A study on diagnostic methodology and symptomatology of Paanikkamba Vadham (Parkinson's disease)

(Dissertation Subject)

For the partial fulfilment of the requirements to the Degree of

Doctor of Medicine (Siddha)

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1. INTRODUCTION

Ever since the dawn of civilization man has been starving to unravel the mysteries of nature and to withstand the structure and purpose of his being. The tamils have undertook a systematic study of nature and its elements and from which they were able to grasp the knowledge. They had developed a highly systematised medicine SIDDHA SYSTEM.

SIDDA system is one among the oldest system of medicine in the world. Siddhars were people who achieved “Siddhi” which means perfection. They were philosophers, healers and men with supernatural powers.

There were 18 important Siddhars and “Guru Yugimunivar” is one among this noble system.

This system emphasis that diagnosis and medical treatment should be oriented to disease and also should take into account the patient, his environment, sex, age, habits, mental frame, habitat, diet and physical condition. Disease means disequilibrium of humors or thathus.

"அதியார் கலசராணல் பாணித்தல் பிராஞ்சு வெள்ளாட்டு கோவில் கொழுங்கள் கொள்ளும் யாரேற்று பாளம் கொண்டு செய்து வளா கொண்டு தலை கொள்ள பிரமிக்கீடு குறிப்பிட்டு தெளுள்ளக்கூழான்நோர்"

இரு கொல்லத்தை விளக்கி போக்கிலை.

The diagnosis of disease is involved in identifying its cause. The identification of its causative feature is through yakkai ilakkanam, manikadai nool, and astrology. Of the 96 basic elements, the fundamental principle of siddha science involves the 3 elements namely vatha, pitha and kabha.

General classification of diseases by Siddha system.

According to Agasthiyar Rathina Surukkam, 4448 diseases are classified. Based on Agasthiyar Erandayeeram, the diseases formed only of Vadha were 1482. Guru Yugimunivar explained 80 vatha diseases, among which the author took the topic Paanikamba Vadham. The author took importance in trying to
elucidate the diagnostic methodology & symptomatology of **Paanikamba Vadham** through

1. Eight fold examination
2. Manikadai nool (wrist circumetric sign)
3. Astrology
4. Thega elekkanam.

The whole work must be thoroughly analyzed with a view to enunciate the scientific principles underlying the system. The clinical features of Paanikkamba Vadham reminds extra pyramidal system and in more particular Parkinson's disease.

Worldwide, based on the available prevalence studies, there are likely to be more than 6 million people with Parkinson's disease. In China alone there are more than 1.7 million people with Parkinson's disease. The world's highest prevalence rate is in U.S.A., 970 per lakhs. The Parsi communities of Mumbai, India have a prevalence of Parkinson's Disease of 328.3 per 100,000 populations. The crude overall annual incidence rate was 12.3 per 100,000. Male: female ratio = 1.9. The incidence rates for both men and women rose rapidly after the age of 60 years. Interestingly, the male: female ratio also generally increases with age. The goal of this study is to have a diagnostic methodology of Panikamba vadham. This dissertation work is small dew on the vast research.
2. AIM AND OBJECTIVES

2.1. AIM
To conduct a study on Paanikkamba vatham as mentioned in yugi vaithya chinthamani and to evolve & standardize its diagnostic methodology in Siddha system of medicine.

2.2. OBJECTIVES
2.2.1. PRIMARY OBJECTIVES:
- To conduct the cause and clinical course of disease by keen observation on the symptoms of Paanikkamba vatham
- To elucidate a diagnostic methodology for Paanikkamba vatham

2.2.2. SECONDARY OBJECTIVES:
- The Dissertation work includes literary and analytical study on Aetiology, Pathogenesis, Clinical features of Paanikkamba vatham
- To evolve diagnostic and preventive measures and help clinicians to follow standard line of treatment & adopt proper preventive measures.
- To correlate the symptoms of Paanikkamba vatham with that of closely resembling condition Parkinson’s disease in modern medical literature which in turn helps in globalization of Siddha system among other medical systems.
3. REVIEW OF LITERATURE- SIDDHA

A. SIDDHA PHYSIOLOGY

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

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

These five elements together constitute the human body and origin of other material objects are explained as Pancheekaranam (Mutual Intra Inclusion). None of these elements could act independently by themselves. They could act only in co-ordination with other four elements. All the living creatures and the non-living things are made up of these five basic elements.

