5. **Pudhan (Mercury)**

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

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

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

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

4.1 ACCORDING TO AGATHIYAR VAITHIYA KAANDAM,

காக்கை வலிய

அக்கோயம் காட்சியாக விளக்காமல்

அக்கோயம் காட்சியாக விளக்காமல்

பிரிவு பாதுகாப்பு காட்சியாக

பிரிவு பாதுகாப்பு காட்சியாக

நற்சொல் காரணத்தால் மாற்கம்

நற்சொல் காரணத்தால் மாற்கம்

சிற்பாமை பிரிவின் சீகோவிலம்

சிற்பாமை பிரிவின் சீகோவிலம்

கொண்டாட்ட மராடிகோவாம்

கொண்டாட்ட மராடிகோவாம்

(அக்கோயம் காட்சியாக காந்தம் 600)

பால்லு எண் –02

முன்னோரால்:

❖ காலக்கார் எம் எராகக் கூறிய வலாசக் பிள்ளை

❖ சிற்பாமை பாதுகாப்பு அகிலம் பிள்ளை

❖ காலக்கார் எம் எராகக் பிள்ளையான சிற்பாமை கூறிய கரண்டோல்

❖ காட்சியாக முன்னோர் கூறியது

❖ சுமார் பிரிவின் சீகோவிலம் கூறி கூறிய கரண்டோல்

❖ சிற்பாமை பிள்ளையான கரண்டோல்

❖ கரண்டோல் பிரிவின் சீகோவிலம்
## 4.2 According to T.V.S Dictionary,

<table>
<thead>
<tr>
<th>S.N O</th>
<th>Words From Poem</th>
<th>Tamil Meaning</th>
<th>English Meaning</th>
<th>Lexicon</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>மூன்று</td>
<td>கொண்டுபடும் கலையாடை</td>
<td>Convulsions, Fits, Contraction of limbs</td>
<td>Pg.No1015-vol 5</td>
</tr>
<tr>
<td>2</td>
<td>அரிதம்</td>
<td>கிளக்கின்றது, அரிதம்</td>
<td>Expanding</td>
<td>Pg.No.447-vol 1</td>
</tr>
<tr>
<td>3</td>
<td>கண்டு</td>
<td>கிளக்கின்றது, வடிவமைக்கும்</td>
<td>Eye</td>
<td>Pg.No.1014-vol 2</td>
</tr>
<tr>
<td>4</td>
<td>மூன்று</td>
<td>அறுப்பு மலர்கள் கலரும் கலையாடை</td>
<td>Excretions of the body</td>
<td>Pg.No.734-vol 5</td>
</tr>
<tr>
<td>5</td>
<td>தனு</td>
<td>நரிமை</td>
<td>Urine</td>
<td>Pg.No.1939-vol 3</td>
</tr>
<tr>
<td>6</td>
<td>கரு</td>
<td>பருள், அதையற்றம்</td>
<td>Leg, Lower limb</td>
<td>Pg.No.1014-vol 2</td>
</tr>
<tr>
<td>7</td>
<td>என்</td>
<td>என்</td>
<td>Hand</td>
<td>Pg.No.1036-vol 2</td>
</tr>
<tr>
<td>8</td>
<td>நீர்த்துண்டு</td>
<td>நீர்த்துண்டு</td>
<td>Throat</td>
<td>Pg.No.1416-vol 2</td>
</tr>
<tr>
<td>9</td>
<td>நீர்த்துண்டு,புட்டு</td>
<td>நீர்த்துண்டு</td>
<td>Expectorant, Sputum</td>
<td>Pg.No.2197-vol 3</td>
</tr>
<tr>
<td>10</td>
<td>சிற்றி</td>
<td>சிற்றி</td>
<td>Phlegm, Mucous</td>
<td>Pg.No.1966-vol 3</td>
</tr>
<tr>
<td>11</td>
<td>கொண்டாட்டி</td>
<td>Apoplexy includes Delirium and tetanus and is best defined by early motion resulting from the affection of the nerves through the derangement of the three humours in the system.</td>
<td>Pg.No.1966-vol 3</td>
<td></td>
</tr>
</tbody>
</table>
### 4.3 BREAK UP SYMPTOMATOLOGY

<table>
<thead>
<tr>
<th>Tamil</th>
<th>GRANDMAL EPILEPSY</th>
</tr>
</thead>
<tbody>
<tr>
<td>“அண்டை சிறிக்கும் சென்று விடுவது”</td>
<td>Tonic phase begins with eyelids open, eyes look up.........</td>
</tr>
<tr>
<td>(Ref: Textbook of Medicine, PANDA pg.no.696)</td>
<td></td>
</tr>
<tr>
<td>“பிரிப்பு வலையும் பயிரிடும் படிகும் “</td>
<td>Tonic phase is characterized by Urinary or Faecal incontinence.....</td>
</tr>
<tr>
<td>(Ref: Davidson’s Principles and Practice of Medicine, 19th edition Page.no.1124)</td>
<td></td>
</tr>
<tr>
<td>“கருவனத்தும் சம்பாதனம் “</td>
<td>Clonic phase is associated with contraction of axial then limb muscles</td>
</tr>
<tr>
<td>(Ref: Textbook of Medicine, PANDA pg.no.696)</td>
<td></td>
</tr>
<tr>
<td>“சிறுத்தும் பிற்புத்து சுற்றிலும்”</td>
<td>Clonic phase is characterized by Sweating, Excessive salivation etc…</td>
</tr>
<tr>
<td>(Ref: Textbook of Medicine, Krishnadas Pg.No.354)</td>
<td></td>
</tr>
<tr>
<td>“மாண் பிரிக்காமல் சென்று கண்களே பிழாவும்”</td>
<td>In Postictal phase the patient gradually regains consciousness but is in a confused and disoriented state ......</td>
</tr>
<tr>
<td>(Ref: Davidson’s Principles and Practice of Medicine, 19th edition Page.no.1124)</td>
<td></td>
</tr>
</tbody>
</table>
### 4.4 Analogy of Agathiyar’s Lines & Quotings from Modern Texts

<table>
<thead>
<tr>
<th>Agathiyar’s Phrases</th>
<th>(About Kakkai Vali)</th>
</tr>
</thead>
<tbody>
<tr>
<td>&quot;அன்றைக் காக்கைம் வல் கோள்கை&quot;</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Quotings from Modern Text</th>
<th>(About Grandmal Epilepsy)</th>
</tr>
</thead>
<tbody>
<tr>
<td>- Tonic phase usually begins with sudden tonic contraction of axial musculature, accompanied by upward eye deviation and pupillary dilatation.</td>
<td>Neurology in Clinical Practice 5th edition, Volume-2 Page.no.1918</td>
</tr>
<tr>
<td>- Tonic phase begins with eyelids open, eyes look up………</td>
<td>Ref: Textbook of Medicine, PANDA pg.no.696</td>
</tr>
</tbody>
</table>
### AGATHIYAR’S PHRASES
(ABOUT KAAKKAI VALI)

“பிறிப் மாற்றுக் காண்கும் பொய்விக்”

### QUOTINGS FROM MODERN TEXT
(ABOUT GRANDMAL EPILEPSY)

- **Bladder or bowel incontinence may occur...**
  
  *Harrison’s Internal medicine, 16th edition, Page.No.2359*

- **There may be incontinence of urine and faeces.**
  
  *Kumar & Clark Clinical medicine, 5th edition Page.No.1174*

- **Tonic phase is characterized by Urinary or Faecal incontinence....**
  
  *Davidson’s Principles and Practice of Medicine, 19th edition Page.no.1124*

- **Urinary or faecal incontinence or both may occur at this stage.**
  

- **Urinary incontinence is common, faecal incontinence is rare.**
  
  *Cecil textbook of Medicine, 22nd edition Page.No.2260*
### AGATHIYAR’S PHRASES  
(ABOUT KAAKKAI VALI)

“காக்கைவறை சான்கள்”

### QUOTINGS FROM MODERN TEXT  
(ABOUT GRANDMAL EPILEPSY)

- The initial phase of seizure is usually tonic contraction of muscles throughout the body.
  
  *Harrison’s Internal medicine, 16\(^{th}\) edition, Page.No.2359*

- The tonic phase is associated with contraction of axial then limb muscles
  

- Tonic clonic seizures are characterized by abrupt loss of consciousness with bilateral tonic extension of the trunk and limbs.
  
  *Cecil textbook of Medicine, 22\(^{nd}\) edition Page.No.2260*

- Tonic phase usually begins with sudden tonic contraction of axial musculature, accompanied by upward eye deviation and papillary dilatation.
  
  *Neurology in Clinical Practice 5\(^{th}\) edition, Voulme-2 Page.no.1918*

- Clonic phase is associated with contraction of axial then limb muscles
  
  *Textbook of Medicine , PANDA pg.no.696*
### AGATHIYAR’S PHRASES
(ABOUT KAAKKAI VALI)

"நூர்களக்கோட் கற்பெற்றியது"  

### QUOTINGS FROM MODERN TEXT
(ABOUT GRANDMAL EPILEPSY)

- Dryness of the tongue and throat is caused due to Drooling i.e Excessive salivation  
  
  www.rightdiagnosis.com

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### AGATHIYAR’S PHRASES
(ABOUT KAAKKAI VALI)

“சிக்களம் பிற்கோட்டு கொண்டியும்”  

### QUOTINGS FROM MODERN TEXT
(ABOUT GRANDMAL EPILEPSY)

- Clonic phase is characterized by Sweating, Excessive salivation etc…  
  
  Textbook of Medicine, Krishnadas Page.No.354

- Postictal phase is characterized by excessive salivation that can cause stridorous breathing and partial airway obstruction, unresponsiveness, muscular flaccidity.  
  
  Harrison’s Internal medicine, 16th edition, Page.No.2359
AGATHIYAR’S PHRASES
(ABOUT KAAKKAI VALI)

“வார் பிரிக்கவைய கூடாமல் வந்தோம் பிட்டாதோல்”

QUOTINGS FROM MODERN TEXT
(ABOUT GRANDMAL EPILEPSY)

❖ In Postictal phase the patient gradually regains consciousness but is in a confused and disoriented state ……

    Davidson’s Principles and Practice of Medicine, 19th edition
    Page.no.1124

❖ In Postictal phase, the patient then goes rigid and becomes unconscious.

    Davidson’s Principles and Practice of Medicine, 19th edition
    Page.no.1124

❖ Seizures are usually self limiting followed by confusion or coma, drowsiness for several hours.

    Kumar & Clark Clinical medicine, 5th edition Page.No.1174

❖ If the patient wakes initial confusion and disorientation is the norm.


❖ The Postictal phase is marked by transient deep stupor followed in 15 to 30 minutes by lethargic confused state with automatic behaviour.

    Cecil textbook of Medicine, 22nd edition Page.No.2260

❖ In the final period, the person generally is unresponsive.

    Neurology in Clinical Practice 5th edition, Volume-2 Page.no.1918
In these Lines, Sage Agathiyar explains about the tonic phase which begins with eyelids open and there will be deviation of the eye and there will be incontinence of urine and faeces.

Convulsion was due to imbalance between the excitatory neurotransmitter (Acetyl choline) and inhibitory neurotransmitter (Gamma Amino Butyric Acid) which leads to abnormal electrical discharge between neurons.

Failure of the anal sphincter to prevent involuntary expulsion of gas, liquid or solids from the lower bowel. Inability of a usually continent person to reach the toilet in time to avoid unintentional loss of urine.
In these Lines, Sage Agathiyar explains about Clonic phase of Tonic clonic seizures. There will be contraction of axial muscles then limb muscles, Dryness of the tongue, throat and Excessive salivation. This was due to clear the tracheobronchial secretion and is produced by rise in intra-bronchial or intra tracheal pressure against closed glottis.

It is also produced by stimulation of the sensory nerves of the mucosa of the pharynx, larynx, trachea and bronchi by inflammatory, mechanical, chemical and thermal stimuli.
In these Lines, Sage Agathiyar explains about Postictal phase of Tonic clonic seizures. In this state, the patient will be in disoriented state for some minutes after the seizures attack and then the patient regains consciousness. Loss of consciousness may occur as the result of brain hypoxia that depress the activity of the central nervous system. Normally, Reticular Activating System (RAS) in the brainstem contracts our ability to be awake, to sleep and to pay attention. Any injury to the brain, oxygen deprivation of the brain, certain drugs and electrolyte changes can affect these centres and leads to unconsciousness.

On analysing the whole poem, Sage Agathiyar has explained clearly about the Stages and symptoms of Tonic clonic Seizures i.e. Grandmal Epilepsy.
REVIEW OF LITERATURE – KAAKKAI VALI

5.1 KAAKKAI VALI
It is one of the types of Valipu noi.

5.1.A.According to Pothu Maruthuvam,

According to Balavagadam,

5.1B.AETIOLOGY OF VALI NOI

5.2.A According to Pothu Maruthuvam,
5.2.B. According to Sirappu Maruthuvam,
- கூற்று
- அவர் விளக்கவும் செய்த
- புகழ்
- அவர் கூற்று
- அவர் விளக்கவும் செய்த
- கூறு விளக்க
- கூறு விளக்க
- அவர் விளக்கவும் செய்த
- கூறானது கூறுவழுத்தான் என்றால்
- கூறு விளக்க

5.2.C. According to Balavagadam,
"தாளவை பாதுகை செய்து செய்த
தெரிவியும் செய்து அவர்
சுருக்கிய மாறுபட்டு செய்து செய்த
அபுருவான பாதுகை செய்து செய்த
என்று செய்து செய்து
கூறானது கூறுவழுத்தான் என்றால்
சுருக்கிய மாறுபட்டு செய்து செய்து
சுருக்கிய மாறுபட்டு செய்து செய்து
5.2.D. According to Uyir Kaakum Siddha Maruthuvam,

“அருத்திக் பாத்திரம் கைமாக்கிய பாதியா மழிகு பெருவி களன்
குருநிக மனிதீ உள்கனவகித்டா நீரா பிள்ளாக பெருவிய்
குருநிக மூலன் கைமாக்கிய கற்கு பெருவில்
பதிகள் செங்கு பாதிக்கு பாதியா மூளை பாதிக்கான்.”

Excessive intake of foods leads to indigestion (Mandham) that results in

❖ Convulsion
❖ Unconsciousness
❖ Bitting of teeth
❖ Unable to take food and water.

5.2.E. According to Kooshaya Anuboga Vaithiya Brahma Rayasiyam (II part),

Excessive intake of foods that produces indigestion (Mandham) and causes.

❖ Convulsion
❖ Unconsciousness
❖ Bitting of teeth and
❖ Unable to take food and water
5.2.F. According to Aathma Ratchaamirtham – Vaithiya Saara saagiram,
Excessive intake of foods that leads to indigestion (Mandham) and produces.

- Convulsion
- Unconsciousness
- Biting of teeth and
- Unable to take food and water

5.2.G. According to Roga Nirmaya Saaram,

- Heaviness
- Weakness of born
- Passage or supply of deoxygenated blood to the brain and
- Infections

5.2.H. According to Baala Vaagadam – Pillai Pini Maruthuvam,
Accumulation of excessive Iyam especially in chest and respiratory passage that produces fits.

5.3. INTRODUCTION TO VATHAM (VALI)

According to T.V. Sambasivam Pillai, the Vali is defined as the one of the three humors (life forces), occupying the region below the navel. It is responsible for all movements in the body. It spreads throughout the body and causes respiration, hunger, thirst etc. It is the energy or power that prevails all over the body keeping the various tissues in good condition.

Vali is soft, fine and the temperature (coolness and hotness) could be felt by touch. It is one of the uyir thathu. It is aatharam for three humours.

"அழும்பவ வலிப்பிழைக்கவ அதிகரம் மந்தமதம்
சுமூப்வ வலிப்பிழைக்கவ தொழில்மை உண்டுமாறு இந்திய மைசை.
- அகிரியார் காற்றிய கரியார் 1500

5.3.A. THE SITES OF VALI

“அழும்பிழைப் பரங்கவ குழுவப் வழிகோடு ஆதிரம்பறிக்கையான
அழும்பிழைப் பிள்ளா காலம் கோரையில் தொழில்மை உண்டுமாறு
அழும்பிழைப் பரங்கவ குழுவப் பறிகையும் வாழ்க்கையும்
பறிகையும் வாழ்க்கையும் பறிகையும் வாழ்க்கையும் பறிகையும்
- அகிரியார் காற்றிய கரியார்.
According to Agasthiyar Vaithiya Kaviyam, the Vali exists all over the body. umbilicus and navel region.

5.3.B.CHARACTERS OF VALI

<table>
<thead>
<tr>
<th>S No</th>
<th>Own characters</th>
<th>Opposite character</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Kadinam - Rough</td>
<td>Mirudhu - Soft</td>
</tr>
<tr>
<td>2.</td>
<td>Varatchi - Dry</td>
<td>Pasumai - Unctuous</td>
</tr>
<tr>
<td>3.</td>
<td>Elasu - Light</td>
<td>Baluvu - Heavy</td>
</tr>
<tr>
<td>4.</td>
<td>Kulirchi - Cold</td>
<td>Akhini - Hot</td>
</tr>
<tr>
<td>5.</td>
<td>Asidhal - Unstable</td>
<td>Sthiram - Stable</td>
</tr>
<tr>
<td>6.</td>
<td>Anuththuvam - Stable</td>
<td>Katti - Solid</td>
</tr>
</tbody>
</table>

5.3.C.CAUSES FOR VALI DISEASES

"நார்தீரா வணிகா போட்டியில் மாடு
மீத்தீடு மாற்றகளிடம் கியூ வாய்
பிள்ளையார் போட்டியிலிடம் கியூ வாய்
பலிவுப்புக்கான் பிள்ளையார் கியூ விளக்கம்
மாடுறது மீத்தீடு விளக்கம்
மகரி குத்தம் மெல்லும் விளக்கம்
சாரங்கட்டு மீத்தீடு விளக்கம்
சாரங்கட்டு குத்தம் மெல்லும் விளக்கம்
"நார்தீரா கவிஞரா துறையில் கவிஞரா
சாரங்கட்டு மீத்தீடு விளக்கம்
சாரங்கட்டு குத்தம் மெல்லும் விளக்கம்
சாரங்கட்டு கவிஞரா துறையில் கவிஞரா
சாரங்கட்டு மீத்தீடு விளக்கம்
சாரங்கட்டு குத்தம் மெல்லும் விளக்கம்"
According to Yugi Vaithiya Sinthamani those who are squandering money, insulting the elders, forgetting the parents, criticizing the holy books, not respecting the divine gifts, having wickedness in their mind and those with day slumber and staying back at night times will get Vali diseases.

Increased intake of bitter, astringent, hot tastes, increased Intake of water, increased starvation, and increased sexual desire will produce Vali diseases.

5.3.D. Å¡¾ §¿¡öì¸¡É þÂøÒ
(CLINICAL FEATURES OF VITIATED VATHA HUMOUR)

According to Agathiyar sikicha rathna deepam, any derangement in vali will Produce delirium and emaciation.

"According to Agathiyar sikicha rathna deepam, any derangement in vali will Produce delirium and emaciation."
According to Theraiyar Vagadam, deranged vali produces loss of Appetite, fever, cough, insomnia, shivering of the body, nervine disorders, and pain in all the Joints.

5.3.E.FUNCTIONS OF DERANGED VALI:
(Altered functions of vali)

“ஏர்கல்தொலை வழியால் வளர்ந்து விட்டல்
ஏர்கல் நிலை வளர்ந்து விட்டல்நிலை வாக்கு
செய்து முதல் விளைப்பட்டே விட்டல்நிலை
செய்து முதல் விளைப்பட்டே விட்டல்நிலை.

According to Pararasa Sekaram the deranged Vali will produce cough, delirium, diarrhoea and abdominal distension.

"ஏர்கல்தொலை வழியால் வளர்ந்து விட்டல்
ஏர்கல் நிலை வளர்ந்து விட்டல்நிலை
செய்து முதல் விளைப்பட்டே விட்டல்நிலை
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ஏர்கல் நிலை வளர்ந்து விட்டல்
ஏர்கல் நிலை வளர்ந்து விட்டல்
செய்து முதல் விளைப்பட்டே
செய்து முதல் விளைப்பட்டே
செய்து முதல்

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

According to **Theraiyar karisal**, the deranged Vali produces blackish discolouration of body, feverishness, increased sweating, indigestion, dyspnoea.

Even though the vali is a single functional unit; it has got ten different forms and actions. The main vayus are

1. Praanan (Respiratory function)
2. Abaan (excretory functions)
3. Vyaanan (Perfusion of oxygen & nutrients)
4. Udhaanan (Reverse peristalsis)
5. Samaanan (Homeostatic functions)
6. Naagan (Higher intellectual functions)
7. Koorman (Constrictory functions)
8. Kirukaran (Secretory functions)
9. Devadhatthan (Mental & physical sluggishness)
10. Dhananjayan (Bloater of the body).

1. **UYIR KAAL – PRAANAN (RESPIRATORY FUNCTIONS)**

"பிறக்கும் விகிதப்படி கிழக்கு வாயு

பிறக்கும் விகிதப்படி கிழக்கு வாயு

2. பிறக்கும் விகிதப்படி கிழக்கு வாயு

3. பிறக்கும் விகிதப்படி கிழக்கு வாயு

4. பிறக்கும் விகிதப்படி கிழக்கு வாயு

5. பிறக்கும் விகிதப்படி கிழக்கு வாயு

6. பிறக்கும் விகிதப்படி கிழக்கு வாயு

7. பிறக்கும் விகிதப்படி கிழக்கு வாயு

8. பிறக்கும் விகிதப்படி கிழக்கு வாயு

9. பிறக்கும் விகிதப்படி கிழக்கு வாயு

10. பிறக்கும் விகிதப்படி கிழக்கு வாயு"

- புரீ காலக்குடும்ப கிருட்பமாளி.
This is the first of the ten vital Vathams. According to yugi Muni, Praanan starts from Moolatharam and comes through the nostril and does inspiration and expiration. The inspiration and expiration is not uniform as the ratio is 8:12, there by the process of respiration is not complete. The pranan helps in the digestion of ingested food.

This is blue in colour and the Moon is its deity. For one nazhigai i.e. 24 minutes, there will be 360 inspirations. So there will be 21,600 breathings altogether in a day. Out of this, 14,400 inspirations is utilized by the body and the rest will go waste.

2. KEEL NOKKU KAAL – ABAANAN (EXCRETORY FUNCTIONS):

“Abaanan, the downward Air, starts from Swathittanam and descends down and is responsible for excretion of urine and feces. This is green in colour. It contracts the anus. It helps to take the essence of the digested food to different parts of the body, which requires food. The God attributed is Varadarajan.

3. PARAVU KAAL–VYAANAN (PERFUSION OF OXYGEN & NUTRIENTS):

"Abaanan, the downward Air, starts from Swathittanam and descends down and is responsible for excretion of urine and feces. This is green in colour. It contracts the anus. It helps to take the essence of the digested food to different parts of the body, which requires food. The God attributed is Varadarajan."
Viyanan arises from the skin and goes through all the 72,000 nerves and thus activates voluntary and involuntary movements of the body and thus make them to extend or flex. This appreciates the sense of touch; helps to take essence of the food to the strategic points of the body and guards the body. The colour of Vyanan is milky white, and the Deity is Eman.

4. MAEL NOKKU KAAL – UDHAANAN (REVERSE PERISTALSIS):

Udhanan starts from the umbilical region (Udarakkini) and takes the essence of food and stagnate it at appropriate places. It helps in digestion and assimilation of food. The colour of Udhanan is that of lighting, and the Deity is the God of fire.

5. NADU KAAL – SAMAANAN (HOMEOSTATIC FUNCTIONS):

"The nervous system maintains homeostasis. The nervous system is connected to the digestive system, the respiratory system, the circulatory system, the endocrine system, and the immune system. The nervous system plays a crucial role in controlling these systems."

- Puja Kamatchi Sivarasu
Samaanan starts from the umbilical cord, spread out up to the lower limb. This is responsible for the balance of the other four Vatham. It equalizes the six tastes, water, food etc., and helps in assimilation. Samanan is topaz coloured and the God is the Sun.

6. NAAGAN (HIGHER INTELLECTUAL FUNCTIONS):

"நாகன் நாகன் நாகன் நாகன் நாகன்
நாகன் நாகன் நாகன் நாகன் நாகன்
நாகன் நாகன் நாகன் நாகன் நாகன்"

Naagan is responsible for higher intellectual functions, hearing, thinking etc., It causes closing and opening of the eye lids. The color is Gold and Deity is Ananthan.

7. KOORMAN (CONSTRICTORY AND VISUAL ASSOCIATION FUNCTIONS).

"கூர்மன் கூர்மன் கூர்மன் கூர்மன் கூர்மன்
கூர்மன் கூர்மன் கூர்மன் கூர்மன் கூர்மன்"

Koorman starts from the mind and causes blinking of the eyelids, yawning and closure of mouth. It gives strength and helps to visualize things and causes lacrimal secretion. The God is Vishnu and its color is white (pale).
Kirukaran lies in the tongue and causes nasal and salivary secretions. It induces hunger; it makes to concentrate on one thing. Sneezing and cough are attributed to kirukaran. It is black in colour. The God is Siva.

9. DEVADATHTHAN (PHYSICAL & MENTAL SLUGGISHNESS):

Laziness is attributed to Devadaththan. Ocular movements and human passions are attributed to this Vatha. It stays either at the anus or at urinary orifice. The colour is that of a crystal and the God is Devandran.

10. DHANANJAYAN (BLOATER OF THE BODY):

"Kumhibhbu kudattumath kathavrakam dhava
Saranam saranam kuthirinathu kuthi
Kudattumathu pumalukadhuvathu pumalukadhi
Kuthirinathu kudattumath kuthirinathu pumalukadhi".

- புயி காதியிய கிருகரணி.
Dhananjayan functions on the nose and it is responsible for the smell and bloating of the body after death. The god is Dhanwantri and the color is blue.

5.4.CLINICAL FEATURES OF KAAKAI VALI

5.4.A. According to Uyir kaakum siddha maruthuvam,

5.4.B. According to T.V. Sambasivam Pillai,
It is also known as Grandmal. It is a disease of the nervous system characterized by following symptoms namely uttering a strangled scream, loss of consciousness, drooping on the ground, fists and teeth tightly clenched, eyebrows twisted, white froth collecting on lips, panting laboriously arms and legs jerked backward and forward and other distressing features skin to those of a dying person. In some cases it leads to insanity. It is looked upon as the result of some local irritation of the brain surface due to deranged condition of the bilious humour prevailing the cerebral region consequently spasms begin with the facial region such as eyes, nose, lips, teeth etc.. and then spread to arms and legs giving rise to convulsive fits. The absence of convulsions is the chief point of difference between one variety and the other. Many are the causes ascribed to this disease such as mental worry, fear, masturbation, heavy drinking etc.. but the actual cause of true epilepsy is not known. It cannot even be said that it is due to a hereditary taint in the parents or anyone in the family as a predisposing cause to epilepsy in the offspring. (Page.No.1308-1309- Volume -2, 2nd edition)

5.4.C.According to Pothu maruthuvam,

"சால்குச்சொந்தத்தான் காள்கர் பாம்பு பர்க்கும்
சால்கரம் மூசுகுடு நாடி நீதியான
சால்குச்சொந் சிற்சிறாகற்கு பெற்று விழுவது
மாறுமல்ல காலத்தான் சுத்தமனகு வேகசுந்தரம்
சால்குச்சொந் மரணமாய் காண்பது விழுவது
தத்முரு பத்மாங்கள் காண்பியே விளக்கம்
சால்குச்சொந் மூசுகுடு முடுகு விளக்கம்
சால்கரம் சால்கரம் காள்கர் பாம்பு"
5.4.D. According to Balavagadam,

According to Balavagadam,]

“According to Balavagadam, Vali was classified into five types. Muyal vali was one among them.

They are

- Amarakanda vali
- Kumara kanda vali
- Brahma kandavali
- Kaakkai vali
- Muyal vali

5.5. TYPES OF VALI NOI

5.5.A. According to Anubava Vaithiya Deva ragasam,

Vali was classified into five types. Muyal vali was one among them.

They are

- Amarakanda vali
- Kumara kanda vali
- Brahma kandavali
- Kaakkai vali and
- Muyal vali

5.5.B. According to Pothu maruthuvam,

- Muyal vali
- Kumara kanda vali
- Brahma kandavali
- Kaakkai vali
- Muyal vali

1. Muyal vali
2. Kumara kanda vali
3. Brahma kandavali
4. Kaakkai vali
5. Muyal vali
6. Kumara kanda vali
7. Brahma kandavali
5.5.C. Types of Vali noi

- உண்மை வலிணி
- சரியாக வலிணி
- அலிபு வலிணி
- பொருள் கீழ்

5.5.D.

"முன்பொன்றே வலிணையைந்தாக தீர்க்க வேண்டும்
மனிதுடன் ஒன்றையே வைத்துப் போக்கும் வகையில்
தீர்மானத்துறை வலிணியின் சுழற்சியை
நுழைத்து வலிணியை சோன்று வலிணியை
பாத்து வலிணியில் பாதிக்கப்பட்டது
தற்பொழுது வலிணியை சேர்ந்து வலிணியை
சத்தியமாக வலிணியை பாதிக்கும் வலிணியை
குறித்து வலிணியை பாதிக்கும் வலிணியை
பொருள் கீழ் வலிணியை முக்கிய வலிணியை

Iyaa Noi was classified into **twenty one types** they are

- Irumal Iyya Noi
- Kaasa Iyya Noi
- Swasa Iyya Noi
- Dhepana Iyya Noi
- Mantha Iyya Noi
- **Vali Iyya Noi**
- Azhal Iyya Noi
- Mukkutu Iyya Noi
- Suga Sanni Iyya Noi
- Sura Iyya Noi
- Adhisara Iyya Noi
- Neerkovai Iyya Noi
- Anal Iyya Noi
- Boodha Iyya Noi
- Muyalaga Iyya Noi
- Veyri Iyya Noi
- Vighara Iyya Noi
- Suronidha Iyya Noi
- Virana Iyya noi
- Thurgandha Iyya noi and
- Anithiya Iyya noi
5.6. Vaatha Kaba Naadi

“If there is any derangement in Vaatha & Kaba Naadi, Vali noi may occur.

5.6.B. Kaba Naadi

“If there is any derangement in Kaba Naadi, Vali noi may occur.”
5.6.C. Vaatha Naadi

“If there is any derangement in Vaatha Naadi, Vali noi may occur.

5.6.D. Vaatha Naadi

“If Vatham combined with increased Vaatham it will cause Vali Noi.

5.6.E. Pitham

“If Pitham combined with increased Vaatham it will cause Vali Noi.
The basic constitution of the body is made up of 96 Thathuvams. Due to diet and other activities 96 Thathuvams get deranged and result in diseases, either pertaining to body or mind.

1. Iymboothangal (Five elements)
   1. Earth - Convulsions
   2. Water - Urinary or faecal incontinence, sweating
   3. Thee - Eyes looking upwards
   4. Vaayu - Stiffness of the upper and lower limbs

2. a. Iymporigal (Penta sensors)
   1. Mei - Joint pain
   2. Vaai - Dryness of tongue, Excessive salivation
   3. Kan - Eyes looking upwards

2. b. Iyampulangal (Functions of Penta sensors)
   1. Ozhi - Dullness of vision

3. Kanmenthiriyan/ Kanmavidayam (Motor organs)
   1. Kaal - Stiffness of the lower limbs
   2. Kai-Stiffness of the upper limbs
   3. Eruvaai - Urinary or faecal continence

4. Naadi (Differential Pulse Perception)
   1. Idakalai - Stiffness in the lower limbs
   2. Pinkalai - Stiffness in the lower limbs
   3. Suzhumunai - Body pain
   4. Sikuvi - Dryness of the throat
   5. Purudan- Upward Eye deviation
   6. Kanthaari- Upward Eye deviation
   7. Sangini-Urinary incontinence
   8. Kugu-Faecal incontinence

5. Aadharam (Stations of soul)
   1. Moolaathaaram - Urinary or faecal incontinence.
6. Anthakaranam (Components of mind)
   1. Manam - Delirium
   2. Puthi-Delirium
   3. Siddham-Convulsions
7. Arivu-Convulsions
8. Aasayam
   1. Malavasayam-Faecal incontinence
   2. Salavasayam-Urinary incontinence
9. Mandalam (Body zone)
   Thingal mandalam and Thee mandalam are found to be affected in the study.
10. Gunam (character)
    All the three Gunam people are found to be affected in the study but thamasa gunmam affected more.
11. Vinai (Act)
    Both Vinai gets affected in the study.
12. Kosam (Body systems)
    Manomaya kosam - Delirium
    Vizhanaamaya kosam - Convulsions
13. Deranged Uyir Thathukkal (Humoral or Tridosha Pathology)
    Panchaboothams are manifested in the body as three vital forces,
    1. Vatham
    2. Pitham
    3. Kabam
14. a. Vatham or Vaayu:
    The word Vaayu not only implies wind but also comprehends all the phenomenon which comes under the function of the central and sympathetic nervous system. Structurally it is the combination of Vaayu and Aagaya boothams.
    Normally it carries out of respiration, circulation of blood, locomotion, carrying sensory signals and motor signals to and from the brain, micturition, defecation, parturition, sensation of hearing, sight, taste etc. It is located in Idakalai, Abanan, Faeces, Spermatic cord, Pelvic Bones, Skin, Hair, Nerve & Muscle. It is of ten types, In Kaakkai vali primarily affected Vayukkal are Abaan, Viyaan, Samanan, Naagan, Koorman, Kirukaran and Devadhathan.
ALTERED UYIR THATHUKKAL

Vaayu:
Vayu is classified into ten types. Of these ten types, the following vaayus are affected.

Abaana vaayu (Keel nookungaal):
In this disease, Abaana vaayu is increased so, it leads to incontinence of motion and urine.

Viyaanan (Paravukkal):
Viyaanan is increased that leads to convulsions present all over the body, body ache and blackening of skin.

Uthannan (Melnokkal):
Uthannan is increased that leads to impaired consciousness.

Samanan (Nadukkal):
In this disease, Samaanan is increased.

Naagan:
In this disease, Naagan is increased. This leads to loss of consciousness during convulsion.

Koorman:
Koorman is increased in this disease and leads to increased lacrimation.

Kirukaran:
In this disease, Kirukaran increased and leads to excessive salivation.

Devathathan
In this disease, Devathathan is increased due to convulsions, body ache will be there.

14. b.Pitham
It is the life energy manifestation of “Thee Bootham” in the body. It is the metabolic thermal life force of the body. It carries out digestion, absorption, metabolism, and colouration of the blood etc. Pitham is located in the bladder, Moolaakini, Heart, Umbilical region, Abdomen, Stomach, Sweat, Saliva, Blood, Eyes and Skin. As Moolaatharam is in the Akkini mandalam, any pathological condition here can harm the Moolakini and eventually derange the Pitha humor. Symptoms are produced when deranged Pithams affect the seven Thathus and Malam. Azhal is classified into five types. The affected Azhal types are described below.
Saadhaga Pitham:
In this disease, Saadhaga pitham is decreased and this leads impaired consciousness.

Aalosaga Pitham:
In this disease, Aalosoga pitham is decreased and leads to unable to see and know the objects around the patients during convulsion.

14.c. Kabam
Kabam is constituted by Appu and Pirithivi boothams. It is responsible for Co-ordination and defense mechanism of the body. Kabam is located in Samaanavayu, Semen, Suzhumunai, Blood, Bone marrow, Nose, Chest, Nerve, Bone, Brain, Eyes, and Joints.

Avalambagam:
In kaakkai vali, Avalambagam is increased that leads to cough.

Santhigam:
In this disease, Santhigam is increased and leads to joint pain.

15.AITERED UDAL THATHUKKAL

Saaram:
In the disease, “Kaakkai vali” Saaram is decreased. This leads to body ache.

Oon:
Oon is decreased and leads to lethargy of five sense organ and Convulsions.

Kozhuppu:
Kozhuppu is also decreased and leads to weakness.

Moolai:
Moolai is also affected and leads to diminished vision during convulsion.

Sukkilam / Sronitham:
Premature ejaculation of sperm during convulsion and menstrual disturbances.
DIFFERENTIAL DIAGNOSIS FOR KAAKKAI VALI

1) KAAKKAI VALI

“காக்கை வாலி காந்தகீவனாக கூர்ந்து ரெட்டியாலைப்பில் நற்பை ஓட்டிய மூப்போமும். அடுத்து ஓட்டியை செய்து காவலைப்பில் கொண்டு வெள்ளாடுந்து மூப்போமும். தேசிய குறிப்பிட்டு தான் கருத்தை தருவும். காக்கை காலண்டிகள் குறக்கப்படும் காரணம்.”

SIMILARITIES:

<table>
<thead>
<tr>
<th>காக்கை வாலி</th>
<th>முயலாகா வாலி</th>
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</thead>
<tbody>
<tr>
<td>Contraction of axial and limb muscles</td>
<td></td>
</tr>
<tr>
<td>“இருக்கிறது கார்கில்லாப் பெருக்கம்”</td>
<td>“காக்கை காலண்டிகள் குறக்கப்படும் காரணம்”</td>
</tr>
<tr>
<td>“சித்தருளும் மறியும் வலி”</td>
<td>“மாபா காலண்டிகள் தசையும் தேசிய குறிப்பிட்டு”</td>
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CONTRASTING KAAKKAI VALI WITH MUYALAGA VALI:

<table>
<thead>
<tr>
<th>KAAKKAI VALI</th>
<th>MUYALAGA VALI</th>
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</thead>
<tbody>
<tr>
<td>Eyelids open up</td>
<td>Convulsions starts after seeing water or fire</td>
</tr>
<tr>
<td>Dryness of the throat</td>
<td>Abdominal pain</td>
</tr>
<tr>
<td>Dryness of tongue</td>
<td>Convulsions starts after pouring water in the head</td>
</tr>
<tr>
<td>Sweating</td>
<td></td>
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SIMILARITIES:

<table>
<thead>
<tr>
<th>KAAKKAI VALI</th>
<th>MUYALAGA SILETHUMAM</th>
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<tr>
<td>Urinary or faecal incontinence</td>
<td>“Urinary or faecal incontinence”</td>
</tr>
<tr>
<td>Excessive salivation</td>
<td>“Excessive salivation”</td>
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CONRASTING KAAKKAI VALI WITH MUYALAGA SILETHUMAM:

<table>
<thead>
<tr>
<th>KAAKKAI VALI</th>
<th>MUYALAGA SILETHUMAM</th>
</tr>
</thead>
<tbody>
<tr>
<td>Incontinence of urine</td>
<td>Reddening of the eyes</td>
</tr>
<tr>
<td>Incontinence of faeces</td>
<td>Lacrimation</td>
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<tr>
<td></td>
<td>Dyspnoea</td>
</tr>
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SIMILARITIES:

<table>
<thead>
<tr>
<th>KAAKKAI VALI</th>
<th>KUMARAKANDA VALI</th>
</tr>
</thead>
<tbody>
<tr>
<td>Contraction of axial and limb muscles</td>
<td>“கோண்டு கோண்டு விளம்பு கொண்டாள்”</td>
</tr>
<tr>
<td>Unconscious state</td>
<td>“மாறு சிதைந்து செய்ய விளம்பந்து”</td>
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CONTRASTING KAAKKAI VALI WITH KUMARAKANDA VALI:

<table>
<thead>
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<th>KUMARAKANDA VALI</th>
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<tr>
<td>Incontinence of urine</td>
<td>Stomach pain</td>
</tr>
<tr>
<td>Incontinence of faeces</td>
<td>Anger</td>
</tr>
<tr>
<td>unconsciousness</td>
<td>Body pain</td>
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SIMILARITIES:

<table>
<thead>
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<th>காக்கக் காணி</th>
<th>அமரகந்த காணி</th>
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<tbody>
<tr>
<td><strong>Unconscious state...........</strong></td>
<td><strong>Unconscious state...........</strong></td>
</tr>
<tr>
<td>“மாரை பிசித்துழுந்து பிள்ளையே காளி பொழியே”</td>
<td>“மர்ப்பவு மயில் மாங்கு மாந்து”</td>
</tr>
<tr>
<td><strong>Excessive Sweating......</strong></td>
<td><strong>Excessive Sweating......</strong></td>
</tr>
<tr>
<td>“சிதம்பரம் பிள்ளையே எரியே”</td>
<td>“நீல்சிறுள்ள மிள்ளைகள் காட்டும்”</td>
</tr>
</tbody>
</table>

CONRASTING KAAKKAI VALI WITH AMARAKANDA VALI:

<table>
<thead>
<tr>
<th>KAAKKAI VALI</th>
<th>AMARAKANDA VALI</th>
</tr>
</thead>
<tbody>
<tr>
<td>Incontinence of urine</td>
<td>Itching in the body</td>
</tr>
<tr>
<td>Incontinence of faeces</td>
<td>Body pain</td>
</tr>
<tr>
<td></td>
<td>Scratching with nails</td>
</tr>
</tbody>
</table>
7.1. NEURAL EMBRYOLOGY

7.1.A. OVERVIEW OF BRAIN DEVELOPMENT:

The nervous system is derived from the ectoderm, the outermost tissue layer, of the embryo. In the third week of gestation, the neuroectoderm appears and forms the neural plate along the dorsal side of the embryo. This neural plate is the source of the majority of all neurons and glial cells in the mature human. A groove is formed in the neural plate and, by week four of gestation, the neural plate wraps in on itself to make a hollow neural tube. This neural tube later gives rise to the brain and spinal cord, any mutations at this stage may lead to lethal deformities like anencephaly or lifelong disabilities like spina bifida.

7.1.B. DIFFERENTIATION OF NEURAL TISSUE FROM ECTODERM:

During early embryonic development the ectoderm specifically give rise to the epidermis (skin) and the neural plate. The conversion of undifferentiated ectoderm to neuro-ectoderm requires signals from the mesoderm. At the onset of gastrulation, presumptive mesodermal cells move through the dorsal blastopore lip and form a layer in between the endoderm and the ectoderm. These mesodermal
cells that migrate along the dorsal midline give rise to a structure called the notochord. Ectodermal cells overlying the notochord develop into the neural plate in response to a diffusible signal produced by the notochord. The remainder of the ectoderm gives rise to the epidermis (skin). The ability of the mesoderm to convert the overlying ectoderm into neural tissue is called Neural Induction.

7.1.C. FORMATION OF NEURAL TUBE:

The neural plate folds outwards during the third week of gestation to form the neural groove. Beginning in the future neck region, the neural folds of this groove close to create the neural tube. The formation of the neural tube from the ectoderm called Neurulation.

Some cells from the neural folds give rise to pleuripotent neural crest cells that migrate widely in the embryo and give rise to many nervous structures:
- Spinal ganglia (dorsal root ganglia)
- Ganglia of the autonomic nervous system
- Ganglia of some cranial nerves
- Sheaths of peripheral nerves
- Meninges of brain and spinal cord
- Pigment cells
- Suprarenal medulla
- Skeletal and muscular components in the head

The ventral part of the neural tube is called the basal plate; the dorsal part is called the alar plate. The hollow interior is called the neural canal. By the end of the fourth week of gestation, the open ends of the neural tube (the neuropores) close off.

7.1.D. DEVELOPMENT OF NEURAL CELLS AND SYNAPSES:

The most anterior part of the neural tube is called the telencephalon, which expands rapidly due to cell proliferation, and eventually gives rise to the brain. Gradually some of the cells stop dividing and differentiate into neurons and glial cells, which are the main cellular components of the brain. The newly generated neurons migrate to different parts of the developing brain to self-organize into different brain structures. Once the neurons have reached their regional positions, they extend axons and dendrites, which allow them to
communicate with other neurons via synapses. Synaptic communication between neurons leads to the establishment of functional neural circuits that mediate sensory and motor processing, and underlie behavior. The brain does most of its development within the first 20 years of life.

7.1.E.REGIONALIZATION:

Late in the fourth week, the rostral portion of the neural tube forms the three primary brain vesicles, or hollow swellings. They are prosencephalon, mesencephalon and rhombencephalon. The caudal portion of the neural tube remains relatively undifferentiated and forms the spinal cord.