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. Thoal (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

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 up to 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 expulsions of stools and urine, ejaculation of semen and menstruation.
3. Paravu kaal (Viyanan)-This is responsible for the motor and sensory functions of the entire body and the distribution of nutrients to various tissues.
4. **Mael nokku kaal** (Uthan) - It originates at utharakini. It is responsible for digestion, absorption and distribution of food. It is responsible for all the upward movements.

5. **Samaanan** (Nadu kaal)-This is responsible for the neutralization of the other 4 Valis i.e. Piranan, abanan, viyanan and uthanan. Moreover it is responsible for the nutrients and water balance of the body.

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

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

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

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

10. **Dhanancheyan**-Expelled three days after the death by bursting out of the cranium. It is responsible for the oedema, plethora and abnormal swelling of 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 aasayam.

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

   4. **Chalavasayam** (Excretory organ for liquid waste) - Urinary Bladder, kidney. Site of the formation and excretion of urine.

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


    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) “ குண்டு ஏற்காடு முன்னை வரு”**

1. **Moolatharam**- Situated at the base of spinal column between genital organ and anal orifice beneath the perineum. Letter "இம்" is stationed here.
2. **Swathitanam**- Located 2 finger widths above the Moolaathaaram, (i.e.) midway between genital and navel region. Letter "இ" is inherently present here. Earth element is attributed to this region.
3. **Manipooragam**-Located 8 finger widths above the Swathitanam, (i.e.) at the naval center. Letter "ம" is inherently present here. Element is water.
4. **Anakatham**-Located 10 finger widths above Manipooragam, (i.e.) location of heart. Letter found is"அ”. Element is fire.
5. **Visuthi**-Located 10 finger widths above the Anakatham (i.e.) located in throat. Letter "சம" is inherently present. Element is Air.
6. **Aakinai**-Situated between the two eyebrows. Letter "அ” 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**-Serve as an obstacle due to claiming ownership of the property of others selves and thereby inviting troubles
14. Thodam- 3 *(Three Humours)*
   1. **Vali** (Vatham) - It is the creative force. Formed by combination of Vaayu and Aakaya bootham
   2. **Azhal** (Pitham) - It is the protective force. Formed by Thee bootham
   3. **Iyam** (Kabam) - It is the destructive force. Formed by Mann and Neer bootham

15. Eadanai -3 *(Physical Bindings)*
   1. **Porul Patru** - Materialistic affinity
   2. **Puthalvar Patru** - Sibbling /Familial bonding
   3. **Uлага Patru** - Worldly affections

16. Gunam – 3 *(Three Cosmic qualities)*
   1. **Sathuvam** (Characters of Renunciations or Ascetic Virtues)- The grace, control of senses, wisdom, penance, generosity, excellence, calmness, truthfulness are 8 qualities attributed to this benevolent trait.
   2. **Raso** (Royal Character)- Enthusiasm, wisdom, valour, virtue, penance, offering gift, art of Learning, listening are the 8 traits
   3. **Thamo** (Carnal/Immoral Character)- Immorality, lust, anger, murderousness, laziness, violation of justice, gluttony, falsehood, forgetfulness, fraudulence.

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** - Hatred/Grudge
   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 lie 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 navel, producing the respiration.

5. **Uyirpadakkam** – Oblivious of the surroundings. The Jeevaathma is deeply immersed in Moolaathaaram resulting in 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 humours are in the ratio 4:2:1 in equilibrium which is a healthy normal Condition, They are called as the life forces or humours.
The vali naadi is formed by the combination of Abanan and Idagalai.

The Azhal nadi is formed by combination of Piranan and Pinkalai.

The Iyya naadi is formed by combination of samanan and Suzhumunai.

I. Vali (Vatham)

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

The sites of vali

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

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

**PROPERTIES OF VALI**

"துவயானடி தாரங்கு பரேராணி தொன்கை
துவயானடி பனைலாயீடே தொன்கை
சைகு புரவனமங்கை சைகு குறைபே
பார்த்தியம் காள்கங்கை வாடே"

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/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 are 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.

THE TYPES OF AZHAL

1. Aakkanal – Anila pitham or Pasaka 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 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 function 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 Iyams

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 plump 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 Samakkini. 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**

   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, distension, 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** (Rainy season) (August 16 – October 15)
- **Koothirkalam** (Late rainy) (October 16 – December 15)
- **Munpanikalam** (Early winter) (December 16 – February 15)
- **Pin panikalam** (Late winter) (February 16 – April 15)
- **Ilavenilkalam** (Early summer) (April 16 – June 15)
- **Mudhuvenilkalam** (Late summer) (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),
6. **Erpaddu** (Afternoon).

Each perumpozhuthu and sirupozhuthu is associated with the three humours 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** (Defecation)
5. **Kottavi** (Act of yawning)
6. **Pasi** (Sensation of hunger)
7. **Neer vetkai** (Sensation of thirst)
8. **Erumal** (Cough)
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.
3. A.9. THE ASTROLOGY

Macrososm 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 an integral part of universal nature. The forces prevailing in the microcosm (Human body) are analogous with that of the forces prevailing the macrocosm (Universe). The natural forces acting in and through various organs of the body are intimately related to or similar to the corresponding to the forces acting in and through the organisms of the world.

This closely follows the Siddhars doctrine

"அஹ்ஸ்தியருளுமாய்த்து பிள்ளையானம்
பிள்ளையானும் அஹ்ஸ்தியருள்ளானம்
அஹ்ஸ்தியருளைப் பிள்ளையானத்தில்
அஹ்ஸ்தியருளைப் பிள்ளையானம் சும்புடி"

Astral influences:

All the influences which are irradiate from the sun, planets and that of the stars can act up on 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 the new moon. Mars causes anaemia and lack of nervous vigour. A conjugation of the moon with other planets such as Venus, mars, etc may make their influence still more injurious.

The 8th place forms the laghanam 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 may 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 instance in which every sign of the zodiac has 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
4) Cancer - Chest and adjacent parts.
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

3. A.10. 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 humours 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 upon the bile, gall bladder, left ear, pudendum, kidneys, fever, jaundice, convulsions, haemorrhage, 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, gonorrhoea, 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, phlebitis, 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>

6. According to literature Thiruvalluvar periya sunthara sekaram.

1. **Sooriyan** - Head
2. **Santhiran** - Face
3. **Sevvaai** - Chest
4. **Puthan** - Center of Posterior Trunk
5. **Guru** - Stomach
6. **Sukkiran** - Groin, Genitalia  
7. **Sani** - Thigh (Thudai)  
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.
3.B. SIDDHA PATHOLOGY

3.b.1. KUGARANA NILAI (PATHOLOGICAL STATE) IN SIDDHA MEDICINE

This is the first medical system to emphasize health as the perfect state of physical, psychological social and spiritual component of human being.

The condition of the human body in which the dietary habits, daily activities and the environmental influence keep the three humours in equilibrium is considered as healthy living.