7.1.F.DEVELOPMENT OF ADULT BRAIN FORM THE PRIMARY BRAIN VESICLES:

<table>
<thead>
<tr>
<th>Primary vesicles</th>
<th>Secondary vesicles</th>
<th>Adult structures</th>
</tr>
</thead>
<tbody>
<tr>
<td>Forebrain vesicle (prosencephalon)</td>
<td>Telencephalon</td>
<td>Cerebral hemispheres, consisting of the cortex and medullary center, basal ganglia, lamina terminalis, hippocampus, the corpus striatum, and the olfactory system</td>
</tr>
<tr>
<td>Diencephalon</td>
<td></td>
<td>Thalamus, epithalamus, hypothalamus, subthalamus, neurohypophysis, pineal gland, retina, optic nerve, mamillary</td>
</tr>
<tr>
<td>Primary vesicles</td>
<td>Secondary vesicles</td>
<td>Adult structures</td>
</tr>
<tr>
<td>--------------------------</td>
<td>--------------------</td>
<td>-----------------------</td>
</tr>
<tr>
<td><strong>Midbrain vesicle</strong></td>
<td>Mesencephalon</td>
<td>Midbrain</td>
</tr>
<tr>
<td>(mesencephalon)</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Hindbrain vesicle</strong></td>
<td>Metencephalon</td>
<td>Pons and cerebellum</td>
</tr>
<tr>
<td>(rhombencephalon)</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Myelencephalon</td>
<td>Medulla</td>
</tr>
</tbody>
</table>


7.2. INTRODUCTION TO NERVOUS SYSTEM

The Nervous system consists of two main parts: the Central nervous system (CNS) and the Peripheral nervous system (PNS). The CNS corresponds to the portion enclosed within the bony cavities of the Skull and Vertebral Column. The PNS begins at the nerve roots arising from the Central nervous system and a small portion of these nerves lie within the bony confines. The Central Nervous system is divided into the Brain and the Spinal cord. The Brain is further subdivided into two Cerebral hemispheres, Diencephalon, Brainstem and Cerebellar hemispherers.

CELLS OF THE NERVOUS SYSTEM

The nervous system includes specialised blood vessels, ependymal cells lining the cerebral ventricles and glial cells, of which there are 3 types. Astrocytes form the structural framework for the neurons and control their biochemical environment. Astrocyte foot processes are closely associated with the blood vessels to form the blood-brain barrier. Oligodendrocytes are responsible for the formation and maintenance of the myelin sheath, which surrounds axons and is essential for the rapid transmission of action potentials by saltatory conduction. Microglia are blood-derived mononuclear macrophages. Peripheral neurons have axons invested in myelin made by Schwann cells.
The cerebral cortex constitutes the highest level of nervous function, the anterior half dealing with executive (‘doing’) functions and the posterior half constructing a perception of the environment (‘receiving and perceiving’). The neopallium is the top layer of the cerebral hemispheres, about 2 mm thick, and is involved in higher functions such as sensory perception, generation of motor commands, spatial reasoning, and in humans, language and conscious thought. Other names for the neopallium include neocortex, isocortex and homotypical cortex.

The Corpus Callosum is a bundle of nerve fibers (millions of axons from the cerebral cortex) that allows the two hemispheres to communicate. Each cerebral hemisphere has four functionally specialised lobes. Many of the functions are lateralised. To which side depends on which of the two hemispheres is ‘dominant’, i.e. where language function is represented. In right-handed individuals this is almost always the left hemisphere while in left-handers either hemisphere may be dominant with about equal frequency.
FRONTAL LOBE:

The frontal lobes are concerned with executive function, movement and behaviour. In addition to the primary and supplementary motor cortex, there are specialized areas for the control of eye movements, speech (Broca's area) and micturition control.

PARIETAL LOBES:

The parietal lobes are concerned with the integration of sensory perception. The primary sensory cortex lies in the post-central gyrus of the parietal lobe. Much of the remainder is devoted to 'association' cortex, which integrates the input from the various sensory modalities. The non-dominant parietal lobe houses areas concerned with spatial awareness and orientation.

TEMPORAL LOBES:

In the temporal lobes are the primary auditory cortex and primary vestibular cortex. On the medial side lie the olfactory cortex and the parahippocampal cortex which is involved in memory function. The temporal lobes also contain many structures associated with the limbic system, including the hippocampus and the amygdala, which are involved in the processing of memory and emotions. The dominant temporal lobe also participates in language functions, particularly verbal comprehension (Wernicke's area).
OCCIPITAL LOBE:

The occipital lobes are principally concerned with visual processing. The contralateral visual hemifield is represented in the primary visual (striate) cortex, and areas immediately surrounding this are involved in the processing of specific visual submodalities such as colour, movement or depth, and the analysis of more complex visual patterns such as faces.

7.2.B. DIENCEPHALON - INNER BRAIN:

- Thalamus - Involved in sensory perception and regulation of motor functions (i.e., movement). It connects areas of the cerebral cortex that are involved in sensory perception and movement with other parts of the brain and spinal cord that also have a role in sensation and movement.
- Hypothalamus and pituitary gland - These control visceral functions, body temperature and behavioral responses such as feeding, drinking, sexual response, aggression and pleasure.
- Posterior lobe of the pituitary - Receives antidiuretic hormone (ADH) and oxytocin from the hypothalamus and releases them into the blood.
BRAIN STEM:

In addition to containing all the sensory and motor pathways entering and leaving the hemispheres, the brain stem houses the nuclei of the cranial nerves, nuclei projecting to the cerebrum and cerebellum as well as other important collections of neurons in the reticular formation. The cranial nerve nuclei provide motor control to muscles of the head (including the face and eyes) and some in the neck, along with coordinating sensory input from the special sense organs and the face, nose, mouth, larynx and pharynx. They also control autonomic functions including pupillary, salivary and lacrimal functions. The reticular formation is predominantly involved in the control of conjugate eye movements, the maintenance of balance, cardiorespiratory control and the maintenance of arousal.

7.2.C. THE MIDBRAIN (MESENCEPHALON):
The midbrain (mesencephalon) occupies only a small region in humans (it is relatively much larger in "lower" vertebrates).

- **Tectum** - Controls Auditory and Visual Responses.
- **Ventral Tegmental Area (VTA)**: Packed with dopamine-releasing neurons, which relay messages about pleasure through their nerve fibers to nerve cells in a limbic system structure called the nucleus accumbens. Still other fibers reach to a related part of the frontal region of the cerebral cortex. So, the pleasure circuit, which is known as the mesolimbic dopamine system, spans the survival-oriented brainstem, the emotional limbic system, and the frontal cerebral cortex.
- **Isthmus** - midbrain-hindbrain junction
7.2.D. THE HINDBRAIN (RHOMBENCEPHALON):

- **Pons** - Contains many cranial nerves (Nerves such as the facial nerves, which emerge from the brainstem rather than the spinal cord). It contains the Pontine Sleep Center, which is important for the level of consciousness, and the Respiratory Centers, which along with the Medullary Respiratory Centers help to control Respiratory Movements.

- **Cerebellum** - It is situated in the posterior cranial fossa. It is made up of two hemispheres united by vermis. The cerebellum is located behind the brain stem. The cerebellum integrates information from the vestibular system (region of the inner ear that helps with balance) that indicates position and movement and uses this information to coordinate balance, posture and limb movements. It is supplied by Superior cerebellar artery, Anterior inferior cerebellar artery and Posterior inferior cerebellar artery.

- **Medulla Oblongata** - Controls autonomic functions (such as breathing, heartbeat, sneeze, cough, swallow, vomiting). Processing of inter-aural time differences for sound localization. The Vagus nerve is the tenth cranial originating from the medulla oblongata.

**INTERNAL CAPSULE:**

This is a compact layer of white matter within the cerebral hemisphere. It is the downward continuation of “Corona radiata”.

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VENTRICLES:
There are two lateral ventricles, III ventricle and IV ventricle.
III ventricle communicates with IV ventricle via, cerebral aqueduct. IV ventricle
communicated with saggital sinus via, arachnoid villi and granulations septum
pellicidum separates both lateral ventricles.

SPINAL CORD:
The spinal cord contains not only the afferent and efferent
fibres arranged in functionally discrete bundles but also, in the grey
matter, collections of cells which are responsible for lower-order motor
reflexes and the primary processing of sensory information, including
pain.

ASCENDING & DESCENDING TRACTS OF SPINAL CORD

General arrangement of both tracts
1st order neuron
2nd order neuron
3rd order neuron
The only difference is the different locations where each order of neuron ends.
Decussation is the cross-over of the tract from one side to the other. Therefore,
there are instances where the left side of the body is controlled by the right brain
hemisphere. Decussation occurs at different locations for each tracts.
Descending tracts (Motor)

General arrangement of descending tracts

- First order neuron starts at the cerebral cortex in the somatomotor area.
- The axon of the 1st order neuron will synapse with the 2nd order neuron at the level of the brain stem, which commonly decussate (crosses over) to the opposite side.
- The 3rd order neuron is located in the ventral horn of the spinal cord, which will exit with the spinal nerve to supply the muscle.

Types of descending tracts:

- Lateral corticospinal tract
- Anterior corticospinal tract

Therefore, the descending tract is also known as corticospinal tract.

CORTICOSPINAL TRACT:

Corticospinal tract arise from long axons of the pyramidal cells (extrapyramidal layer) of the precentral gyrus (primary motor centre of the cerebral cortex). It lies in front of the central sulcus.

First order neuron

- Fibres of the 1st order neuron arise from the precentral gyrus
- These fibres converge and enter a small area the internal capsule.
  - The internal capsule is bounded medially by the thalamus and caudate nucleus and laterally by the lenticular nucleus. The Parts of internal capsule include anterior and posterior limbs. The anterior limb contain head & neck fibres most anterior. The posterior limb contain lower limb fibres most posterior. All the fibers (from ascending & descending tracts) converge here.
  - Function: separates the caudate nucleus and the thalamus from the lenticular nucleus
  - The descending fibres passes through the lateral half of the posterior limb of internal capsule
- After the internal capsule, the fibres enter the brain stem
  - midbrain
  - pons
  - medulla
2) 2nd order neuron
- Fibres of the 1st order neuron ends when it enters the brain stem and synapse with the 2nd order neuron.
- The fibres pass through the brainstem
  1st – through the (mid 5th) crus cerebri of midbrain
  2nd – through the anterior part of the pons
  3rd – in the medulla oblongata
- 80 % - 85% of the fibres cross to the opposite side this is called Motor decussation.
  Uncrossed fibres enters the spinal cord.

3) 3rd order neuron
The second order neuron fibres in the medulla oblongata enters the spinal cord and synapse with the 3rd order neuron.
In the spinal tract, the crossed tract descend as the lateral corticospinal tract.
Therefore, the motor cortex of the cerebral hemisphere controls the opposite side of the body (L – R, R – L). The uncrossed fibres in the spinal tract, descent as the anterior corticospinal tract.

Ascending tracts (sensory)
Types of ascending tracts:
1. Spinothalamic tracts
   - Lateral for pain & temperature
   - Anterior for light touch & pressure.
2. Dorsal column tract for
   - deep touch & pressure
   - proprioception
   - vibration sensation
3. Spinocerebellar tract for
   - posture & coordination

Extrapyrimidal tracts of spinal Cord:
It is a part of the motor system that causes involuntary reflexes and movement and modulation of movement. It reach their targets by traveling through the "pyramids" of the medulla.
The extrapyramidal tracts include:
- Medial Longitudinal fasciculus
- Rubrospinal tract
- Olivospinal tract
- Pontine reticulospinal tract
- Medullary reticulospinal tract
- Lateral vestibulospinal tract
- Tectospinal tract
- Teticulospinal tract
- Lateral vestibulospinal tract
- Anterior vestibulospinal tract
- Lateral vestibulospinal tract

7.3. AUTONOMIC SYSTEM:

- The unconscious neural control of the body's physiology is effected through the autonomic system. This innervates the cardiovascular and respiratory systems, smooth muscle of the gastrointestinal tract, and glands throughout the body. The autonomic system is controlled centrally by diffuse modulatory systems in the brain stem, limbic system and frontal lobes, which are concerned with arousal and background behavioural responses to threat.

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The output of the autonomic system is divided functionally and pharmacologically into two divisions: the parasympathetic and sympathetic systems.

- The sensory cell bodies of peripheral nerves are situated in the dorsal root ganglia in the spinal exit foramina, whilst the distal ends of their neurons are invested with various specialised endings for the transduction of external stimuli into nervous impulses.

- The motor cell bodies are in the anterior horns of the spinal cord. Motor neurons initiate muscle contraction by the release of acetylcholine across the neuromuscular junction which results in change in potential in the muscle end plate. To increase the speed of impulse conduction, peripheral nerve axons are variably invested in myelin sheaths consisting of the wrapped membranes of Schwann cells.

- Thus, any peripheral nerve is made up of a combination of large, fast, myelinated axons (which carry information about joint position sense and commands to muscles), and smaller, slower, unmyelinated axons (which carry information about pain and temperature)
7.4. BLOOD SUPPLY TO THE BRAIN:

Brain receives blood from carotid and vertebral system

- Middle Cerebral Artery
- Internal carotid artery
- Anterior cerebral artery:
  - Anterior choroidal artery.
- Vertebral arteries:
  - The posterior inferior cerebellar artery
  - Basilar artery
- Anterior inferior cerebellar artery:
  - Superior cerebellar artery
- Posterior cerebral artery
- Posterior choroidal artery:
The circle of Willis is formed when the \textit{internal carotid artery} (ICA) enters the cranial cavity bilaterally and divides into the anterior cerebral artery (ACA) and \textit{middle cerebral artery} (MCA). The anterior cerebral arteries are then united by an anterior communicating (ACOM) artery. These connections form the anterior half (anterior circulation) of the circle of Willis. Posteriorly, the basilar artery, formed by the left and right vertebral arteries, branches into a left and right \textit{posterior cerebral artery} (PCA), forming the posterior circulation. The PCAs complete the circle of Willis by joining the internal carotid system anteriorly via the posterior communicating (PCOM) arteries.
A synapse is a junction between a neuron and another cell. It is separated by a synaptic cleft. In most synapses, the axon terminal of the presynaptic cell contains numerous synaptic vesicles with neurotransmitter stored within them.

The action potential causes calcium channels to open in the plasma membrane of the presynaptic cell. The calcium ions (Ca\(^{++}\)) diffuse into the neuron and activate enzymes, which in turn, promote fusion of the neurotransmitter vesicles with the plasma membrane. This process releases neurotransmitter into the synaptic cleft.

Neurotransmitter molecules diffuse across the cleft and stimulate the postsynaptic cell, causing Na\(^{+}\) channels to open and depolarization of the postsynaptic cell. The depolarization of the postsynaptic cell is referred to as a synaptic potential.

The magnitude of a synaptic potential depends on the amount of neurotransmitter at the electrical state of the postsynaptic cell. If it is already partially depolarized, an action potential can be produced with less stimulation by neurotransmitters. If it is hyperpolarized, it will require more stimulation than normal to produce an action potential.

After the neurotransmitter is released into the synaptic cleft, it must be quickly removed or inactivated to prevent the postsynaptic cell from being continuously stimulated and to allow another synaptic potential. In some cases there may be enzymes present in the synaptic cleft that break down the neurotransmitter immediately. For example, acetyl cholinesterase breaks down the neurotransmitter...
acetylcholine. In other cases, the axon terminal may reabsorb neurotransmitter and repackage it into vesicles for reuse.

**Functional classification of synapse:**

In the basis of transmission of impulses, the synapse is classified into two types. They are

- Electrical synapse
- Chemical synapse

**Electrical synapse:**

In the electrical synapse, there is continuity between the presynaptic and the post synaptic neurons. So there is direct exchange of ions between the two neurons. The electrical synapse is found not only in the nervous system but also between some non-nervous cells like the cardiac muscle fibres, smooth muscle fibres of intestine and the epithelial cells of lens of eye.

**Chemical synapse:**

Chemical synapse is the function between a nerve fibre and a muscle fibre or between two nerve fibres, though which the signals are transmitted by the release of chemical transmitter.

**Functions of Synapse:**

- The main function of the synapse is to transmit the impulses, it, action potential from one neuron to another. Thus, the synapses are of two types.
- Excitatory synapse, which transmit the impulses – excitatory function and.
- Inhibitory synapses, which inhibit the transition of impulses inhibitory function.
7.5.A. THE GENERATION AND TRANSMISSION OF THE NERVOUS IMPULSE

The functioning of the nervous system rests upon two physiological processes:

i) the generation of an action potential with its conduction down axons,

ii) the synaptic transmission of impulses between neurons and/or muscle cells.
These processes depend upon the energy-demanding maintenance of an electrochemical gradient across neuron cell membranes, and alterations in this are effected by specialised ion channels in the membrane. Synaptic transmission involves the release from a neuron of neurotransmitter molecules that bind to specific receptors on the membrane of the receptor cell.

These molecules alter either that cell's membrane potential via effects upon ion channel permeability, or its metabolic function. There are over 20 different neurotransmitters known to act at different sites in the nervous system, all potentially amenable to pharmacological manipulation.

The neuronal cell bodies are acted upon by synapses with large numbers of other neurons. Each neuron therefore acts as a microprocessor, reacting to the influences upon it by changes to its cell membrane potential, causing it to be more or less ready to discharge an impulse down its axon(s).

The synapsing neuron terminals are also subject to regulation by receptor sites on their pre-synaptic membrane, which modify the release of transmitter across the synaptic cleft. The effect of some neurotransmitters is to produce long-term modulation of metabolic function or gene expression rather than simply to change the membrane potential. This effect probably underlies more complex processes in cognition, such as long-term memory.

*Synaptic terminal - Neurotransmitters* are manufactured in the cell body but released from synaptic terminals. The neurotransmitters stimulate other neurons.

**MYELINATION:**

Some neuroglia function to provide insulation for axons or dendrites. They do so by wrapping around the long fibers.

The insulation properties come from *myelin* contained within the cells.

The layer of insulation is referred to as a myelin sheath.

If these insulating cells are located in the peripheral nervous system, they are called *Schwann cells*.

**NEURO TRANSMITTERS:**

The main neurotransmitters of the peripheral nervous system are acetylcholine and nor adrenaline. However, there are several other neurotransmitters as well, jointly labeled Non-noradrenergic, non-cholinergic (NANC) transmitters.
Examples of such transmitters include

**NON PEPTIDES** - ATP, GABA, dopamine, NO

**PEPTIDES** - Neuropeptide Y, VIP, GnRH, Substance P and CGRP.

A cell that receives a synaptic signal may be excited, inhibited, or otherwise modulated. Sensory neurons are activated by physical stimuli impinging on them, and send signals that inform the central nervous system of the state of the body and the external environment. Motor neurons situated either in the central nervous system or in peripheral ganglia, connect the nervous system to muscles or other effector organs. Central neurons, which in vertebrates greatly outnumber the other types, make all of their input and output connections with other neurons. The interactions of all these types of neurons form neural circuits that generate an organism's perception of the world and determine its behavior.

### 7.5.B. SEQUENCE OF EVENTS DURING SYNAPTIC TRANSMISSION
**Presynaptic neuron**

Arrival of action potential in axon terminal

- Opening of calcium channels in presynaptic membrane
- Influx of calcium ions from ECP into the axon terminal
- Opening of vesicles and release of Ach
- Passage of Ach through synaptic cleft

**Post synaptic neuron**

Formation of Ach - receptor complex

- Opening of sodium channels and influx of sodium ions from ECF
- Development of EPSP
- Opening of sodium channels in initial segment of axon
- Influx of sodium ions from ECF and development of action potential
- Spread of action potential through axon of postsynaptic neuron

Ach = Acetylcholine. ECF = Extracellular fluid. EPSP = Excitatory postsynaptic potential.

**Excitatory function:**

When the action potential reaches the presynaptic axon terminal, the voltage gated calcium channels at the presynaptic membrane are opened. Now the calcium ions enter the axon terminal from extracellular fluid.

The calcium ions cause the fusion of synaptic vesicles with cell membrane and release of neurotransmitter substance from the residues by means of exocytosis.
Inhibitory function:

Inhibition of synaptic transmission is classified into three types.

Post synaptic inhibition
Presynaptic Inhibition and Renshaw cell inhibition.

Post synaptic inhibition:

This occur due to the release of an inhibitory neurotransmitter from presynaptic terminal from instead of excitatory neurotransmitter substance.

The most important inhibitory neurotransmitter is gamma amino butyric acid (GABA).

Action of GABA – IPSP:

The inhibitory neurotransmitter substance acts on post synaptic membrane by binding with receptor. The transmitter receptor complex opens the ligand gated potassium channels instead of opening the sodium channels. Now, the potassium ions pass out of the synapse into extracellular fluid. Chloride channels also open followed by influx of chloride ions inside, the exit of potassium ions and influx of chloride ions causes more negativity inside, leading to hyperpolarization. This is called inhibitory postsynaptic potential (IPSP).

Properties of synapse:

One way conduction
The synaptic delay
Fatigue
Summation and
Electrical property.

Fatigue:

During continuous muscular activity, the synapse forms the seat of fatigue along with the Betz cells present in the motor area of the frontal lobe of the cerebral cortex. The fatigue at the synapse is due to the depleton of neurotransmitter substance, acetylcholine. After producing the action, this neurotransmitter is destroyed by acetylcholinesterase.

Reflex Activity:

Response to a peripheral nervous stimulation that occurs without our consciousness in known as reflex activity.
7.6. **TONIC – CLONIC SEIZURES**  
*(Grandmal Epilepsy)*

### 7.6.A. Seizures

**Definition:**

A *seizure* (from the Latin *sacire*, "to take possession of") is a paroxysmal event due to abnormal, excessive, hypersynchronous discharges from an aggregate of central nervous system (CNS) neurons.

<table>
<thead>
<tr>
<th><strong>Anatomical site</strong></th>
<th><strong>Physiology (EEG)</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>• Cortex</td>
<td>• Focal spikes/sharp waves</td>
</tr>
<tr>
<td>• Temporal</td>
<td>• Generalised spike and wave</td>
</tr>
<tr>
<td>• Frontal</td>
<td></td>
</tr>
<tr>
<td>• Parietal</td>
<td></td>
</tr>
<tr>
<td>• Occipital</td>
<td></td>
</tr>
<tr>
<td>• Generalised (diencephalon)</td>
<td></td>
</tr>
<tr>
<td>• Multifocal</td>
<td></td>
</tr>
</tbody>
</table>
7.6.B. CAUSES OF SEIZURES:

**Neonates (<1 month)**

- Perinatal hypoxia and ischemia
- Intracranial hemorrhage and trauma
- Acute CNS infection
- Metabolic disturbances (hypoglycemia, hypocalcemia, hypomagnesemia, pyridoxine deficiency)
- Drug withdrawal
- Developmental disorders
- Genetic disorders

**Infants and children (>1 mo and <12 years)**

- Febrile seizures
- Genetic disorders (metabolic, degenerative, primary epilepsy syndromes)
- CNS infection
- Developmental disorders
- Trauma
- Idiopathic

**Adolescents (12–18 years)**

- Trauma
- Genetic disorders
- Infection
- Brain tumor
- Illicit drug use
- Illicit drug use

**Young adults (18–35 years)**

- Trauma
- Alcohol withdrawal
- Illicit drug use
- Brain tumor
- Idiopathic
Older adults (>35 years)

- Cerebrovascular disease
- Brain tumor
- Alcohol withdrawal
- Metabolic disorders (uremia, hepatic failure, electrolyte abnormalities, hypoglycemia)
- Alzheimer's disease and other degenerative CNS diseases
- Idiopathic

7.6.C. CLASSIFICATION OF SEIZURES

1. Partial seizures
   a. Simple partial seizures (with motor, sensory, autonomic, or psychic signs)
   b. Complex partial seizures
   c. Partial seizures with secondary generalization

2. Primarily generalized seizures
   a. Absence (petitmal)
   b. Tonic-clonic (Grandmal)
   c. Tonic
   d. Atonic
   e. Myoclonic

3. Unclassified seizures
   a. Neonatal seizures
   b. Infantile spasms

7.6.D. TONIC – CLONIC SEIZURES:

- This is also called grandmal epilepsy.
  The seizure attack occurs in different stages sequentially.
  The stages may be sub-divided into the
  1. Prodromal phase,
  2. Tonic,
  3. Clonic and
  4. Postictal phase.
PRODROMAL PHASE:

- Starts several hours before fits.
- It consists of subjective phenomenon like depressed or apathetic mood, irritability, vague abdominal cramps which is easily recognized by the patients.
- Sometimes the patient gets the attack without any forewarning.

© TONIC PHASE:(10-30 seconds)

- It consists of rolling up of the eyes associated with stiffening of the limbs
- Clenching of the jaws
- Often resulting in injury to the tongue.
- Epileptic cry – since entire musculature goes in to spasm forcing air through the closed vocal cord.

© CLONIC PHASE:(1-2 minutes)
 It is characterized by alternate flexion-extension movements of all the four limbs convulsions).
 Strenuous breathing, sweating
 Frothing of the mouth and excessive salivation.
 Urine and feces may be voided.
 Followed by comatose state(5 minutes)

=post ictal state:

In this state the patient does not remember anything that had happened.
Pupils begin to react and the patient then resumes speech, but still remains confused.

Patient starts sleeping for several hours, often wakes up with severe headache and at times vomiting.

7.6.E.PATHOGENESIS:

Pathological cause:

- Genetic
- Developmental
- Tumours
- Trauma
- Vascular
- Infections
- Inflammation
- Metabolic
- Drugs, alcohol and toxins
- Degenerative

Pathology consists of

1. Cell death
2. Axonal sprouting
3. Reorganisation of neural networks
4. Alteration in the release of neurotransmitters.

 The cortical neurons become abnormally excitable due to differentiation.
 The cytoplasm and cell membrane of such cells have increased permeability rendering them susceptible to activation by hyperthermia, hypoxia, hypoglycemia and hyponatremia.
Transition from normal to epileptic form behaviour of the brain caused by greater spread and neuronal recruitment secondary to a combination of enhanced connectivity, enhanced excitatory transmission, failure of inhibitory mechanism and changes in intrinsic neuronal properties.

Generalised epilepsies are due to electrical activity occurring throughout the cerebral cortex, because of lowering of seizure threshold. Often, this is genetically determined.

This electrical discharge spreads to the ipsilateral and contralateral hemisphere across intra and interhemispheric pathways and also to the subcortical structures like basal ganglia and brain stem reticular nuclei, from where the excitatory activity is fed back to the rest of the cortex.

Deficiency of the inhibitory neurotransmitter, (gamma – amino butyric acid (GABA) and disturbance of local regulation of extracellular $K^+$, $Na^+$, $Ca^{2+}$ or $Mg^{2+}$)

- This leads to Membrane instability which leads to abnormal electrical discharge.

7.6.F. CLINICAL FEATURES:
- Convulsion – Alternate flexion – extension movements of the four limbs:
- Tonic contractions of muscles throughout the body.
- Upward deviation of of eyes
- Incontinence of motion and urine
- Loss of consciousness
- Excessive salivation
- Sweating

7.6.G. COMPLICATIONS:
- Risk of hypoxia and acidosis for mother and foetus is high.
- Coma
- Aspiration Pneumonia
- Cardiac arrhythmia
- Reflex pulmonary oedema
- Neuropsychological dysfunction
- Myoglobinuria and
- Sudden death.
7.6.H. INVESTIGATIONS:

Routine Investigation - Blood, Urine, Stool and certain serum tests help to route out the diseases like diabetes, high blood pressure, renal and liver disorders.

OTHER INVESTIGATIONS:
- EEG
- Computerised tomography
- MRI Scan
- PET Scan (Positron Emission Tomography)
- SPECT (Single Photon Emission Tomography)
- Neuro Imaging - provides views of brain areas involved in seizure activity.
- Electrolyte disturbances
- Mapping cerebral blood flow
- To study regional glucose metabolism of the brain
- Binding of certain GABA receptors and opiate receptors.

MANAGEMENT OF EPILEPSY

PRIMARY MEASURES:
1. Treatment of acute convulsions.
2. Prophylactic management

SECONDARY MEASURES:
1. Removal of precipitating factors.
2. Anti epileptic medications.
3. Social rehabilitations.

FIRST AID FOR AN EPILEPSY PATIENT
- The patient is put on soft bed to avoid injuries.
- Tight clothing is loosened and the airway is protected.
- Foreign bodies in the mouth should be removed and a suitable mouth gag is applied in the position of molar teeth.
- The patient should be kept with head low, to avoid aspiration.

COLOUR THERAPY:
- ORANGE - joy and constructivity - animates like red, although different cures are effected by this ray. Included are inflammation of the kidneys, gallstones, prolapses, menstrual cramps, EPILEPSY, wet cough and all sinus conditions.
MATERIALS AND METHODS

8.1 STUDY TYPE
Observational study

8.2. STUDY DESIGN
An analytical open label, single centric study.

8.3. STUDY PLACE
Department of Noi naadal,
Ayothidoss Pandithar Hospital,
National Institute of Siddha,
Tamaram Sanatorium, Chennai-47.

8.4 STUDY PERIOD
- Total period - 1yr
- Recruitment for the study - upto 10 months
- Data entry analysis - 1 month
- Report preparation and submission - 1 month

GANNT CHART: (Study Period - 1 year)

<table>
<thead>
<tr>
<th>ACTIVITIES</th>
<th>1-10 th</th>
<th>11 th</th>
<th>12th</th>
</tr>
</thead>
<tbody>
<tr>
<td>Recruitment for the study</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Data entry &amp; Analysis</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Report preparation &amp; Submission</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
8.5 SAMPLE SIZE

<table>
<thead>
<tr>
<th>Total</th>
<th>30</th>
</tr>
</thead>
<tbody>
<tr>
<td>Patients</td>
<td>20</td>
</tr>
<tr>
<td>Healthy volunteers</td>
<td>10</td>
</tr>
</tbody>
</table>

8.6 INCLUSION CRITERIA:

1. Age 18-55yrs both sex
2. Complaints of periodic Episodes of Seizures
3. Epileptic aura
4. Dryness of the tongue.
5. Hypertonocity of the limbs.
6. History of Confused state.
7. History of Faecal incontinence
8. History of Urinary incontinence

Patients who fulfill any of the four criteria are included to the study.

EXCLUSION CRITERIA

1. Systemic illness
2. History of Head injury
3. Eclampsia
4. Endocrinal diseases
5. Vulnerable group

8.7 STUDY ENROLLMENT

- In the study, patients reporting at the OPD & IPD of Ayothidoss Pandithar Siddha Hospital with the clinical symptoms of “peenisam” will be referred to the Research group. Those patients will be screened using the screening proforma (Form-I) and examined clinically for enrolling in the study based on the inclusion and exclusion criteria. Based on the inclusion criteria the patients will be included first and excluded from the study on the same day if they hit the exclusion criteria.
- The patients who are to be enrolled would be informed (Form IV-A) about the study, and the objectives of the study in the language and terms understandable for them.
- After ascertaining the patients’ willingness, a written informed consent would be obtained from them in the consent form (Form IV).
• All these patients will be given unique registration card in which patients’ Registration number of the study, Address, Phone number and Doctors phone number etc. will be given, so as to report to research group easily if any complication arises.

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

• Forty healthy volunteers from both the sexes will be selected for control group.
8.8. STUDY METHODOLOGY

PATIENT SCREENED (INCLUSION & EXCLUSION CRITERIA)

HEALTHY VOLUNTEERS

DIRECTED TO INFORMED ABOUT THE STUDY (INFORMATION SHEET)

SATISFIED

NOT SATISFIED

INVESTIGATIONS

GIVEN

NORMAL OPD TREATMENT

EXCLUDED FROM THE STUDY

Satisfied (INCLUSION & EXCLUSION CRITERIA)

CLINICAL ASSESSMENT

LABORATORY INVESTIGATIONS

NEERKKUR INEKURI

REGISTRATION CARD GIVEN AND SUBJECTED TO

GETTING CONSENT (CONSENT FORM)
8.9. DATA COLLECTION FORMS:

- Required information will be collected from each patient by using following forms.
  
  **Form –I**  Screening and selection Proforma
  
  **Form –IA**  History Proforma on enrollment
  
  **Form II**  Clinical Assessment on enrollment
  
  **Form –III**  Laboratory investigations on enrollment, during the study
  
  **Form –IV**  Consent form  (Vernacular and English versions)
  
  **Form -IV- A**  Patient Information Sheet (Vernacular and English versions)

8.10. DATA MANAGEMENT

- After enrolling the patient in the study, a separate file for each patient will be opened and all forms will be filed in the file. Study No. and Patient No. will be entered on the top of file for easy identification and arranged in a separate rack at the concerned OPD unit. Whenever study patient visits OPD during the study period, the respective patient file will be taken and necessary recordings will be made at the assessment form or other suitable form.

- The screening forms will be filed separately.

- The Data recordings will be monitored for completion and adverse event by HOD and any missed data found out during the study, will be collected from the patient, but the time related data will not be recorded retrospectively

- All collected data will be entered using MS access / excel software onto computer.

- Investigators will be trained to enter the patient data and cross checked by Senior Research Officer and HOD.

8.11. STATISTICAL ANALYSIS:

All collected data will be entered into computer using MS access / MS excel software by the investigator. The data will be analysed using STATA software under the guidance of SRO (stat), NIS. The level of significance will be 0.05. Descriptive analysis will be made and necessary tables/graphs generated to understand the profile of the patients included in the study. Then statistical analysis for significance of different diagnostic characteristics will be done. Student ‘t’ test and ‘chi-square’ test are proposed to be performed for quantitative and qualitative data.
8.12. INVESTIGATIONS DURING THE STUDY:

The patients will be subjected to basic laboratory parameters during the study.

8.13. TREATMENT DURING THE STUDY:

Normal treatment procedure followed in Department of Noi Naadal, NIS will be prescribed to the study patients and the treatment will be provided at free of cost.

8.14. OUT COME OF STUDY

- Establishing the diagnostic characteristics of Kakkai vali through
  1. Eight fold examination
  2. Manikkadainool & Astrology
  3. Yakkai elakkanam
- Analysis of Agathiyar’s symptomatology and categorizing the results with present day modern classification of diseases which may reinforce and augment the understanding and diagnosis of diseases and its management mentioned in Siddha literature.

8.15. ETHICAL ISSUES:

1. Patients will be examined and screened unbiasedly and will be subjected to the criteria.

2. Informed consent will be obtained from the patient in writing, explaining in the understandable language to the patient.

3. The data collected from the patient will be kept confidentially. The patient will be explained about the diagnosis.

4. To prevent any infection, while collecting blood sample from the patient, only disposable syringes, disposable gloves, with proper sterilization of lab equipments will be used.

5. This study involves only the necessary investigations (mentioned in the protocol) and No other investigation would be done.

6. Normal treatment procedure followed in NIS will be prescribed to the study patients and the treatment will be provided at free of cost.

7. There will be no infringement on the rights of patient.
**TABLE.9. 1 GENDER DISTRIBUTION**

<table>
<thead>
<tr>
<th></th>
<th>No. of cases</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Male</td>
<td>14</td>
<td>70%</td>
</tr>
<tr>
<td>Female</td>
<td>6</td>
<td>30%</td>
</tr>
<tr>
<td>Total</td>
<td>20</td>
<td>100%</td>
</tr>
</tbody>
</table>

**OBSERVATION:**

Table no 9.1 shows that the prevalence of the disease was found to be higher in males i.e. 70% than in females 30%.

**INFERENCE:**

No specific inference could be made.
TABLE 9.2 AGE DISTRIBUTION

<table>
<thead>
<tr>
<th>Age yrs</th>
<th>No. of cases</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>15–25 yrs</td>
<td>6</td>
<td>30%</td>
</tr>
<tr>
<td>26–35 yrs</td>
<td>9</td>
<td>45%</td>
</tr>
<tr>
<td>36–45 yrs</td>
<td>4</td>
<td>20%</td>
</tr>
<tr>
<td>46–55 yrs</td>
<td>1</td>
<td>5%</td>
</tr>
<tr>
<td>Total</td>
<td>20</td>
<td>100%</td>
</tr>
</tbody>
</table>

OBSERVATION: Table no. 9.2 shows that the prevalence of the disease was found to be higher in the age group 26-35 years (37.50%) and next one is 15-25 years (22.50%) age group and next one is 36-45 years (20.00%).

INFERENCES:

Majority of cases (37.50%) in the study were 26-35 years. The common cause of Kaakkai vali is caused due to vitiated Vatha humour which initiates Kaba and Pitta humour. As per in the Siddha text, the Vatha humour (below 33 yrs) was affected.
### TABLE 9.3 GUNAM DISTRIBUTIONS

<table>
<thead>
<tr>
<th>Gunam</th>
<th>No. 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>0</td>
<td>0</td>
</tr>
<tr>
<td>Thamo gunam</td>
<td>20</td>
<td>100%</td>
</tr>
<tr>
<td>Total</td>
<td>20</td>
<td>100%</td>
</tr>
</tbody>
</table>

**OBSERVATION:**
Table no 9.3 shows that all the 20 cases, (100%) were found to possess Thamo gunam.

**INFERENCE:**
No specific inference could be made.
9.4 THINAI DISTRIBUTIONS

<table>
<thead>
<tr>
<th>Thinai</th>
<th>No. of cases</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Kurinji</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Mullai</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Marutham</td>
<td>4</td>
<td>20%</td>
</tr>
<tr>
<td>Neithal</td>
<td>16</td>
<td>80%</td>
</tr>
<tr>
<td>Paalai</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Total</td>
<td>40</td>
<td>100%</td>
</tr>
</tbody>
</table>

**OBSERVATION:**

Table no. 4 shows that most of the cases (80%) were reported from Neithal nilam, the remaining 20% of cases were reported from Marutha Nilam.

**INFERENCE:**

Most of the cases were from Neithal region. The study center (National Institute of Siddha) is in Neithal nilam, observations can be ascertained only after a multi centric study.
TABLE 9.5 FOOD HABITS

<table>
<thead>
<tr>
<th>Food habits</th>
<th>Patients</th>
<th>Healthy volunteers</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>No. of Cases.</td>
<td>percentage</td>
</tr>
<tr>
<td>Vegetarian</td>
<td>2</td>
<td>5%</td>
</tr>
<tr>
<td>Non-Vegetarian</td>
<td>18</td>
<td>95%</td>
</tr>
<tr>
<td>Total</td>
<td>20</td>
<td>100%</td>
</tr>
</tbody>
</table>

OBSERVATION

Out of 20 cases, 5% of cases were vegetarian and 95% of cases were non-vegetarian.

OBSERVATION IN CONTROL GROUPS:

Out of 10 cases, 10% of cases were vegetarian and 90% of cases were non-vegetarian.
INFEERENCE
The general population status is reflected in the study population and no specific inference could be made with respect to the study.

TABLE 9.6 PARUVA KAALAM (SEASON) DISTRIBUTIONS

<table>
<thead>
<tr>
<th>Paruvakaalam</th>
<th>No of cases</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Kaarkaalam</td>
<td>10</td>
<td>50%</td>
</tr>
<tr>
<td>Koothirkaalam</td>
<td>1</td>
<td>5%</td>
</tr>
<tr>
<td>Munpanikaalam</td>
<td>1</td>
<td>5%</td>
</tr>
<tr>
<td>Pinpanikaalam</td>
<td>4</td>
<td>20%</td>
</tr>
<tr>
<td>Ilavenil kaalam</td>
<td>4</td>
<td>20%</td>
</tr>
<tr>
<td>Total</td>
<td>20</td>
<td>100%</td>
</tr>
</tbody>
</table>

OBSERVATION: Table no. 9.6. shows that among the 20 patients, 10 cases (50%) were in kaarkaalam, 1 cases (5%) were in koothirkaalam & munpanikaalam. 4 cases (20%) were admitted in Pinpanikaalam, 4 cases (20%) were in Ilavenil kaalam.

INFERENCE:
Most of the cases were affected in Kaarkaalam region. As per the text, monsoon and cold items act as trigerring factors for the initiation of Valipu noi.
### TABLE.9.7 SOCIO ECONOMIC STATUS DISTRIBUTION

<table>
<thead>
<tr>
<th>Socio economic status</th>
<th>No. of cases</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lower economic groups</td>
<td>12</td>
<td>60%</td>
</tr>
<tr>
<td>Medium economic groups</td>
<td>6</td>
<td>30%</td>
</tr>
<tr>
<td>High economic groups</td>
<td>2</td>
<td>10%</td>
</tr>
<tr>
<td>Total</td>
<td>20</td>
<td>100%</td>
</tr>
</tbody>
</table>

**OBSERVATION:**

Table no.9.7 shows that the incidence of the disease was found to be higher in Lower economic groups 80%

**INFERENC:E**

No specific inference could be made.
### TABLE.9.8 DISTRIBUTION BY OCCUPATION

<table>
<thead>
<tr>
<th>OCCUPATION</th>
<th>PATIENTS</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>No.of cases</td>
<td>PERCENTAGE</td>
</tr>
<tr>
<td>Mechanic operator</td>
<td>6</td>
<td>30%</td>
</tr>
<tr>
<td>Home maker</td>
<td>3</td>
<td>15%</td>
</tr>
<tr>
<td>Student</td>
<td>3</td>
<td>15%</td>
</tr>
<tr>
<td>Teacher</td>
<td>1</td>
<td>5%</td>
</tr>
<tr>
<td>Painter</td>
<td>2</td>
<td>10%</td>
</tr>
<tr>
<td>Accountant</td>
<td>1</td>
<td>5%</td>
</tr>
<tr>
<td>Paper business</td>
<td>1</td>
<td>5%</td>
</tr>
<tr>
<td>Mason</td>
<td>1</td>
<td>5%</td>
</tr>
<tr>
<td>Cooker</td>
<td>1</td>
<td>5%</td>
</tr>
<tr>
<td>Iron man</td>
<td>1</td>
<td>5%</td>
</tr>
<tr>
<td>Total</td>
<td>20</td>
<td>100%</td>
</tr>
</tbody>
</table>
OBSERVATION

Among 20 cases, 35% of cases are Machine operators, 15% cases are Home makers 15% are Students, 10% are painters, 5% are Teachers, Paper business, Accountant, Cooker, Iron-man and Mason.

INFERENCe:

Majority of them are machine operators who work for more than 10 hours, have more stress related problems, this is reflected in the study. Next Home makers and students are more affected who also have more tension nowadays.
**TABLE. 9.9 DURATION OF ILLNESS**

<table>
<thead>
<tr>
<th>Chronicity of Illness</th>
<th>No. of cases</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>1-3 months</td>
<td>1</td>
<td>5%</td>
</tr>
<tr>
<td>4-12 months</td>
<td>4</td>
<td>20%</td>
</tr>
<tr>
<td>Above 12 months</td>
<td>15</td>
<td>75%</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>20</strong></td>
<td><strong>100%</strong></td>
</tr>
</tbody>
</table>

**CHRONICITY OF ILLNESS**

**OBSERVATION:**

Table no.19 shows that 75% of the cases were affected in the duration of more than 12 months.

**INFERENCEx:**

No specific inference could be made.
### TABLE.9.10. KAALAM DISTRIBUTION

<table>
<thead>
<tr>
<th>AGE</th>
<th>PATIENTS</th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>No.of cases</td>
<td>Percentage</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Vatha kaalam</td>
<td>15</td>
<td>75%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pitha kaalam</td>
<td>5</td>
<td>25%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Kaba kaalam</td>
<td>0</td>
<td>0%</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>20</strong></td>
<td><strong>100%</strong></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### OBSERVATION

Among 20 cases,

- 75% of cases came under Vatha kaalam i.e., 0-33 yrs,
- 25% of cases fall under Pitha kaalam (34-66 yrs).
INFERENCES

In the study majority of the patients fell in Vatha kaalam. As most of the patients are in Vatha kaalam, this is because around the age group 30 yrs people are socially active so they are more prone to get exposed to exterior environment, this is reflected the study. As per the Siddha Text, VAli noi is caused due to vitiated vatha humour which is reflected in the study.

TABLE 9.11. RASI (ZODIAC SIGN) DISTRIBUTION

<table>
<thead>
<tr>
<th>RASI</th>
<th>PATIENTS</th>
<th>CONTROL</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>No. of cases</td>
<td>Percentage</td>
</tr>
<tr>
<td>Mesham</td>
<td>1</td>
<td>5%</td>
</tr>
<tr>
<td>Rishabam</td>
<td>1</td>
<td>5%</td>
</tr>
<tr>
<td>Simmam</td>
<td>2</td>
<td>10%</td>
</tr>
<tr>
<td>Viruchigam</td>
<td>1</td>
<td>5%</td>
</tr>
<tr>
<td>Thulam</td>
<td>2</td>
<td>10%</td>
</tr>
<tr>
<td>Dhanusu</td>
<td>2</td>
<td>10%</td>
</tr>
<tr>
<td>Kumbam</td>
<td>3</td>
<td>15%</td>
</tr>
<tr>
<td>Meenam</td>
<td>1</td>
<td>5%</td>
</tr>
<tr>
<td>Not known</td>
<td>7</td>
<td>35%</td>
</tr>
<tr>
<td>Total</td>
<td>20</td>
<td>100%</td>
</tr>
</tbody>
</table>
OBSERVATION IN KAAKKAI VALI PATIENTS:
Among 20 cases, only 13 cases known about their zodiac sign & rest 7 didn’t know about their zodiac sign. In 13 cases , 10% of cases were under Thulam, 10% under Simmam, 10% under Dhanusu ,5% under meenam , 5% under viruchigam, 5% under Mesam and 5% under Rishabam.