3. B.2. DISEASE

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

3. B.3. THE CHARACTERISTIC FEATURES OF DISEASE

Diseases are of two kinds:

1. Pertaining to the body
2. Pertaining to the mind according to the variation of the three humours.

1. Causes of Disease

Excepting the disease caused by our previous birth, the disease is caused by our food habits and actions. This has been rightly quoted in the following verses by sage Thiruvalluvar,

"பிள்ளையார் குருமுனிப்பால் சுருக்குகற்பாள்ளுடன் குழுப்புமிக்குழுக்குறை வைத்தை" 

The food and actions of a person should be in harmony with the nature of his body. Any increase or decrease in a humour viz. Vatham, Pitham, Kabam leads to the derangement of the three humours. The acceptance of food means the taste and quality of the food eaten and a person’s ability to digest. Actions 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.

According to “Theran Karisal”

"விளையாட்சி பதிவிகுறை நூற்றணம் குழுக்குறை வெளிப்படுத்தியில் குழுப்பில் வெளிப்படுத்தி நூற்றணம் வைத்தை"
So disease is a condition in which there is derangement in the five elements, which alters the three humours, reflected in turn in the seven physical constituents. The change could be an increase or decrease in the humours. This shows their following signs as per the vitiation of individual humour.

-  கண்ம வியாகக
-  தீய பெருக்க
-  ஹ௃தையுத்தவியம் மற்றும் தென்பினை
-  சார்வம் மற்றும் நாச்சோ
-  குறுக்கமான இறுத்தூறு
-  புறாக்கல் மற்றும் நாய்க்க
-  குறாக்கல் பழந்தூறு
-  குறாக்கல் வியாக
-  வெய்வாக்கல் மற்றும் வியாக
-  புறாக்கல் மற்றும் புறாக்கல்
-  புறாக்கல் வியாகப்பெருக்க
-  புறாக்கல் புறாக்கல்
-  புறாக்கல் வியாகப்பெருக்க
-  புறாக்கல் புறாக்கல்
-  புறாக்கல் வியாகப்பெருக்க
-  புறாக்கல் புறாக்கல்

-  கண்ம வியாகக
-  தீய பெருக்க
-  ஹ௃தையுத்தவியம் மற்றும் தென்பினை
-  சார்வம் மற்றும் நாச்சோ
-  குறுக்கமான இறுத்தூறு
-  புறாக்கல் மற்றும் நாய்க்க
-  குறாக்கல் பழந்தூறு
-  குறாக்கல் வியாக
-  புறாக்கல் மற்றும் வியாக
-  புறாக்கல் பழந்தூறு
-  புறாக்கல் வியாகப்பெருக்க
-  புறாக்கல் புறாக்கல்
-  புறாக்கல் வியாகப்பெருக்க
-  புறாக்கல் புறாக்கல்

-  கண்ம வியாகக
-  தீய பெருக்க
-  ஹ௃தையுத்தவியம் மற்றும் தென்பினை
-  சார்வம் மற்றும் நாச்சோ
-  குறுக்கமான இறுத்தூறு
-  புறாக்கல் மற்றும் நாய்க்க
-  குறாக்கல் பழந்தூறு
-  குறாக்கல் வியாக
-  புறாக்கல் மற்றும் வியாக
-  புறாக்கல் பழந்தூறு
-  புறாக்கல் வியாகப்பெருக்க
-  புறாக்கல் புறாக்கல்
-  புறாக்கல் வியாகப்பெருக்க
-  புறாக்கல் புறாக்கல்
### 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 THATHUKKAL