OBSERVATION IN HEALTHY VOLUNTEERS:
Among 10 cases, only 5 cases known about their zodiac sign & rest 5 didn’t know about their zodiac sign. In 5 cases , 10% of cases were under Simmam, 10% under Dhanusu 10% under Mesam ,10% under Rishabam and 10% under viruchigam.
## Table 9.12. General Etiology for KAAKKAI VALI:

<table>
<thead>
<tr>
<th>Etiology (as per Agathiyan Vaithiya Kaandam)</th>
<th>Patients</th>
<th></th>
<th>Healthy Volunteers</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>No. of cases</td>
<td>Percentage</td>
<td>No. of cases</td>
<td>Percentage</td>
</tr>
<tr>
<td>Intake of Animal foods</td>
<td>18</td>
<td>90%</td>
<td>3</td>
<td>30%</td>
</tr>
<tr>
<td>Lustful desire</td>
<td>5</td>
<td>25%</td>
<td>4</td>
<td>40%</td>
</tr>
<tr>
<td>Intake of tubers</td>
<td>10</td>
<td>50%</td>
<td>2</td>
<td>20%</td>
</tr>
<tr>
<td>Intake of millet gruels</td>
<td>10</td>
<td>50%</td>
<td>1</td>
<td>10%</td>
</tr>
<tr>
<td>Felling trees</td>
<td>2</td>
<td>10%</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Improper payments to labourers</td>
<td>3</td>
<td>15%</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Reproaching mentors</td>
<td>5</td>
<td>25%</td>
<td>-</td>
<td>-</td>
</tr>
</tbody>
</table>

**Observation:** Out of 20 cases 90% of cases had history of intake of animal foods, 50% of cases had history of more intake of more tubers and 50% of cases had history of more intake of more millets, 25% of cases had history of lustful desire.
25% of cases had history of Reproaching mentors 15% of cases had history of Improper payments to labourers and 10% cases had history of Felling trees

**INFERENCES:**
From this study it is inferred that intake of animal foods precipitates the disease.

**TABLE.9.13. UDAL VANMAI**

<table>
<thead>
<tr>
<th>Character</th>
<th>No of Cases</th>
<th>Percentage</th>
<th>No of Cases</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Iyalbu(Normal)</td>
<td>16</td>
<td>80%</td>
<td>9</td>
<td>90%</td>
</tr>
<tr>
<td>Valivu</td>
<td>1</td>
<td>5%</td>
<td>1</td>
<td>10%</td>
</tr>
<tr>
<td>Melivu</td>
<td>3</td>
<td>15%</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>20</strong></td>
<td><strong>100%</strong></td>
<td><strong>10</strong></td>
<td><strong>100%</strong></td>
</tr>
</tbody>
</table>

**OBSERVATION:**
Table No.9.13. shows that out of 20 patients 16 cases(80%) were Iyalbu, 1 case (5%) valivu,3 cases(15%) were melivu.

**INFERENCES:**
Majority of study patients were of Iyalbu and Melivu body built.
<table>
<thead>
<tr>
<th>S.no</th>
<th>Types of vatham</th>
<th>Kaakkai vali patients</th>
<th>Healthy volunteers</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>No of cases</td>
<td>Percentage</td>
<td>No of cases</td>
</tr>
<tr>
<td>1</td>
<td>Abanan</td>
<td>15</td>
<td>75%</td>
</tr>
<tr>
<td>2</td>
<td>Uthanavan</td>
<td>13</td>
<td>65%</td>
</tr>
<tr>
<td>3</td>
<td>Viyanan</td>
<td>15</td>
<td>75%</td>
</tr>
<tr>
<td>4</td>
<td>Samanam</td>
<td>15</td>
<td>75%</td>
</tr>
<tr>
<td>5</td>
<td>Naagan</td>
<td>10</td>
<td>50%</td>
</tr>
<tr>
<td>6</td>
<td>Koorman</td>
<td>10</td>
<td>50%</td>
</tr>
<tr>
<td>7</td>
<td>Kirukaran</td>
<td>2</td>
<td>10%</td>
</tr>
<tr>
<td>8</td>
<td>Devathathan</td>
<td>12</td>
<td>60%</td>
</tr>
</tbody>
</table>

OBSERVATION:

Table No. 9.14. shows that in Vaayu, Abanan was affected in 15 (75%) cases, had incontinence of motion and urine. Viyanan was affected in 20(75%) cases had convulsions, Uthanavan was affected in 15 (75%) cases had impaired consciousness. Samanam was affected in 15 (75%) cases Naagan was affected in 15 (75%) cases had loss of consciousness during convulsion. Koorman was affected in 15 (75%) cases results in increased lacrimation. Kirugaran was affected in 5 (12.5 %) cases results in excessive salivation.
OBSERVATION IN CONTROL GROUP:
Among 20 cases, 20% cases had deranged Abanan, 20% cases had deranged Samanan, All cases had normal Pranan, uthanan, Viyanan, Naagan, Kirukaran, Koorman, Devadhathan and Dhananjeyan.

INFERENCE:
All the patients inducted in the study had abanan,viyaan, Udhanan, Samanan,naagan, koorman And Kirukaran components of Vatha humour affected No specific inference could be made among control group.

9.15. DISTURBANCES IN PITHAM:

<table>
<thead>
<tr>
<th>S.no.</th>
<th>Types of Pitham</th>
<th>Kaakkai vali Patients</th>
<th>Healthy Volunteers</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>No of cases</td>
<td>Percentage</td>
<td>No of cases</td>
</tr>
<tr>
<td>1</td>
<td>Analakam</td>
<td>-</td>
<td>0</td>
</tr>
<tr>
<td>2</td>
<td>Ranjagam</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>3</td>
<td>Sathagam</td>
<td>20 100%</td>
<td>0</td>
</tr>
<tr>
<td>4</td>
<td>Alosagam</td>
<td>10 50%</td>
<td>0</td>
</tr>
<tr>
<td>5</td>
<td>Prasagam</td>
<td>0</td>
<td>0</td>
</tr>
</tbody>
</table>
OBSERVATION:
Table No. 9.15. shows that in all 40 cases Sathaga pitham was affected in 20 cases (100%) had impaired consciousness Alosagam gets affected in 15 cases (50%) had unable to see and know the objects around the patients during convulsion.

OBSERVATION IN CONTROL GROUP:
Out of 20 cases, 10% had deranged Anarpitham, All cases had normal Ranjagam, Prasagam, Sathagam & Alosagam.

INFERENCE
The components of Pitham connected with vision and life energy (daily routine activities) are affected.

No specific inference could be made from derangements in Pitha humour.

9.16. DISTURBANCES IN KABAM:

<table>
<thead>
<tr>
<th>S.no</th>
<th>Types of iyyam</th>
<th>Kaakkai vali Patients</th>
<th>Healthy volunteers</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>No of cases</td>
<td>Percentage</td>
</tr>
<tr>
<td>1</td>
<td>Avalambagam</td>
<td>16</td>
<td>80%</td>
</tr>
<tr>
<td>2</td>
<td>Klethagam</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>3</td>
<td>Pothagam</td>
<td>_</td>
<td>_</td>
</tr>
<tr>
<td>4</td>
<td>Tharpagam</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>5</td>
<td>Santhigam</td>
<td>4</td>
<td>20%</td>
</tr>
</tbody>
</table>
OBSERVATION:
Table No.9.16. shows that Avalambagam was affected in 12(60%) cases had cough. Santhigam was affected in 4 cases(20%) had joint pain.

OBSERVATION IN CONTROL GROUP.
All cases had normal Avalambagam, kiletham, Pothagam, Tharpagam, Santhigam.

INFERENCE:
The components of Kabam connected with respiration and joint movements are affected. No specific inference could be made from control group.
<table>
<thead>
<tr>
<th>NAA</th>
<th>PATIENTS</th>
<th>HEALTHY VOLUNTEERS</th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>No.of cases</td>
<td>Percent age</td>
<td>No.of cases</td>
<td>Percent age</td>
</tr>
<tr>
<td><strong>Thanmai</strong> (Appearance)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Maapadinthiruthal alone</td>
<td>5</td>
<td>25%</td>
<td>5</td>
<td>50%</td>
</tr>
<tr>
<td>Vedhippu alone</td>
<td>1</td>
<td>5%</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Maapadithal &amp; vedhippu</td>
<td>4</td>
<td>20%</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Normal</td>
<td>10</td>
<td>50%</td>
<td>5</td>
<td>50%</td>
</tr>
<tr>
<td>Total</td>
<td>20</td>
<td>100%</td>
<td>10</td>
<td>100%</td>
</tr>
<tr>
<td><strong>Niram</strong> (Colour)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Normal</td>
<td>18</td>
<td>90%</td>
<td>3</td>
<td>40%</td>
</tr>
<tr>
<td>Manjal</td>
<td>1</td>
<td>5%</td>
<td>6</td>
<td>40%</td>
</tr>
<tr>
<td>Velluppu</td>
<td>1</td>
<td>5%</td>
<td>1</td>
<td>20%</td>
</tr>
<tr>
<td>Total</td>
<td>20</td>
<td>100%</td>
<td>10</td>
<td>100%</td>
</tr>
<tr>
<td><strong>Suvai</strong> (Taste)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Uppu (Salty)</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Pullipu (Sour)</td>
<td>10</td>
<td>50%</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Kaippu (Bitter)</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Inippu (Sweet)</td>
<td>8</td>
<td>40%</td>
<td>1</td>
<td>10</td>
</tr>
<tr>
<td>Normal</td>
<td>2</td>
<td>10%</td>
<td>9</td>
<td>90</td>
</tr>
<tr>
<td>Total</td>
<td>20</td>
<td>100%</td>
<td>10</td>
<td>100%</td>
</tr>
<tr>
<td><strong>Vainer ooral</strong> (Salivation)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Normal</td>
<td>2</td>
<td>20%</td>
<td>10</td>
<td>100%</td>
</tr>
<tr>
<td>Increased</td>
<td>18</td>
<td>80%</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Decreased</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Total</td>
<td>20</td>
<td>100%</td>
<td>10</td>
<td>100%</td>
</tr>
</tbody>
</table>
OBSERVATION

Among 20 cases, 25% of cases had fissure alone in their tongue, 5% cases had coated tongue alone and 20% case had both coated tongue and fissures, Rest of 50% of cases had normal tongue.

Among 20 cases, 90% of cases had normal tongue, 5% of cases had pallor tongue, and 5% of cases had yellow colour tongue.

Among 20 cases, 50% of cases had sour taste in their tongue, 40% of cases had sweet taste in their in tongue, 10% of cases had normal taste.

Among 20 cases, 80% of cases had increased salivation, and 20% had normal salivation.

OBSERVATION IN HEALTHY VOLUNTEERS:

Among 10 cases, 50% of cases had coated tongue alone, Rest of 50% of cases had normal tongue.

Among 10 cases, 40% of cases had normal tongue, 20% of cases had pallor tongue, and 40% of cases had yellow colour tongue.

Among 10 cases, 10% of cases had sweet taste in their in tongue, and 90% of cases had normal taste.

Among 10 cases, 100% had normal salivation.

INFERENCE

In the study majority of cases had Maa padithal & vedippu and some had pulipu & inippu suvai (taste) in tongue and increased salivation. As per the text Agathiar Naadi, pulipu taste in tongue is a sign of vatha derangement and inippu taste in tongue is a sign of deranged Kaba humour. So it may be inferred that deranged vatha and kaba humour forms the base for Kaakai vali

In Healthy volunteers, no specific inference could be made out in this study from the examination of tongue (Naa).
O.P.C98318-Normal Tongue

O.P.No.C86477 Maa Padithal
## TABLE.9.18.NIRAM, MOZHI AND MEIKURI

<table>
<thead>
<tr>
<th>NAME OF THE PARAMETER</th>
<th>THANMAI (CHARACTER)</th>
<th>PATIENTS</th>
<th>HEALTHY VOLUNTEERS</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>No. of cases</td>
<td>Percentage</td>
<td>No. of cases</td>
</tr>
<tr>
<td><strong>Niram (Complexion)</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Karuppu (Dark)</td>
<td>10</td>
<td>50%</td>
<td>-</td>
</tr>
<tr>
<td>Manjal</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Velluppu</td>
<td>8</td>
<td>40%</td>
<td>-</td>
</tr>
<tr>
<td>Thontham</td>
<td>2</td>
<td>10%</td>
<td>10</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>20</td>
<td>100%</td>
<td>10</td>
</tr>
<tr>
<td><strong>Mozhi (Voice)</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Thanindha oli (Low Pitch)</td>
<td>1</td>
<td>5%</td>
<td>-</td>
</tr>
<tr>
<td>Uratha oli (High Pitch)</td>
<td>1</td>
<td>5%</td>
<td>-</td>
</tr>
<tr>
<td>Sama oli (Normal pitch)</td>
<td>18</td>
<td>90%</td>
<td>10</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>20</td>
<td>100%</td>
<td>10</td>
</tr>
<tr>
<td><strong>Meikuri</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Veppam (Warmth)</td>
<td>Mitha veppam</td>
<td>18</td>
<td>90%</td>
</tr>
<tr>
<td></td>
<td>Migu veppam</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td>Thatpam</td>
<td>2</td>
<td>10%</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>20</td>
<td>100%</td>
<td>10</td>
</tr>
<tr>
<td>Viyarvai (Sweating)</td>
<td>Normal</td>
<td>3</td>
<td>15%</td>
</tr>
<tr>
<td></td>
<td>Increased</td>
<td>17</td>
<td>85%</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>20</td>
<td>100%</td>
<td>10</td>
</tr>
<tr>
<td>Thodu vali (Tenderness)</td>
<td>Absent</td>
<td>20</td>
<td>100%</td>
</tr>
<tr>
<td></td>
<td>Present</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>20</td>
<td>100%</td>
<td>10</td>
</tr>
</tbody>
</table>
OBSERVATION

Among the 20 cases, 50% of cases were of dark complexion, 40% of cases had fair/white complexion and 10% of cases were of thontham.

Among 20 cases, 5% of cases had high pitched voice, 5% of cases had low pitched voice and 90% had normal voice.

Among 20 cases, 90% of cases had mitha veppam and 10% of cases had thatpam.

Among 20 cases, 85% of cases had increased (sweating) viyarvai and 15% had normal sweating.

Among 20 cases, no one don’t have any tendernessi.

NIRAM, MOZHI AND MEIKURI IN HEALTHY VOLUNTEERS

OBSERVATION

Among the 10 cases, 100% were thontham.

Among 10 cases, 100% had normal voice.

Among 10 cases, 100% had mitha veppam.

Among 10 cases, 100% had normal sweating.

Among 10 cases, 100% of cases were without thoduvali

INFERENCE

A sizable percentage of patients reported with thontham niram& dark ,normal voice pitch, mitha veppam and increased sweating. Majority of cases affected are having dark complexion,(vatha humour) 40% of cases had fair/white complexion(kaba humour). Increased sweating is a sign of kaba derangement.

In Healthy volunteers, no specific inference could be made out in this study from the examination of Niram, Mozhi and Meikuri.
**TABLE 9.19. VIZHI (EYE):**

<table>
<thead>
<tr>
<th>NAME OF THE PARAMETER</th>
<th>THANMAI (CHARACTER)</th>
<th>PATIENTS</th>
<th>HEALTHY VOLUNTEER</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>No. of cases</td>
<td>Percentage</td>
<td>No. of cases</td>
</tr>
<tr>
<td><strong>NIRAM</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>VIZHI</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Karuppu (Muddy)</td>
<td>0</td>
<td>0</td>
<td>-</td>
</tr>
<tr>
<td>Manjal (Yellow)</td>
<td>-</td>
<td>0</td>
<td>-</td>
</tr>
<tr>
<td>Sivappu (Red)</td>
<td>2</td>
<td>10%</td>
<td>1</td>
</tr>
<tr>
<td>Vellupu (Pallor)</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>No discolouration</td>
<td>18</td>
<td>90%</td>
<td>9</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>20</td>
<td>100%</td>
<td>10</td>
</tr>
<tr>
<td>Peelai serthal only</td>
<td>1</td>
<td>5%</td>
<td>0</td>
</tr>
<tr>
<td>Increased kanner only</td>
<td>1</td>
<td>5%</td>
<td>0</td>
</tr>
<tr>
<td>Erichal only</td>
<td>-</td>
<td>-</td>
<td>0</td>
</tr>
<tr>
<td>Peelai serthal &amp; kaneer</td>
<td>-</td>
<td>-</td>
<td>0</td>
</tr>
<tr>
<td>Peelai serthal &amp; erichal</td>
<td>1</td>
<td>5%</td>
<td>0</td>
</tr>
<tr>
<td>Erichal &amp; kaneer</td>
<td>-</td>
<td>0-</td>
<td>0</td>
</tr>
<tr>
<td>All three</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Normal</td>
<td>17</td>
<td>85%</td>
<td>10</td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td>20</td>
<td>100%</td>
<td>10</td>
</tr>
</tbody>
</table>
OBSERVATION

Among 20 cases, 10% of cases had sivappu venvizhi, & 90% of cases had no discolouration.

Out of 20 cases, 5% of cases had only erichal (burning sensation) in the eyes, 5 % had increased kanneer (lacrimation) only, 5% of cases had both erichal & kanneer, 85% of cases had normal eyes.

VIZHI (EYE) IN HEALTHY VOLUNTEERS

OBSERVATION

Among 10 cases, 1% of cases had sivappu venvizhi, 90% of cases had no discolouration.

Out of 40 cases, 100% of cases had normal eye.

INFERENCE

No specific inference could be made from vizhi examination.
### 9.20. MALAM

<table>
<thead>
<tr>
<th>MALAM</th>
<th>PATIENTS</th>
<th></th>
<th>HEALTHY VOLUNTEERS</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>No.of cases</td>
<td>Percentage</td>
<td>No.of cases</td>
<td>Percentage</td>
</tr>
<tr>
<td>Thanmai</td>
<td>Sikkal only</td>
<td>1</td>
<td>5%</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>Siruthal only</td>
<td>1</td>
<td>5%</td>
<td>0</td>
</tr>
<tr>
<td></td>
<td>Seetham</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td></td>
<td>kalichal</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td></td>
<td>Vemmam only</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td></td>
<td>Siruthal,sikkal,vemmam</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td></td>
<td>Normal</td>
<td>18</td>
<td>90%</td>
<td>9</td>
</tr>
<tr>
<td></td>
<td>Total</td>
<td>20</td>
<td>100%</td>
<td>10</td>
</tr>
<tr>
<td>Niram (Colour)</td>
<td>Karuppu (Dark)</td>
<td>1</td>
<td>5%</td>
<td>0</td>
</tr>
<tr>
<td></td>
<td>Manjal (Yellowish)</td>
<td>19</td>
<td>95%</td>
<td>10</td>
</tr>
<tr>
<td></td>
<td>Vellupu (Pallor)</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td></td>
<td>Total</td>
<td>20</td>
<td>100%</td>
<td>10</td>
</tr>
</tbody>
</table>

**OBSERVATION**

Among 20 cases, 5% of cases had sikkal (constipation) only, 5% of cases had siruthal only, 0% of cases had Seetham (Mucosal mixing of stools) and kalichal, 90% of cases had no thanmai abnormality.

Among 20 cases, 95% of cases have manjal (yellowish) coloured stool, 0% of cases have velluppu (pallor) coloured stool, 5% of cases have karuppu (dark) coloured stool.

**MALAM IN HEALTHY VOLUNTEERS**

**OBSERVATION**

Among 10 cases, 10% of cases had sikkal (constipation) only, 90% of cases had no thanmai abnormality.

Among 10 cases, 100% of cases have manjal (yellowish) coloured stool,

**INFERENCEx**

Almost all the cases and healthy volunteers had the character of normal stools. No specific inference could be made from Malam (Stool) examination.
OBSERVATION:

NEERKURI IN KAAKKAI VALI

Among 20 cases, 10% of cases had yellow coloured urine and 90% of cases had pale yellow/straw coloured urine, 0% had Nurai (Froth) absent, 0% of cases had polyuria & oliguria and 100% of case had normal volume, All cases had Normal Specific gravity & Deposits.
NEERKURI IN HEALTHY VOLUNTEERS

Among 20 cases, 20% of cases had yellow coloured urine and 80% of cases had pale yellow/straw coloured urine, 0% of cases had Nurai (Froth) present and 100% cases had Nurai (Froth) absent, 0% of cases had polyuria & oliguria and 100% of case had normal volume, All cases had Normal Specific gravity & Deposits.

INFERENCE

Almost all the cases and healthy volunteers had normal urine Colour (Ila Manjal Niram) with mild aromatic smell and normal density and normal Enjal. No specific inference could be made out in this study from the examination of Neerkuri.
### II. NEIKKURI

#### FEATURES OF OIL-ON-Urine SIGN

<table>
<thead>
<tr>
<th></th>
<th>PATIENTS</th>
<th></th>
<th>HEALTHY VOLUNTEERS</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>No.of cases</td>
<td>Percentage</td>
<td>No.of cases</td>
<td>Percentage</td>
</tr>
<tr>
<td>Pearl bead</td>
<td>7</td>
<td>35%</td>
<td>4</td>
<td>40%</td>
</tr>
<tr>
<td>Coin shape</td>
<td>1</td>
<td>5%</td>
<td>2</td>
<td>20%</td>
</tr>
<tr>
<td>Slowly spreading</td>
<td>2</td>
<td>10%</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Fastly spreading</td>
<td>8</td>
<td>40%</td>
<td>4</td>
<td>40%</td>
</tr>
<tr>
<td>Face of man</td>
<td>1</td>
<td>5%</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Sieve</td>
<td>1</td>
<td>5%</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>20</strong></td>
<td><strong>100%</strong></td>
<td><strong>40</strong></td>
<td><strong>100%</strong></td>
</tr>
</tbody>
</table>

![Bar chart showing the percentage of each feature in patients and healthy volunteers.](chart.png)
OBSERVATION

Among 20 cases, 35% of cases had Muthu (Pearl beaded) spread, 10% of cases had Mellana paraval (Sluggish spreading), 5% of cases had coin shape, 40% of cases had fastly spreaded neikkuri, 5% of cases had sieve shape and 5% had shape of face of the man.