They are the basic principles which constitute the entire body

<table>
<thead>
<tr>
<th>UDAL KATTUKKAL</th>
<th>INCREASED FEATURES</th>
<th>DECREASED FEATURES</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>1. SARAM</strong></td>
<td>Loss of appetite, excessive salivation, diminished activity, heaviness, pallor, cold, decreased physical constituents, dyspnoea, flatulence, cough excessive sleep.</td>
<td>Dryness of skin, tiredness, loss of weight, lassitude and irritability while hearing louder sounds.</td>
</tr>
<tr>
<td>2. SENNEER</td>
<td>Boils in different parts of the body, splenomegaly, tumours, pricking pain, loss of appetite, hematuria, hypertension, reddish eye and skin, leprosy and jaundice.</td>
<td>Affinity to sour and cold food, nervous, debility, dryness and pallor.</td>
</tr>
<tr>
<td>3. OON</td>
<td>Tubercular adenitis, venereal diseases, extra growth around neck, cheeks, abdomen, thigh and genitalia.</td>
<td>Lethargic sense organs, pain in the joints, muscle wasting in mandibular region, gluteus region, penis and thighs.</td>
</tr>
<tr>
<td>4. KOZHUPPU</td>
<td>Identical feature of increased flesh, tiredness, dyspnoea on exertion, extra musculature in gluteus region, external genitalia, chest, abdomen and thighs.</td>
<td>Loins pain, splenomegaly and emaciation.</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>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. KAALAM

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

The Methodology of diagnosing disease in Siddha system shows uniqueness in its principle. The principle comprises of examination of Tongue, Complexion and Modulation in speech, inspection of Eyes and findings by palpation. It also includes examination of Urine and Stool. The reinforcement of diagnosis is based on Naadi (pulse) examination. All these together constitute ‘Envagai thervugal’ which forms the basis of diagnostic methodology in Siddha system of medicine.

These Tools not only help in diagnosis but also to observe the prognosis of the diseases and for reassuring the patient and to be informed about the nature of diseases. Besides these envagai thervugal there are some other parameters in siddha system which are greatly helpful in diagnosing various disease, they are Manikadai Nool (wrist circummetric sign) and ‘Sodhidam (Astrology)

3. C.2.ENVAGAI THERVUGAL
Various aspects of Siddha regarding ‘Envagai Thervugal’

As per Saint Therayar, the eight methods of diagnosis are Naadi (Pulse) Naa (Tongue), Niram (Colour), Mozhi(Voice), vizhi (Eyes), Malam (Faeces), Neer (Urine) and sparisam (Touch & palpation).
As per sage Agathiyar Naadi (pulse), Malam (stools), Salam (urine), Niram (complexion), Gunam (character), MugaKuri (facies), Thegam (constitution), Vayadhu (age), Elamai are the diagnostic tools.