INFERENCE

Majority of cases had pearl bead Neikkuri and Fastly spreading nature. As Per the text, the disease is caused due to derangement in Vathakabam. Thus it is evident that Vathakaba humour is affected in Kaakkai vali, hence majority of patients had pearl bead shape neikkuri and fastly spreading nature which is validated from the literature.

OBSERVATION

Among 10 cases, 40% of cases had Muthu (Pearl beaded) spread, 40% of cases had fastly spreading, 20% of cases had round shape.

INFERENCE

No specific inference could be made.

O.P.No.C86477

FINDINGS: PEARL BEAD(MUTHU)
O.P.No.C89891 FINDINGS: coin shape

O.P.No.B98503 FINDINGS: sieve like
O.P.No.C86306  FINDINGS: Face of man

TABLE.9.22 UDAL THATHUKKAL:

<table>
<thead>
<tr>
<th>UDAL THATHUKKAL</th>
<th>PATIENTS</th>
<th>CONTROL</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>No.of cases</td>
<td>Percentage</td>
</tr>
<tr>
<td>Saaram</td>
<td>20</td>
<td>100%</td>
</tr>
<tr>
<td>Senneer</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Oon</td>
<td>10</td>
<td>50%</td>
</tr>
<tr>
<td>Koluppu</td>
<td>5</td>
<td>25%</td>
</tr>
<tr>
<td>Enbu</td>
<td>4</td>
<td>20%</td>
</tr>
<tr>
<td>Moolai</td>
<td>2</td>
<td>10%</td>
</tr>
<tr>
<td>Sukkilam</td>
<td>4</td>
<td>20%</td>
</tr>
</tbody>
</table>
Observation: Table No.16 Shows that Saaram was affected in all the 20 cases (100%) results in body ache. Oon was affected in 10 cases (50%) Kozhuppu was affected in 5 Cases (25%) enbu was affected in 4 cases (20%) moolai was affected in 2 (10%) cases sukkilam was affected in 4 cases (20%)  

INFERECE:
Majority of the cases had deranged saaram, oon, kozhuppu ,enbu,moolai and sukilam.
## TABLE.9.23.NAADI NADAI

<table>
<thead>
<tr>
<th>NAADI (Pulse Appraisal)</th>
<th>PATIENTS</th>
<th>HEALTHY VOLUNTEERS</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>No.of cases</td>
<td>Percentage</td>
<td>No.of cases</td>
</tr>
<tr>
<td><strong>Vanmai</strong></td>
<td>14</td>
<td>70%</td>
<td>5</td>
</tr>
<tr>
<td><strong>Menmai</strong></td>
<td>6</td>
<td>30%</td>
<td>5</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>20</td>
<td>100%</td>
<td>10</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Naadi Panbu (Pulse character)</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Thannadai</strong></td>
<td>-</td>
</tr>
<tr>
<td><strong>Illalithal</strong></td>
<td>10</td>
</tr>
<tr>
<td><strong>Kuthithal</strong></td>
<td>5</td>
</tr>
<tr>
<td><strong>Thullal</strong></td>
<td>5</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>20</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Naadi Nadai (Pulse play)</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Vatha pitham</strong></td>
<td>1</td>
</tr>
<tr>
<td><strong>VathaKabam</strong></td>
<td>13</td>
</tr>
<tr>
<td><strong>Pitha Vatham</strong></td>
<td>-</td>
</tr>
<tr>
<td><strong>Pitha Kabam</strong></td>
<td>1</td>
</tr>
<tr>
<td><strong>Kaba Vatham</strong></td>
<td>4</td>
</tr>
<tr>
<td><strong>Kaba pitham</strong></td>
<td>1</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>20</td>
</tr>
</tbody>
</table>
OBSERVATION:

Out of the 20 cases, 70% of cases had Vanmai character and 30% cases had Menmai character in Naadi nithanam.

Among 20 cases, 50% of cases showed Illaithal, 25% of cases had kuthithal and 25% of cases had thullal character in their Naadi panbu.

Among 20 cases, 65% of cases had the naadinadai of Vatha kabam, 20% cases had Kaba vatham, 5% cases had Pitha kabam, 5% cases had Vatha Pitham and 5% cases had kaba Pitham.

OBSERVATION IN HEALTHY VOLUNTEERS:

Among 10 cases, 80% had Vatha pittam and 20% had kaba vatham.

INFERENCE:

Majority of cases (65%) had vatha kabam naadi. As per the text, Kaakkai vali which is caused due to vathakaba humour which is validated.
### TABLE.9.24.CLINICAL FEATURES OF KAAKKAI VALI

<table>
<thead>
<tr>
<th>Symptoms</th>
<th>No. of patients observed</th>
<th>Percentage(%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Periodic episodes of seizures</td>
<td>20</td>
<td>100%</td>
</tr>
<tr>
<td>Epileptic aura</td>
<td>12</td>
<td>60%</td>
</tr>
<tr>
<td>Dryness of the tongue</td>
<td>9</td>
<td>45%</td>
</tr>
<tr>
<td>Hypertonicity of the limbs</td>
<td>13</td>
<td>65%</td>
</tr>
<tr>
<td>History of Confused state</td>
<td>12</td>
<td>60%</td>
</tr>
<tr>
<td>History of Faecal incontinence</td>
<td>16</td>
<td>80%</td>
</tr>
<tr>
<td>History of Urinary incontinence</td>
<td>16</td>
<td>80%</td>
</tr>
</tbody>
</table>

#### OBSERVATION:

Table No.20 shows that among the 20 cases, all cases had Periodic episodes of Seizures, 80% cases had history of faecal incontinence, 80% cases had urinary incontinence, 60% cases had Epileptic aura, 65% cases had hypertonicity of the limbs, 60% cases had history of confused state and 45% cases had dryness of the tongue.
9.25 MANIKADAI NOOL IN KAAKKAI VALI (WRIST CIRCUMETRIC SIGN)

Majority of patients had 8 1/4 manikkadai alavu. As per siddha text, persons those who are having diseases of head have 8 1/4 manikkadai alavu.

MANIKADAI NOOL IN HEALTHY VOLUNTEERS:

Out of the 10 cases, 20% of cases had 8 ½ viralkadai alavu, 20% of cases had 9 viralkadai alavu, 20% of cases had 9 ¼ viralkadai alavu, 10% of cases had 9 ½ viralkadai alavu.
## TABLE.1 SHOWING LABORATORY INVESTIGATION REPORTS OF KAAKKAI VALI

<table>
<thead>
<tr>
<th>S.N O</th>
<th>OPD/IPD NO</th>
<th>AGE/S EX</th>
<th>Hb</th>
<th>TC</th>
<th>DC P</th>
<th>DC L</th>
<th>DC E</th>
<th>TRB C</th>
<th>ESR (1/2-1 hr)</th>
<th>BLOOD SUGAR F</th>
<th>BLOOD SUGAR PP BS</th>
<th>R</th>
<th>S.CH O</th>
<th>HD L</th>
<th>LD L</th>
<th>TGL</th>
<th>UREA</th>
<th>CREAT</th>
<th>URIC ACID</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>C86306</td>
<td>27/M</td>
<td>15.2</td>
<td>6100</td>
<td>52</td>
<td>43</td>
<td>5</td>
<td>5.1</td>
<td>2/4</td>
<td>92</td>
<td>109</td>
<td>-</td>
<td>150</td>
<td>30</td>
<td>107</td>
<td>70</td>
<td>21</td>
<td>0.7</td>
<td>5.4</td>
</tr>
<tr>
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<td>C89486</td>
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<td>6700</td>
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<td>43</td>
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<td>4.5</td>
<td>2/4</td>
<td>89</td>
<td>106</td>
<td>-</td>
<td>162</td>
<td>36</td>
<td>120</td>
<td>162</td>
<td>14</td>
<td>0.4</td>
<td>3.0</td>
</tr>
<tr>
<td>3</td>
<td>C83953</td>
<td>21/M</td>
<td>14.4</td>
<td>7200</td>
<td>45</td>
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<td>4</td>
<td>4.6</td>
<td>4/8</td>
<td>-</td>
<td>-</td>
<td>123</td>
<td>185</td>
<td>31</td>
<td>124</td>
<td>146</td>
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<td>0.6</td>
<td>3.9</td>
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<td>9900</td>
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<td>10</td>
<td>4.9</td>
<td>2/4</td>
<td>107</td>
<td>123</td>
<td>190</td>
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<td>5</td>
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<td>4.6</td>
<td>3/6</td>
<td>110</td>
<td>142</td>
<td>-</td>
<td>152</td>
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<td>95</td>
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<td>-</td>
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<td>135</td>
<td>-</td>
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<td>-</td>
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<td>C80896</td>
<td>26/M</td>
<td>VATHAKABAM</td>
<td>8 ¼</td>
<td>THULAM</td>
<td>NOT KNOWN</td>
</tr>
<tr>
<td>6</td>
<td>C86477</td>
<td>50/M</td>
<td>KABAPITTAM</td>
<td>8 ¼</td>
<td>NOT KNOWN</td>
<td>NOT KNOWN</td>
</tr>
<tr>
<td>7</td>
<td>C89891</td>
<td>19/M</td>
<td>VATHAKABAM</td>
<td>8 ¼</td>
<td>DHANUSU</td>
<td>MOOLAM</td>
</tr>
<tr>
<td>8</td>
<td>C89255</td>
<td>38/M</td>
<td>VATHAKABAM</td>
<td>8 ¼</td>
<td>SIMMAM</td>
<td>MAGAM</td>
</tr>
<tr>
<td>9</td>
<td>C62793</td>
<td>29/M</td>
<td>VATHAKABAM</td>
<td>8 ¼</td>
<td>NOT KNOWN</td>
<td>NOT KNOWN</td>
</tr>
<tr>
<td>10</td>
<td>B65039</td>
<td>18/F</td>
<td>KABAVATHAM</td>
<td>8</td>
<td>SIMMAM</td>
<td>POORAM</td>
</tr>
</tbody>
</table>
## TABLE.6 SHOWING ENVAGAI THERVU RESULTS OF KAAKKAI VALI

<table>
<thead>
<tr>
<th>S.N O</th>
<th>IP/OP NO</th>
<th>AGE/SEX</th>
<th>TYPE OF DEGI</th>
<th>MANIKKADAI NOOL</th>
<th>RASI</th>
<th>NATCHATHIRAM</th>
</tr>
</thead>
<tbody>
<tr>
<td>11</td>
<td>C79818</td>
<td>42/M</td>
<td>KABAVATHAM</td>
<td>8</td>
<td>NOT KNOWN</td>
<td>NOT KNOWN</td>
</tr>
<tr>
<td>12</td>
<td>B79182</td>
<td>33/M</td>
<td>KABAVATHAM</td>
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<td>NOT KNOWN</td>
<td>NOT KNOWN</td>
</tr>
<tr>
<td>13</td>
<td>B98503</td>
<td>25/F</td>
<td>VATHAKABAM</td>
<td>8 ¼</td>
<td>KUMBAM</td>
<td>NOT KNOWN</td>
</tr>
<tr>
<td>14</td>
<td>C33690</td>
<td>31/M</td>
<td>VATHAKABAM</td>
<td>8 ¼</td>
<td>DHANUSU</td>
<td>MOOLAM</td>
</tr>
<tr>
<td>15</td>
<td>C94654</td>
<td>23/F</td>
<td>VATHAKABAM</td>
<td>8 ¼</td>
<td>THULAM</td>
<td>NOT KNOWN</td>
</tr>
<tr>
<td>16</td>
<td>C80893</td>
<td>37/M</td>
<td>VATHAKABAM</td>
<td>8 ¼</td>
<td>VIRUCHIGAM</td>
<td>NOT KNOWN</td>
</tr>
<tr>
<td>17</td>
<td>C98318</td>
<td>28/M</td>
<td>VATHAKABAM</td>
<td>8 ¼</td>
<td>MESHAM</td>
<td>NOT KNOWN</td>
</tr>
<tr>
<td>18</td>
<td>C97421</td>
<td>29/M</td>
<td>VATHAKABAM</td>
<td>8 ¼</td>
<td>RISHABAM</td>
<td>NOT KNOWN</td>
</tr>
<tr>
<td>19</td>
<td>D0004365</td>
<td>35/F</td>
<td>VATHAKABAM</td>
<td>8 ¼</td>
<td>KUMBAM</td>
<td>NOT KNOWN</td>
</tr>
<tr>
<td>20</td>
<td>D002489</td>
<td>19/F</td>
<td>KABAVATHAM</td>
<td>8</td>
<td>MEENAM</td>
<td>NOT KNOWN</td>
</tr>
<tr>
<td>S.NO.</td>
<td>OP NO</td>
<td>AGE/SEX</td>
<td>NAADI</td>
<td>NAA</td>
<td>NIRAM</td>
<td>MOZHI</td>
</tr>
<tr>
<td>-------</td>
<td>-------</td>
<td>---------</td>
<td>---------</td>
<td>---------</td>
<td>----------</td>
<td>---------</td>
</tr>
<tr>
<td>1</td>
<td>C72223</td>
<td>37/M</td>
<td>IYYA AZHAL</td>
<td>MAAPADITHAL</td>
<td>WHEATISH</td>
<td>NORMAL</td>
</tr>
<tr>
<td>2</td>
<td>D15789</td>
<td>27/F</td>
<td>IYYA AZHAL</td>
<td>NORMAL</td>
<td>WHEATISH</td>
<td>NORMAL</td>
</tr>
<tr>
<td>3</td>
<td>D15797</td>
<td>24/F</td>
<td>VALI AZHAL</td>
<td>NORMAL</td>
<td>WHEATISH</td>
<td>NORMAL</td>
</tr>
<tr>
<td>4</td>
<td>D13393</td>
<td>26/F</td>
<td>VALI AZHAL</td>
<td>MAAPADITHAL</td>
<td>WHEATISH</td>
<td>NORMAL</td>
</tr>
<tr>
<td>5</td>
<td>C33345</td>
<td>38/M</td>
<td>VALI AZHAL</td>
<td>NORMAL</td>
<td>WHEATISH</td>
<td>NORMAL</td>
</tr>
<tr>
<td>6</td>
<td>C33793</td>
<td>37/M</td>
<td>VALI AZHAL</td>
<td>MAAPADITHAL</td>
<td>WHEATISH</td>
<td>REDDISH</td>
</tr>
<tr>
<td>7</td>
<td>C33782</td>
<td>32/M</td>
<td>VALI AZHAL</td>
<td>MAAPADITHAL</td>
<td>WHEATISH</td>
<td>NORMAL</td>
</tr>
<tr>
<td>8</td>
<td>C33366</td>
<td>50/M</td>
<td>VALI AZHAL</td>
<td>MAAPADITHAL</td>
<td>WHEATISH</td>
<td>NORMAL</td>
</tr>
<tr>
<td>9</td>
<td>C33524</td>
<td>26/M</td>
<td>VALI AZHAL</td>
<td>NORMAL</td>
<td>WHEATISH</td>
<td>NORMAL</td>
</tr>
<tr>
<td>10</td>
<td>C33790</td>
<td>25/M</td>
<td>VALI AZHAL</td>
<td>MAAPADITHAL</td>
<td>WHEATISH</td>
<td>NORMAL</td>
</tr>
</tbody>
</table>
TABLE 8 SHOWING ENN VAGAI THERVUGAL (EIGHT FOLD EXAMINATIONS) RESULTS OF HEALTHY VOLUNTEERS

<table>
<thead>
<tr>
<th>S.NO</th>
<th>OP NO</th>
<th>AGE/SEX</th>
<th>TYPE OF DEGI</th>
<th>MANIKKADAI NOOL</th>
<th>RASI</th>
<th>NATCHATHIRAM</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>C72223</td>
<td>37/M</td>
<td>VATHA PITHAM</td>
<td>10</td>
<td>SIMMAM</td>
<td>MAGAM</td>
</tr>
<tr>
<td>2</td>
<td>D15789</td>
<td>27/F</td>
<td>VATHA PITHAM</td>
<td>9 ¾</td>
<td>DHANUSU</td>
<td>POORADAM</td>
</tr>
<tr>
<td>3</td>
<td>D15797</td>
<td>24/F</td>
<td>VATHA PITHAM</td>
<td>8 ½</td>
<td>NOT KNOWN</td>
<td>NOT KNOWN</td>
</tr>
<tr>
<td>4</td>
<td>D13393</td>
<td>26/F</td>
<td>PITHA VATHAM</td>
<td>10</td>
<td>RISHABAM</td>
<td>NOT KNOWN</td>
</tr>
<tr>
<td>5</td>
<td>C33345</td>
<td>38/M</td>
<td>KABA PITHAM</td>
<td>9 ¼</td>
<td>MESHAM</td>
<td>NOT KNOWN</td>
</tr>
<tr>
<td>6</td>
<td>C33793</td>
<td>37/M</td>
<td>KABA VATHAM</td>
<td>9</td>
<td>NOT KNOWN</td>
<td>NOT KNOWN</td>
</tr>
<tr>
<td>7</td>
<td>C33782</td>
<td>32/M</td>
<td>KABA VATHAM</td>
<td>9 ¼</td>
<td>DHANUSU</td>
<td>NOT KNOWN</td>
</tr>
<tr>
<td>8</td>
<td>C33366</td>
<td>50/M</td>
<td>VATHA PITHAM</td>
<td>9 ½</td>
<td>SIMMAM</td>
<td>NOT KNOWN</td>
</tr>
<tr>
<td>9</td>
<td>C33524</td>
<td>26/M</td>
<td>VATHA PITHAM</td>
<td>8 ½</td>
<td>NOT KNOWN</td>
<td>NOT KNOWN</td>
</tr>
<tr>
<td>10</td>
<td>C33790</td>
<td>25/M</td>
<td>VATHA KABAM</td>
<td>9</td>
<td>MESHAM</td>
<td>NOT KNOWN</td>
</tr>
</tbody>
</table>
“Kaakkai vali” is one among the seven types of Valippu diseases. It is a clinical entity, which features in the book Agathiyar vaithiya Kaandaam is a treatise by Sage Agathiyar.

The author explains all the facts of the disease “Kaakkai vali” with modern and Siddha literatures based on observation and results. The author had screened 50 patients of Kaakkai vali in the out patient department of Ayothisoss Pandithar Hospital, National Institute of Siddha, Chennai-47. Among those 50 cases, 20 cases were enrolled in the study and observed for the signs and symptoms.

Among the 20 cases, males outnumbered females (70%-30%).

From the study, 95% of cases were non-vegetarian. The general population status is reflected in the study population and no specific inference could be made with respect to the study.

Among the 20 cases the prevalence of the disease was found to be higher in the age group 26-35 years (37.50%) and next one is 15-25 years (22.50%) age group and next one is 36-45 years (20.00%). The common cause of Kaakkai vali is caused due to vitiated Vatha humour which initiates Pitta and Kaba humour. As per the Siddha concept, the Vatha humour (below 33 yrs) was affected.

From the above study, it was inferred that the incidence of the disease was found to be higher in Lower economic groups 80%.

In this study, Most of the cases (95%) were hailing from Neithal region. As per Pathartha Guna chinthamani, people residing in Neithal regions are prone to develop Kabha derangements. But because of single centric study, (study done in National Institute of Siddha) type and the location of study place near Neithal area, this could not be properly inferred.

Among the 20 cases, all (100%) were found to possess Thamo gunam. Most of the cases (80%) were reported from Neithal nilam, the remaining 20% of cases were reported from Marutha Nilam.

Majority of the cases were affected in Kaarkaalam season. As per the text, monsoon and cold items act as trigerring factors for the initiation of Valipu noi.
Among the 20 cases majority of them are machine operators who overwork for more than 10 hours, have more stress related problems, this is reflected in the study. Next, Home makers and students are more affected who also have more tension nowadays. Most of them were affected in the duration of more than 12 months.

Among 20 cases, 75% of cases came under Vatha kaalam ie., 0-33yrs and 25% of cases fall under Pitha kaalam (34-66yrs).

In the study majority of the patients fell in Vatha kaalam. As most of the patients are in Vatha kaalam, this is because around the age group 30 yrs people are socially active so they are more prone to get exposed to exterior environment, this is reflected the study. As per the Siddha Text, Vali noi is caused due to vitiated Vatha humour which is reflected in the study.

Among 20 cases, only 13 cases knew about their zodiac signs & rest (7) did not know about their zodiac sign. In 13 cases, 10% of cases were of Thulam, 10% of Simmam, 10% of Dhanusu , 5% under meenam , 5% of viruchigam, 5% of Mesam and 5% of Rishabam.

From the study it is inferred that, majority of the patients (80%) were suffering from this disease for more than a year; it is understood from this study that Kaakkai vali (Grandmal Epilepsy) tends to run a chronic course in many patients.

According to Agathiyar Vaiithiya kaandam, the etiology of Kaakkai vali includes Intake of Animal foods, Lustful desire, Intake of tubers, Intake of millet gruels, Felling trees, Deceit of payments to labourers and Reproaching mentors. In the study, cases 90% of cases had history of intake of animal foods, 50% of cases had history of more intake of more tubers and 50% of cases had history of more intake of more millets, 25% of cases had history of lustful desire 25% of cases had history of Reproaching mentors.

In the twenty cases, majority of study patients were of Iyalbu and Melivu body built.

In the study majority of cases had Maa padithal & vedippu and some had pulipu & inippu suvai (taste) in tongue and increased salivation. Majority of the patients (80%) had increased salivation which is one of the main symptoms in Kaakkai vali (Grandmal Epilepsy). As per the text Agathiar Naadi, pulipu taste in tongue is a sign of Vatha derangement and inippu taste in tongue is a sign of
deranged Kaba humour. So it may be inferred that deranged Vatha and Kaba humour forms base for the genesis of Kaakkai vali. In Healthy volunteers, no specific inference could be made out in this study from the examination of tongue (Naa).

A sizable percentage of patients reported with thontham niram& dark ,normal voice pitch, mitha veppam and increased sweating. Majority of cases affected are having dark complexion (Vatha humour). 40% of cases had fair/white complexion (Kaba humour). Increased sweating is a sign of Kaba derangement. No specific inference could be made from vizhi examination. In Healthy volunteers, no specific inference could be made out in this study from the examination of Niram, Mozhi and Meikuri.

Almost all the cases had the character of normal stools. No specific inference could be made from Malam (Stool) examination.

Almost all the cases and healthy volunteers had normal urine colour (Ila Manjal Niram) with mild aromatic smell and normal density and normal Enjal. No specific inference could be made out in this study from the examination of Neerkuri.

Majority of cases had pearl bead Neikkuri and Fastly spreading nature. As per the text, the disease is caused due to derangement in VathaKabam. Thus it is evident that VathaKaba humour is affected in Kaakkai vali, hence majority of patients had pearl bead shape neikkuri and fastly spreading nature which is validated from the literature.

Majority of the cases had deranged Saaram, Oon, Kozhuppu, Enbu, Moolai and Sukilam.

Majority of cases (65%) had Vatha Kabam naadi. As per the text, Kaakkai vali which is caused due to Vatha Kabama humour which is validated. In healthy volunteers, Naadi was observed to be in physiological state in most of them with respect to body nature, sex and age.

Among the 20 cases, all cases had Periodic episodes of Seizures, 80% cases had history of faecal incontinence, 80% cases had urinary incontinence, 60% cases had Epileptic aura, 65% cases had hypertonicity of the limbs, 60% cases had history of confused state and 45% cases had dryness of the tongue.

From the wrist circumferic sign study, majority of patients (70%) had 8 1/4 manikkadai alavu.
In the 20 cases regarding Dasa vaayu, majority of them had derangement in Abanan, Viyaanan, Udhanan, Samanan, Naagan, Koorman and Kirukaran. Abanan was affected in 15 (75%) cases, had incontinence of motion and urine. Viyanan was affected in 20 (75%) cases had Convulsions, Uthanin was affected in 15 (75%) cases had impaired consciousness. Samanan was affected in 15 (75%) cases. Naagan was affected in 15 (75%) cases had loss of consciousness during convulsion. Koorman was affected in 15 (75%) cases results in increased lacrimation. Kirugaran was affected in 5 (12.5%) cases results in excessive salivation.

From the study on five types of Pittam, the components of Pitham connected with vision and life energy (daily routine activities) are found to be affected. Sathaga pitham was affected in 20 cases (100%) had impaired consciousness Alosagam gets affected in 15 cases (50%) had unable to see and know the objects around the patients during convulsion. The daily routines are greatly affected in Kaakkai vali cases due to deranged Vatham and Kabam humours. No specific inference could be made from derangements in Pitha humour.

From the study on five types of Kabam, the components of Kabam connected with respiration and joint movements are found to be affected. Avalambagam was affected in 12 (60%) cases had cough. Santhigam was affected in 4 cases (20%) had joint pain.

From the study, all the signs and symptoms mentioned in Agathiyar Vaithiya Kaandam literature about Kaakkai vali are found in the cases of Grandmal Epilepsy consistently, therefore the diagnosis Kaakkai vali may considered equivalent to that of the ‘Kaakkai vali’ mentioned in the Agathiyar Vaithiya Kaandam literature.

In EEG study Some of the patients had normal study whereas in some of the patients, there amy be generalised epileptiform activity i.e Grandmal Epilepsy.
CONCLUSION

The study was aimed at investigating into the details of the symptoms given under Kaakkai vali and to define Siddha diagnostic methods and prognosis of Kaakkai vali. The author concludes the study on Kaakkai vali with valuable results validating the Symptomatology and Siddha diagnostic methodology.

Mental stress is said to be an important factor precipitating the disease. Vatha and Kaba humour get deranged by emotional stress. In this study also all patients were having mental agony prior to onset of disease. So Yoga and meditation can be advised along with medicines for the disease.

Clinically the disease is manifested with symptoms like Periodic Episodes of Seizures, Hypertonicity of the limbs, Epileptic aura, History of Urinary incontinence, History of faecal incontinence and dryness of the tongue. Surprisingly, it was found that the symptoms presented by the patients in the study were those of a constant subset of symptoms of Grandmal Epilepsy explained in the present day classification.

In Neerkkuri Examination it was found that many cases of Kaakkai vali had fastly spreading and pearl bearded shape. So Neerkkuri can be taken as one of the significant diagnostic tool for diagnosing this disease.

From the pulse study, it was evident that majority of cases (65%) had Vatha Kabam naadi which can be taken as one of the significant diagnostic tool for diagnosing this disease.

In the study of tongue, majority of cases some had Pulipu (sour taste) & Inippu suvai (sweee taste) lingering in tongue and increased salivation. As per the text Agathiar Naadi, Pulipu taste (sour taste) in tongue is a sign of Vatha derangement and Inippu taste (sweee taste) in tongue is a sign of deranged Kaba humour. So it may be inferred that deranged Vatha and Kaba humour forms the base for Kaakai vali which can be taken as one of the significant diagnostic tool for diagnosing this disease.
From the study, it was evident that majority of them had derangement in Abanan, Viyaan, Udhanan, Saman, Naagan, Koorman And Kirukaran. The components of Kabam connected with respiration and joint movements are mostly affected.

Regarding Udal thathukal, almost all thathus (except Seneer) are affected. So drugs that strengthen the Udal thathukkal should be prescribed.

Mannikkadai nool findings were also conforming to the range 8 - 8 ¼ which according to Agathiyar Soodamani kayaru soothiramindicates the chances of acquiring diseases of head.

Remarkable variations were observed in both Siddha and Modern parameters from the analysis done between Kaakkai vali cases and Control group.

Finally with the results and observation of various Siddha parameters, it was found that the disease Kaakkai vali is caused due to vitiation of Vatha and Kaba humours.

Thus this study has validated the symptomatology elucidated by Sage Agathiyar and matched it with that of a disease – Grandmal Epilepsy. So the author concludes that these Siddha diagnostic parameters can be successfully used by a physician at the clinical desk in the diagnosis of Kaakkai vali.
SIDDHA BOOKS

- Agathiyar Vaidhiya Kaandham – 600
- T.V.Sambasivam Pillai – Dictionary-
- K.N.Kuppusamy mudhaliar-siddha maruthuvam pothu-sixth edition-2004
- Siddha Maruthuva Sirappu - Dr.P.Thiyagarajan, L.I.M
- Dr. C.S.Uthamarayan H.P.I.M – Thotra kirama araaichiyum Siddha maruthuva varalarum Fourth edition - 2008
- Kooshaya Anuboga Vaithiya Brahma Rayasiyam (II part),
- Aathma Ratchaamirtham – Vaithiya Saara saagiragam
- Roga Nrnaya Saaram,
- Agathiyar vaithiya kaaviyam1500
- Agathiyar vaithiya kaaviyam1000
- Yugi vaithiya chinthamani
- Agathiyar sikicha Ratna Deepam
- Therayar vagadam
- Pararasasekaram
- Anubava Vaithiya Deva ragasam,
- Selarpana noi and Udara Noi Thooghudi
- Uyir Kaakum Siddha Maruthuvam
- Theraiyar karisal
- Kuzhanthai maruthuvam-Dr.K.S.Murugesu mudhaliyar
MODERN BOOKS

- Textbook of Medicine, PANDA
- Davidson’s Textbook of Medicine
- Neurology in Clinical Practice 5th edition, Voulme-2
- Harrison’s Internal medicine, 16th edition
- Kumar & Clark Clinical medicine, 5th edition
- Cecil textbook of Medicine, 22nd edition
- Davidson’s Principles and Practice of Medicine, 19th edition
- Textbook of Medicine, Krishnadas
- Robins and cotran-Pathologic basis of disease-Seventh edition.
- Grays anatomy- Dr Henry gray –Thirty ninth edition
- Sembulingam and Prema sembulingam’s Essentials of Physiology.
- Inderbir singh-Human Embryology-Eighth edition
- Epilepsy – Dr. R. K. Gupta, Dr. B. M. Soni.
- Brain’s diseases of the Nervous system

WEB PAGES

- www.rightdiagnosis.com
- www.epilepsy.com
**ASSESSMENT FORMS**

**Form –I**  
Screening and selection Proforma

**Form –IA**  
History Proforma on enrollment

**Form II**  
Clinical Assessment on enrollment

**Form –III**  
Laboratory investigations on enrollment, during the study

**Form –IV**  
Consent form  
(Vernacular and English versions)

**Form -IV- A**  
Patient Information Sheet  
(Vernacular and English versions)
ANNEXURE I
NATIONAL INSTITUTE OF SIDDHA, CHENNAI – 47.
DEPARTMENT OF NOI NAADAL.
A STUDY ON DIAGNOSTIC METHODOLOGY AND
SYMPTOMATOLOGY OF “KAACKAI VALI ”
FORM I
SCREENING AND SELECTION PROFORMA


5. Name: ________________ 6. Age (years): ________ 7. Gender: M □ F □


10. Address:

-------------------------------------------------------------------------------------------------

-------------------------------------------------------------------------------------------------

-------------------------------------------------------------------------------------------------

-------------------------------------------------------------------------------------------------

11. Contact Nos: __________________________

12. E-mail : ______________________________
### INCLUSION CRITERIA

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<th>YES</th>
<th>NO</th>
</tr>
</thead>
<tbody>
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</tr>
</tbody>
</table>

Patients who fulfill any of the four criteria are included to the study.

### EXCLUSION CRITERIA

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<thead>
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<th>NO</th>
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</thead>
<tbody>
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</tbody>
</table>

Date: Investigator Lecturer
ANNEXURE II
NATIONAL INSTITUTE OF SIDDHA, CHENNAI – 47.
DEPARTMENT OF NOI NAADAL
A STUDY ON DIAGNOSTIC METHODOLOGY AND
SYMPTOMATOLOGY OF “KAAKKAI VALI”
FORM I-A
HISTORY PROFORMA

1. Sl.No of the case: ___________________

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

3. Age (years): _______ DOB  

   D D M M Y E A R

4. Educational Status:

   1) Illiterate  □  2) Literate □  3) Student □  4) Graduate/Postgraduate □

5. Nature of work:

   1) Sedentary work □

   2) Field work with physical labour □

   3) Field work Executive □

6. Complaints and Duration:

   ____________________________________________________________
   ____________________________________________________________
   ____________________________________________________________
   ____________________________________________________________
   ____________________________________________________________

7. History of present illness:
8. History of Past illness:

<table>
<thead>
<tr>
<th>Condition</th>
<th>1. Yes</th>
<th>2. No</th>
</tr>
</thead>
<tbody>
<tr>
<td>Systemic hypertension</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ischemic heart disease</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Dyslipidaemia</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Jaundice</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Bronchial asthma</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Any drug allergy</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Any surgeries</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Any other trauma or injury in the skull</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

9. Habits:

<table>
<thead>
<tr>
<th>Habit</th>
<th>1. Yes</th>
<th>2. No</th>
</tr>
</thead>
<tbody>
<tr>
<td>Smoker</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Alcoholic</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Drug Addiction</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Betel nut chewer:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Tea</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Coffee</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Milk</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Type of diet  V □  NV □  □

10. Personal history:

Marital status: Married □  Unmarried  □

No. of children: Male: _____  Female: _____

11. Family history:

12. Menstrual & Obstetric history:

Age at menarche _______ years

Gravidity □  Parity □

Duration of the menstrual cycle (days)………………

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

7. GENERAL ETIOLOGY FOR KAANKAI VALI :

<table>
<thead>
<tr>
<th>YES</th>
<th>NO</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Intake of Animal foods</td>
<td>□  □</td>
</tr>
<tr>
<td>2. Lustful desire</td>
<td>□  □</td>
</tr>
<tr>
<td>3. Intake of tubers</td>
<td>□  □</td>
</tr>
<tr>
<td>4. Intake of millet gruels</td>
<td>□  □</td>
</tr>
<tr>
<td>5. Felling trees</td>
<td>□  □</td>
</tr>
<tr>
<td>6. Improper payments to labourers</td>
<td>□  □</td>
</tr>
<tr>
<td>7. Reproaching mentors</td>
<td>□  □</td>
</tr>
</tbody>
</table>
8. CLINICAL SYMPTOMS OF KAAKKAI VALI:

1. Age 18-55yrs both sex
2. Periodic Episodes of Seizures
3. Epileptic aura
4. Dryness of the tongue.
5. Hypertonicity of the limbs.
6. History of Confused state.
7. History of Faecal incontinence
8. History of Urinary incontinence

Date: Investigator Lecturer
ANNEXURE III
NATIONAL INSTITUTE OF SIDDHA, CHENNAI – 47
DEPARTMENT OF NOI NAADAL.
A STUDY ON DIAGNOSTIC METHODOLOGY AND
SYMPTOMATOLOGY OF “KAAKKAI VALI”
FORM II
CLINICAL ASSESSMENT

1. Serial No: __________
2. Name: ________________
3. Date of birth: __________
   D D M M Y E A R
4. Age: ________ years
5. Date: ____________

GENERAL EXAMINATION:
1. Height: ________ cms. BMI ______ (Weight Kg/ Height m2)
2. Weight (kg):
3. Temperature (°F):
4. Pulse rate:
5. Heart rate:
6. Respiratory rate:
7. Blood pressure:
8. Pallor:
9. Jaundice:
10. Cyanosis:
11. Lymphadenopathy:
12. Pedal edema:
13. Clubbing:
14. Jugular vein pulsation:
### VITAL ORGANS EXAMINATION

<table>
<thead>
<tr>
<th>Organ</th>
<th>Normal</th>
<th>Affected</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Heart</td>
<td>□</td>
<td>□</td>
</tr>
<tr>
<td>2. Lungs</td>
<td>□</td>
<td>□</td>
</tr>
<tr>
<td>3. Brain</td>
<td>□</td>
<td>□</td>
</tr>
<tr>
<td>4. Liver</td>
<td>□</td>
<td>□</td>
</tr>
<tr>
<td>5. Kidney</td>
<td>□</td>
<td>□</td>
</tr>
<tr>
<td>6. Spleen</td>
<td>□</td>
<td>□</td>
</tr>
<tr>
<td>7. Stomach</td>
<td>□</td>
<td>□</td>
</tr>
</tbody>
</table>

### SYSTEMIC EXAMINATION:

1. Cardio Vascular System

2. Respiratory System

3. Gastrointestinal System

4. Central Nervous System

5. Uro genital System

6. Endocrine System
SIDDHA SYSTEM OF EXAMINATION

[1] ENVAGAI THERVU [EIGHT-FOLD EXAMINATION]

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

(a) Naadi Nithanam (Pulse Appraisal)

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

2. Desam (Climate of the patient’s habitat)
   1. Kulir
      (Temperate)
   2. Veppam
      (Hot)

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

4. Udal Vanmai (General body condition)
   1. Iyyalbu
      (Normal built)
   2. Valivu
      (Robust)
   3. Melivu
      (Lean)

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

(b) Naadi nadai (Pulse Play)

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

II. NAA (TONGUE)

   1. Maa Padinthiruthal
      1. Present
      2. Absent
      (Coatedness)

   2. Niram
      1. Karuppu
      2. Manjal
      3. Velluppu
      (Colour) (Dark) (Yellow) (Pale)

   3. Suvai
      1. Pulippu
      2. Kaippu
      3. Inippu
      (Taste sensation) (Sour) (Bitter) (Sweet)
4. Vedippu  
   1. Absent  
   2. Present  
   (Fissure)

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

### III. NIRAM (COMPLEXION)

<table>
<thead>
<tr>
<th></th>
<th>Karuppu</th>
<th>Manjal</th>
<th>Velluppu</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Dark</td>
<td>Yellowish</td>
<td>Fair</td>
</tr>
</tbody>
</table>

### IV. MOZHI (VOICE)

1. Sama oli  
   (Medium pitched)

2. Urattha oli  
   (High pitched)

3. Thazhantha oli  
   (Low pitched)

### V. VIZHI (EYES)

1. Niram (Venvizhi)  
   (Discolouration)

<table>
<thead>
<tr>
<th></th>
<th>Karuppu</th>
<th>Manjal</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Dark</td>
<td>Yellow</td>
</tr>
</tbody>
</table>

3. Sivappu  
   (Red)

4. Velluppu  
   (White)

5. No Discoloration

2. Kanneer  
   (Tears)

<table>
<thead>
<tr>
<th></th>
<th>Normal</th>
<th>Increased</th>
<th>Reduced</th>
</tr>
</thead>
</table>

3. Erichchal  
   (Burning sensation)

<table>
<thead>
<tr>
<th></th>
<th>Present</th>
<th>Absent</th>
</tr>
</thead>
</table>

4. Peelai seruthal  
   (Mucus excrements)

<table>
<thead>
<tr>
<th></th>
<th>Present</th>
<th>Absent</th>
</tr>
</thead>
</table>
VI. MEI KURI (PHYSICAL SIGNS)

1. Veppam  
   (Warmth) (Mild) (Moderate) (Low)

2. Viyarvai  
   1. Increased □ 2. Normal □ 3. Reduced □
   (Sweat)

3. Thodu vali  
   1. Absent □ 2. Present □
   (Tenderness)

VII. MALAM (STOOLS)

1. Niram  
   1. Karuppu □ 2. Manjal □
   (Color) (Dark) (Yellowish)

2. Sikkal  
   1. Present □ 2. Absent □
   (Constipation)

3. Sirutthal  
   1. Present □ 2. Absent □
   (Poorly formed stools)

4. Kalichchal  
   1. Present □ 2. Absent □
   (Loose watery stools)

5. Seetham  
   1. Present □ 2. Absent □
   (Watery and mucoid excrements)

6. Vemmai  
   1. Present □ 2. Absent □
   (Warmth)
7. History of habitual constipation  1. Present  
2. Absent  

8. Passing of  
a) Mucous  1. Yes  
2. No  
b) Blood  1. Yes  
2. No  

VIII. MOOTHIRAM (URINE)  
(a) NEER KURI (PHYSICAL CHARACTERISTICS)  

1. Niram (colour)  

<table>
<thead>
<tr>
<th>Colour</th>
<th>1. Yes</th>
<th>2. No</th>
</tr>
</thead>
<tbody>
<tr>
<td>Colourless</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Milky purulent</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Greenish</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Orange</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Red</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Orange</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Dark brown</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Brown red</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Brown red or yellow</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

2. Manam (odour)  

<table>
<thead>
<tr>
<th>Odour</th>
<th>1. Yes</th>
<th>2. No</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ammonical</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Fruity</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Others</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

3. Edai (Specific gravity)  

<table>
<thead>
<tr>
<th>Specific Gravity</th>
<th>1. Yes</th>
<th>2. No</th>
</tr>
</thead>
<tbody>
<tr>
<td>Normal (1.010-1.025)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>High Specific gravity (&gt;1.025)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Low Specific gravity (&lt;1.010)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Low and fixed Specific gravity (1.010-1.012)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
### 4. Alavu (volume)

<table>
<thead>
<tr>
<th></th>
<th>Yes</th>
<th>No</th>
</tr>
</thead>
<tbody>
<tr>
<td>Normal (1.2-1.5 lt/day)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Polyuria (&gt;2lt/day)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Oliguria (&lt;500ml/day)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### 5. Nurai (froth)

<table>
<thead>
<tr>
<th></th>
<th>Yes</th>
<th>No</th>
</tr>
</thead>
<tbody>
<tr>
<td>Clear</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cloudy</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### 6. Enjal (deposits)

<table>
<thead>
<tr>
<th></th>
<th>Yes</th>
<th>No</th>
</tr>
</thead>
</table>
| (b) NEI KURI (oil spreading sign)
  1. Aravam (Serpentine fashion) |     |    |
  2. Mothiram (Ring)          |     |    |
  3. Muthu (Pearl beaded appear) |     |    |
  4. Aravil Mothiram (Serpentine in ring fashion) |     |    |
  5. Aravil Muthu (Serpentine and Pearl pattern) |     |    |
  6. Mothirathil Muthu (Ring in pearl fashion) |     |    |
  7. Mothirathil Aravam (Ring in Serpentine fashion) |     |    |
  8. Muthil Aravam (Pearl in Serpentine fashion) |     |    |
  9. Muthil Mothiram (Pearl in ring fashion) |     |    |
  10. Asathiyam (Incurable) |     |    |
  11. Mellena paraval (Slow spreading) |     |    |
  12. others:________________ |     |    |
[2]. MANIKADAI NOOL (Wrist circummetric sign) : _____ fbs

[3]. IYMPORIGAL /IYMPULANGAL
(Penta sensors and its modalities)

1. Normal  2. Affected

1. Mei (skin) ☐ ☐

2. Vaai (Mouth/ Tongue) ☐ ☐

3. Kan (Eyes) ☐ ☐

4. Mookku (Nose) ☐ ☐

5. Sevi (Ears) ☐ ☐

[4]. KANMENTHIRIYANGAL /KANMAVIDAYANGAL
(Motor machinery and its execution)

1. Normal  2. Affected

1. Kai(Hands) ☐ ☐

2. Kaal (Legs) ☐ ☐

3. Vaai (Mouth) ☐ ☐

4. Eruvai (Analepy) ☐ ☐

5. Karuvaai (Birth canal) ☐ ☐
### [5]. YAKKAI (SOMATIC TYPES)

<table>
<thead>
<tr>
<th>Vatha constitution</th>
<th>Pitha constitution</th>
<th>Kaba constitution</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lean and lanky built</td>
<td>Thin covering of bones and joints</td>
<td>Plumpy joints and limbs</td>
</tr>
<tr>
<td>Hefty proximities of limbs</td>
<td>Hefty proximities of limbs</td>
<td>Hefty proximities of limbs</td>
</tr>
<tr>
<td>Cracking sound of joints on walking</td>
<td>Cracking sound of joints on walking</td>
<td>Cracking sound of joints on walking</td>
</tr>
<tr>
<td>Dark and thicker eye lashes</td>
<td>Dark and thicker eye lashes</td>
<td>Dark and thicker eye lashes</td>
</tr>
<tr>
<td>Dark and light admixed complexion</td>
<td>Dark and light admixed complexion</td>
<td>Dark and light admixed complexion</td>
</tr>
<tr>
<td>Split hair</td>
<td>Split hair</td>
<td>Split hair</td>
</tr>
<tr>
<td>Clear words</td>
<td>Clear words</td>
<td>Clear words</td>
</tr>
<tr>
<td>Scant appetite for cold food items</td>
<td>Scant appetite for cold food items</td>
<td>Scant appetite for cold food items</td>
</tr>
<tr>
<td>Poor strength despite much eating</td>
<td>Poor strength despite much eating</td>
<td>Poor strength despite much eating</td>
</tr>
<tr>
<td>Loss of libido</td>
<td>Loss of libido</td>
<td>Loss of libido</td>
</tr>
<tr>
<td>In generosity</td>
<td>In generosity</td>
<td>In generosity</td>
</tr>
<tr>
<td>Sleeping with eyes half closed</td>
<td>Sleeping with eyes half closed</td>
<td>Sleeping with eyes half closed</td>
</tr>
</tbody>
</table>

**RESULTANT SOMATIC TYPE:** _____________________________
**[6] GUNAM**

1. Sathuva Gunam
2. Rajo Gunam
3. Thamo Gunam

**[7] UYIR THATHUKKAL**

**A. VALI**

<table>
<thead>
<tr>
<th>Centre Description</th>
<th>1. Normal</th>
<th>2. Affected</th>
</tr>
</thead>
<tbody>
<tr>
<td>Praanan (Heart centre)</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>Abaanan (Matedial of muladhar centre)</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>Samaanan (Navel centre)</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>Udhaanan (Forehead centre)</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>Viyaanan (Throat centre)</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>Naahan (Higher intellectual function)</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>Koorman (Air of yawning)</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>Kirukaran (Air of salivation)</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>Devathathan (Air of laziness)</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>Dhananjeyan (Air that acts on death)</td>
<td>☐</td>
<td>☐</td>
</tr>
</tbody>
</table>
### B. AZHAL

<table>
<thead>
<tr>
<th></th>
<th>1. Normal</th>
<th>2. Affected</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Anala pittham</td>
<td>[ ]</td>
</tr>
<tr>
<td></td>
<td>(Gastric juice)</td>
<td></td>
</tr>
<tr>
<td>2.</td>
<td>Prasaka pittham</td>
<td>[ ]</td>
</tr>
<tr>
<td></td>
<td>(Bile)</td>
<td></td>
</tr>
<tr>
<td>3.</td>
<td>Ranjaka pittham</td>
<td>[ ]</td>
</tr>
<tr>
<td></td>
<td>(Haemoglobin)</td>
<td></td>
</tr>
<tr>
<td>4.</td>
<td>Aalosaka pittham</td>
<td>[ ]</td>
</tr>
<tr>
<td></td>
<td>(Aqueous Humour)</td>
<td></td>
</tr>
<tr>
<td>5.</td>
<td>Saathaka pittham</td>
<td>[ ]</td>
</tr>
<tr>
<td></td>
<td>(Life energy)</td>
<td></td>
</tr>
</tbody>
</table>

### C. IYYAM

<table>
<thead>
<tr>
<th></th>
<th>1. Normal</th>
<th>2. Affected</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Avalambagam</td>
<td>[ ]</td>
</tr>
<tr>
<td></td>
<td>(Serum)</td>
<td></td>
</tr>
<tr>
<td>2.</td>
<td>Kilethagam</td>
<td>[ ]</td>
</tr>
<tr>
<td></td>
<td>(saliva)</td>
<td></td>
</tr>
<tr>
<td>3.</td>
<td>Pothagam</td>
<td>[ ]</td>
</tr>
<tr>
<td></td>
<td>(lymph)</td>
<td></td>
</tr>
<tr>
<td>4.</td>
<td>Tharpagam</td>
<td>[ ]</td>
</tr>
<tr>
<td></td>
<td>(cerebrospinal fluid)</td>
<td></td>
</tr>
<tr>
<td>5.</td>
<td>Santhigam</td>
<td>[ ]</td>
</tr>
<tr>
<td></td>
<td>(Synovial fluid)</td>
<td></td>
</tr>
</tbody>
</table>
### 8] UDAL THATHUKKAL

<table>
<thead>
<tr>
<th>INCREASED SAARAM (CHYLE)</th>
<th>DECREASED SAARAM(CHYLE)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Loss of appetite</td>
<td>Loss weight</td>
</tr>
<tr>
<td>Excessive salivation</td>
<td>Tiredness</td>
</tr>
<tr>
<td>Loss of perseverance</td>
<td>Dryness of the skin</td>
</tr>
<tr>
<td>Excessive heaviness</td>
<td>Diminished activity of the sense organs</td>
</tr>
<tr>
<td>White musculature</td>
<td></td>
</tr>
<tr>
<td>Cough, dyspnea, excessive sleep</td>
<td></td>
</tr>
<tr>
<td>Weakness in all joints of the body</td>
<td></td>
</tr>
</tbody>
</table>

A. SAARAM: INCREASED [ ] DECREASED [ ]

<table>
<thead>
<tr>
<th>INCREASED CENNEER(BLOOD)</th>
<th>DECREASED CENNEER(BLOOD)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Boils in different parts of the</td>
<td>Anemia</td>
</tr>
<tr>
<td>Anorexia</td>
<td>Tiredness</td>
</tr>
<tr>
<td>Mental disorder</td>
<td>Neuritis</td>
</tr>
<tr>
<td>Spleenomegaly</td>
<td>Lassitude</td>
</tr>
<tr>
<td>Colic pain</td>
<td>Pallor of the body</td>
</tr>
<tr>
<td>Increased pressure</td>
<td></td>
</tr>
<tr>
<td>--------------------</td>
<td>---</td>
</tr>
<tr>
<td>Reddish eye and skin</td>
<td></td>
</tr>
<tr>
<td>Jaundice</td>
<td></td>
</tr>
<tr>
<td>Haematuria</td>
<td></td>
</tr>
</tbody>
</table>

B. CENNEER: INCREASED [ ]  DECREASED [ ]

<table>
<thead>
<tr>
<th>INCREASED OON (MUSLE)</th>
<th>DECREASED OON (MUSLE)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cervical lymphadenitis</td>
<td>Impairment of sense organs</td>
</tr>
<tr>
<td>Vernical ulcer</td>
<td>Joint pain</td>
</tr>
<tr>
<td>Tumour in face, abdomen, thigh, genitalia</td>
<td>Jaw, thigh and genitalia gets shortened</td>
</tr>
<tr>
<td>Hyper muscular in the cervical region</td>
<td></td>
</tr>
</tbody>
</table>

C. OON: INCREASED [ ]  DECREASED [ ]
<table>
<thead>
<tr>
<th>INCREASED KOZHUPPU (ADIPOSE TISSUE)</th>
<th>DECREASED KOZHUPPU (ADIPOSE TISSUE)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cervical lymph adenitis</td>
<td>Pain in the hip region</td>
</tr>
<tr>
<td>Vernical ulcer</td>
<td></td>
</tr>
<tr>
<td>Tumour in face, abdomen, thigh, genitalia</td>
<td>Disease of the spleen</td>
</tr>
<tr>
<td>Hyper muscular in the cervical region</td>
<td></td>
</tr>
<tr>
<td>Dyspnoea</td>
<td></td>
</tr>
<tr>
<td>Loss of activity</td>
<td></td>
</tr>
</tbody>
</table>

D. KOZHUPPU: INCREASED □ DECREASED □

<table>
<thead>
<tr>
<th>INCREASED ENBU (BONE)</th>
<th>DECREASED ENBU (BONE)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Growth in bones and teeth</td>
<td>Bones diseases</td>
</tr>
<tr>
<td></td>
<td>Loosening of teeth</td>
</tr>
<tr>
<td></td>
<td>Nails splitting</td>
</tr>
<tr>
<td></td>
<td>Falling of hair</td>
</tr>
</tbody>
</table>

E. ENBU: INCREASED □ DECREASED □
<table>
<thead>
<tr>
<th>INCREASED MOOLAI (BONE MARROW)</th>
<th>DECREASED MOOLAI (BONE MARROW)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Heaviness of the body</td>
<td>Osteoporosis</td>
</tr>
<tr>
<td>Swollen eyes</td>
<td>Sunken eyes</td>
</tr>
<tr>
<td>Swollen phalanges</td>
<td></td>
</tr>
<tr>
<td>chubby fingers</td>
<td></td>
</tr>
<tr>
<td>Oliguria</td>
<td></td>
</tr>
<tr>
<td>Non healing ulcer</td>
<td></td>
</tr>
</tbody>
</table>

F. MOOLAI: INCREASED ☐ DECREASED ☐

<table>
<thead>
<tr>
<th>INCREASED SUKKILAM/SURONITHAM (SPERM OR OVUM)</th>
<th>DECREASED SUKKILAM/SURONITHAM (SPERM OR OVUM)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Infatuation and lust towards women / men</td>
<td>Failure in reproduction</td>
</tr>
<tr>
<td>Urinary calculi</td>
<td>Pain in the genitalia</td>
</tr>
</tbody>
</table>

G. SUKKILAM/SURONITHAM: INCREASED ☐ DECREASED ☐
<table>
<thead>
<tr>
<th>I. Vali Migu Gunam</th>
<th>1. Present</th>
<th>2. Absent</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Emaciation</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. Complexion – blackish</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3. Desire to take hot food</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4. Shivering of body</td>
<td></td>
<td></td>
</tr>
<tr>
<td>5. Abdominal distension</td>
<td></td>
<td></td>
</tr>
<tr>
<td>6. Constipation</td>
<td></td>
<td></td>
</tr>
<tr>
<td>7. Insomnia</td>
<td></td>
<td></td>
</tr>
<tr>
<td>8. Weakness</td>
<td></td>
<td></td>
</tr>
<tr>
<td>9. Defect of sense organs</td>
<td></td>
<td></td>
</tr>
<tr>
<td>10. Giddiness</td>
<td></td>
<td></td>
</tr>
<tr>
<td>11. Lack of interest</td>
<td></td>
<td></td>
</tr>
<tr>
<td>II. Pitham Migu Gunam</td>
<td>1. Present</td>
<td>2. Absent</td>
</tr>
<tr>
<td>-----------------------</td>
<td>------------</td>
<td>-----------</td>
</tr>
<tr>
<td>1. Yellowish discoloration of skin</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>2. Yellowish discoloration of the eye</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>3. Yellow coloured urine</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>4. Yellowishness of faeces</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>5. Increased appetite</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>6. Increased thirst</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>7. Burning sensation over the body</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>8. Sleep disturbance</td>
<td>☐</td>
<td>☐</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>III. Kapham migu gunam</th>
<th>1. Present</th>
<th>2. Absent</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Increased salivary secretion</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>2. Reduced activeness</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>3. Heaviness of the body</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>4. Body colour – fair complexion</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>5. Chillness of the body</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>6. Reduced appetite</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>7. Eraippu</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>8. Increased sleep</td>
<td>☐</td>
<td>☐</td>
</tr>
</tbody>
</table>
[10]. **NOIUTRA KALAM**

1. Kaarkaalam  
   (Aug15-Oct14)
2. Koothirkaalam  
   (Oct15-Dec14)

3. Munpanikaalam  
   (Dec15-Feb14)
4. Pinpanikaalam  
   (Feb15-Apr14)

5. Ilavanirkaalam  
   (Apr15-June14)
6. Muthuvenirkaalam  
   (June15-Aug14)

[11]. **NOI UTRA NILAM**

1. Kurunji  
   (Hilly terrain)
2. Mullai  
   (Forest range)
3. Marutham  
   (Plains)

4. Neithal  
   (Coastal belt)
5. Paalai  
   (Desert)

[12]. Date of Birth

[13]. Time of Birth

[14]. Place of Birth: _________________________
### Rasi (Zodiac Sign)

1. Mesam
2. Rishabam
3. Midhunam
4. Katakam
5. Simmam
6. Kanni
7. Thulam
8. Viruchihari
9. Dhanusu
10. Maharam
11. Kumbam
12. Meenam

### Natchathiram (birth stars):

1. Aswini
2. Barani
3. Karthikai
4. Rohini
5. Mirugaseeradam
6. Thiruvathirai
7. Punarpoosam
8. Poosam
9. Ayilyam
10. Makam
11. Pooram
12. Uthiram
13. Astham
14. Chithirai
15. Swathi
16. Visakam
17. Anusam
18. Kettai
19. Moolam
20. Pooradam
21. Uthiradam
22. Thiruvonam
23. Avittam
24. Sadayam
25. Poorattathi
26. Uthirattathi
27. Revathi
28. Not Known

Date: ""
Investigator: ""
Lecturer: ""
ANNEXURE IV
NATIONAL INSTITUTE OF SIDDHA, CHENNAI – 47
DEPARTMENT OF NOI NAADAL

A STUDY ON DIAGNOSTIC METHODOLOGY AND
SYMPTOMATOLOGY OF “KAKKAI VALI”

FORM-III

LABORATORY INVESTIGATIONS

1. O.P No: ________ Lab.No_______ Serial No_______

2. Name: __________________

3. Date of birth: D D M M Y E A R

4. Age: _______ years

5. Date of assessment: __________________

Urine Examination

6. Sugar: Fasting ______

   Post prandial ______

   Random

7. Albumin ______

8. Deposits ______

9. Bile salts ______

10. Bile pigments ______

11. Urobilinogen ______

Blood

9. Hb _____ gms%

10. TRBC ________________ Cells/cu mm
11. DC
P___% L_____% E_____% M_____% B_____%

12. ESR At 30 minutes _______ mm At 60 minutes _______ mm

13. TRBC _______________ Cells/cu mm

14. Blood Sugar-® ______mgs%
   Fasting ______mgs%
   Post prandial ______mgs%

15. Serum Total Cholesterol ______mgs %

16. HDL ______ mgs%

17. LDL ______mgs%

18. Triglycerides ______mgs%

19. Blood Urea ______mgs%

20. Serum Creatinine ______mgs%

21. Serum Total bilirubin_______mgs%

22. Serum Direct Bilirubin_______mgs%

23. Serum Indirect Bilirubin_______mgs%

24. SGOT_______mgs%

25. SGPT ______mgs%

26. Serum Alkaline Phosphatase_______mgs%

27. Serum Total Protein_______mgs%

28. Serum Albumin_______mgs%

29. Serum Globulin_______mgs%

30. Serum Calcium ______mgs%

31. Serum Phosphorus_______mgs%

32. Serum Uric acid_______mgs%
MOTION EXAMINATION

33. Ova
34. Cyst
35. Occult Blood

SPECIFIC INVESTGATIONS

Electro Encephalo Gram [EEG] :

Date: Signature of the Doctor:
FORM IV - INFORMED WRITTEN CONSENT FORM

I …………………..exercising my free power of choice, hereby give my consent to be included as a subject in the diagnostic trial entitled “A study on KAAKKAI VALI”. I may be asked to give urine and blood samples during the study.

I have been informed about the study to my satisfaction by the attending investigator about the purpose of this trial, the nature of study and the laboratory investigations. I also give my consent to publish my study results in scientific conferences and reputed scientific journals for the betterment of clinical research.

I am also aware of my right to opt out of the trial at any time during the course of the trial without having to give the reasons for doing so.

Signature/thumb impression of the patient:
Date:
Name of the patient:

Signature of the investigator:
Date:

Head of the Department:
PURPOSE OF RESEARCH AND BENEFITS:

The diagnostic research study in which your participation is proposed to assess the diagnostic methods in Siddha methodology in “KAAKKAI VALI” patients. Knowledge gained from this study would be of benefit to patients suffering from such conditions for the diagnosis and prognosis.

STUDY PROCEDURE:

You will be interviewed and examined as OP and IP patients at the study centre. At the first visit the physician will conduct a brief physical examination and assess the condition followed by Envagai thervu and routine blood and urine analysis. After matching the inclusion criteria you will be included in this study and you will be examined on the basis of Envagai thervu.

POSSIBLE RISK:

During this study there may be a minimum pain to you while drawing blood sample.

CONFIDENTIALITY:

Your medical records will be treated with confidentiality and will be revealed only to other doctors / scientists. The results of this study may be published in a scientific journal, but you will not be identified by your name.
YOUR PARTICIPATION AND YOUR RIGHTS:

Your participation in this study is voluntary and you may be withdrawn from this study anytime without having to give reasons for the same. You will be informed about the findings that occur during the study. If you do agree to take part in this study, your health record will need to be made available to the investigators. If you don’t wish to participate at any stage, the level of care you receive will in no way be affected.

The Ethics committee cleared the study for undertaking at OPD and IPD, NIS. Should any question arise with regards to this study you contact following person:

Contact: Investigator
Department of Noi Naadal
National Institute of Siddha,
Chennai-600 047.
தினம் மிகுத்த முதல்வராய், கிராமகம்-47.

இவரும் என் தீர்மானம்

"காந்தை அல்ல" - இவரும் கனிப்பு செய்வது மொத்தமானவர்கள் புள்ளியும் தீங்க

பதிவு

பதிப்பில்-32103203 (2011-2013)

சொந்தபொருள் தலைவர் பாடல்

ஆண்டு சிறப்புகள் பார்க்கும்:

தானார் பானைருமித்தால் கோளால் - என்றும் "காந்தை அல்ல" -

இவரும் கனிப்பு செய்வது மொத்தமானவர்கள் புள்ளியும் தீங்க

சிற்றுறுப்பில் இருவரால் கனிப்பு கணிப்பாக்கல் தீங்க அறிவுற்றது - என்றும் காரணிகள்

சொந்தபொருளில் புள்ளியும் சொந்தபொருள் புள்ளியும் பார்க்கை செய்வது.

ஆண்டு செய்து:

தானார் நூற்றாண்டில் பானையும் புனிதசாக்கியதின் கூறும்

இருக்கிறது. போர்க்காட்டிற்கு பிறகு எவர் தொடர்புபெற்று கூறும்

சொந்தபொருளில் இருவரால் கணிப்பாக்கல் மற்றும்

புனிதசாக்கிய கூறும் புனிதசாக்கிய கூறும் - செய்து - என்றும் காரணிகள்

சொந்தபொருளில் கணிப்பாக்கல்.

சொந்த உபயோகங்கள்:

- பதிப்பில் - என் புனிதசாக்கியக் - என்று

சொந்தபொருளில் சிறந்த வங்கிய என்று பதிவு.
செயல்விளக்கம்:

கால்நடையில் பதிவு செய்யப்பட்ட ஆண்டுகாலை முறையும், குழுக்கள் அமைந்த பிரிவில் திறக்கியுள்ளது.

முற்பட்டுள்ள பண்டாணத்தின் மூலம்:

- மூலங்களின் குறுக்கில் பண்டாணத்தின் குறுக்கியாகத் விளக்கம் பெற்று வரும் குழுவும் திறக்கியுள்ளது
- மூலங்களின் மறுக்கியாக அமைந்து கொண்டாட்ட முறைக்கு திறக்கும் பண்டாணத்தின்
- மூலங்களின் துடுப்புக்குக்குள் கொண்டாட்ட, திறக்கும் பண்டாணத்தின், முறைக்கு கொண்டாட்ட குழுவும்

முற்பட்டுள்ள பண்டாணத்தின் மூலம், மறுக்கியாக அமைந்து கொண்டாட்ட, திறக்கும் பண்டாணத்தின் முறையின் பெயர் ஆண்டுகாலை முறையில் அமைக்கப்பட்டுள்ளது.

அமைந்த குறுக்கிக்கானது - குழுவும் குறுக்கியாக பெயர் ஆண்டுகாலை முறையிலும்.

அமைந்துள்ள,

செயல்விளக்க குறுக்கை, வருவாய் விழா புத்தகங்கள் முறையிலும்,

சிறுத்தம்-47.
Name: Dr. A. Guru Manikaranjan. Reg. No. 32103223
Title: A Study on Diagnostic Methodology and Symptomatology of Karakkai Vali/Grand Mal Epilepsy


DECISION

<table>
<thead>
<tr>
<th>Opinion of the Institutional Ethics Committee – Please Check one</th>
</tr>
</thead>
<tbody>
<tr>
<td>[ ] Approval</td>
</tr>
<tr>
<td>[ ] Modifications required prior to approval (Please specify one space below)</td>
</tr>
<tr>
<td>[ ] Disapproval</td>
</tr>
</tbody>
</table>

Date of review: 

Signed: [Dr. V. Subramanian]
Chairperson

(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

(DR. MANICKAVASAKAM)
Member Secretary
**C. T. SCAN OF BRAIN PLAIN & CONTRAST**

Serial axial CT sections studied from base of skull to vertex before and after administration of non-ionic IV contrast.

Visualized paranasal sinuses appear normal.

Orbits and their contents are normal in the visualized section.

Posterior fossa: Both cerebellar hemispheres, cerebello-pontine cisterns and visualized brain stem are normal. 4th ventricle is normal.

Sella: Intra-sellar and supra/para-sellar regions are normal.

Brain cisterns are normal. 3rd and lateral ventricles are normal.

Cerebral Hemispheres: The cerebral hemispheres show normal parenchymal attenuation. Coronal sulci/gyri and gray-white differentiation are normal. Both the basal ganglia, internal/external capsules and thalami are normal. No mass effect or midline shift.

No infarction / SOL.

There is no abnormal enhancement after administration of intravenous contrast.

Comment: Base of skull and the calvarium appear normal. Soft tissues are normal.

**IMPRESSION:**

- No significant brain abnormality detected on this examination.

---

**SRM MEDICAL COLLEGE HOSPITAL AND RESEARCH CENTRE**
**DEPARTMENT OF DIAGNOSTIC IMAGING**

<table>
<thead>
<tr>
<th>Patient Name</th>
<th>Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mr. VIJAYAKUMAR</td>
<td>05.10.2011</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Age/ Sex</th>
<th>OP/IP No</th>
</tr>
</thead>
<tbody>
<tr>
<td>31/M</td>
<td>583527</td>
</tr>
</tbody>
</table>

**Clinical Impression:** Seizure disorder

**Ref. Dept:** Neuro
Consultant Neurologist
Dr. V. Chandramouleshwaran, M.D., M.A.

Essentially normal study

IMPRESSION:
No epileptiform or localisation abnormalities were noted.
Hyperventilation and photo stimulation did not induce any abnormalities.

EEG REPORT

Awake record showing wellformed alpha background activity 9 to 10 Hz.

INTERPRETATION:

noweak record showing wellformed alpha background activity 9 to 10 HZ.

EEG DOCUMENTATION

ELECTROENCEPHALOGRAPHY

PATIENT IS CO-OPERATIVE

COMMENTS

SEIZURE HISTORY

NO MEDICATION

NAME: [Redacted]
DATE: 11/09/2011
AGE: 35 yrs
REASON: Epileptic Seizure
REF. NO.: 0456

MEENAKSHI CLINIC (Centre for Neuro & Medical Care)
Plot No. 3, Lashmi Nagar, Extension, Nanganallur, Chennai - 600061, Ph: 2245555, 9500117171
Dr. Chandramouleswaran M.D. M. Ch.

Sv. 30

Informed / Explanation (by Dr. S. Sridhar)

Informed / Explanation (by Dr. S. Sridhar)

Informed / Explanation (by Dr. S. Sridhar)

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Date: 10-Aug-2012
ID : 105
Name : MR. KATHIRESAN
Age : 38 (M)
Address :
Handedness : Right
Medication :
Last Attack :
Refd. By : SELF,

NOTES

Dr. DR. G. MUGUNTHAN,