"அ கதியார் நாடியும் மலம் சுட்டு சுட்டு மலிகீந்த விதையரும் தொலைநூல் விதையரும் சுட்டு மலிகீந்த சுட்டு என்பன விதையரின் விதையரும் தொலைநூல் விதையரின் விதையரும் சுட்டு மலிகீந்த சுட்டு மலிகீந்த சுட்டு என்பன விதையரும் தொலைநூல் விதையரும் சுட்டு மலிகீந்த சுட்டு மலிகீந்த சுட்டு என்பன விதையரின் விதையரும் தொலைநூல் விதையரின் விதையரும் சுட்டு மலிகீந்த சுட்டு மலிகீந்த சுட்டு என்பன விதையரும் தொலைநூல் விதையரும் சுட்டு மலிகீந்த சுட்டு மலிகீந்த சுட்டு என்பன விதையரின் விதையரும் தொலைநூல் விதையரின் விதையரும் சுட்டு மலிகீந்த சுட்டு மலிகீந்த சுட்டு என்பன விதையரும் தொலைநூல் விதையரின் விதையரும் சுட்டு மலிகீந்த சுட்டு மலிகீந்த சுட்டு என்பன விதையரின் விதையரும் தொலைநூல் விதையரின் விதையரும் சுட்டு மலிகீந்த சுட்டு மலிகீந்த சுட்டு என்பன விதையரின் விதையரும் தொலைநூல் விதையரின் விதையரும் சுட்டு மலிகீந்த சுட்டு மலிகீந்த சுட்டு என்பன விதையரின் விதையரும் தொலைநூல் விதையரின் விதையரும் சுட்டு மலிகீந்த சுட்டு மலிகீந்த சுட்டு என்பன விதையரின் விதையரும் தொலைநூல் விதையரின் விதையரும் சுட்டு மலிகீந்த சுட்டு மலிகீந்த சுட்டு என்பன விதையரின் விதையரும் தொலைநூல் விதையரின் விதையரும் சுட்டு மலிகீந்த சுட்டு மலிகீந்த சுட்டு என்பன விதையரின் விதையரும் தொலைநூல் விதையரின் விதையரும் சுட்டு மலிகீந்த சுட்டு மலிகீந்த சுட்டு என்பன விதையரின் விதையரும் தொலைநூல் விதையரின் விதையரும் சுட்டு மலிகீந்த சுட்டு மலிகீந்த சுட்டு என்பன விதையரின் விதையரும் தொலைநூல் விதையரின் விதையரும் சுட்டு மலிகீந்த சுட்டு மலிகீந்த சுட்டு என்பன விதையரின் விதையரும் தொலைநூல் விதையரின் விதையரும் சுட்டு மலிகீந்த சுட்டு மலிகீந்த சுட்டு என்பன விதையரின் விதையரும் தொலைநூல் விதையரின் விதையரும் சுட்டு மலிகீந்த சுட்டு மலிகீந்த சுட்டு என்பன விதையரின் விதையரும் தொலைநூல் விதையரின் விதையரும் சுட்டு மலிகீந்த சுட்டு மலிகீந்த சுட்டு என்பன விதையரின் விதையரும் தொலைநூல் விதையரின் விதையரும் சுட்டு மலிகீந்த சுட்டு மலிகீந்த சுட்டு என்பன விதையரின் விதையரும் தொலைநூல் விதையரின் விதையரும் சுட்டு மலிகீந்த சுட்டு மலிகீந்த சுட்டு என்பன விதையரின் விதையரும் தொலைநூல் விதையரின் விதையரும் சுட்டு மலிகீந்த சுட்டு மலிகீந்த சுட்டு என்பன விதையரின் விதையரும் தொலைநூல் விதையரின் விதையரும் சுட்டு மலிகீந்த சுட்டு மலிகீந்த சுட்டு என்பன விதையரின் விதையரும் தொலைநூல் விதையரின் விதையரும் சுட்டு மலிகீந்த சுட்டு மலிகீந்த சுட்டு என்பன விதையரின் விதையரும் தொலைநூல் விதையரின் விதையரும் சுட்டு மலிகீந்த சுட்டு மலிகீந்த சுட்டு என்பன விதையரின் விதையரும் தொலைநூல் விதையரின் விதையரும் சுட்டு மலிகீந்த சுட்டு மலிகீந்த சுட்டு என்பன விதையரின் விதையரும் தொலைநூல் விதையரின் விதையரும் சுட்டு மலிகீந்த சுட்டு மலிகீந்த சுட்டு எ

According to literature KannuSaami Paramparai Vaithiayam 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 Mug am (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 (Thigam)**

Based on a clinical perspective, the tongue has been explored extensively. The color, texture, and moisture of the tongue provide valuable diagnostic information.

1.1. Tongue Examination (Thigam): A method of assessing the condition of the tongue, which is considered a primary indicator of health in Ayurveda.
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.

2. COLOUR EXAMINATION

In Vali, Azhal and Iyyam vitiations, the colour of the body will be dark, yellow or red and fair respectively.

3. VOICE EXAMINATION

In Vali, Azhal and Iyyam vitiations, the colour of the body will be dark, yellow or red and fair respectively.
In vitation of Vali, Azhal and Iyyam the voice will be medium pitched base and shrill or low pitched respectively. By the voice, the strength of the body can be assessed.

4. THE EYES EXAMINATION (கண்ணால் விளக்கம்)

In Vali disease the tears are darkened, in Azhal disease they are yellow, in Iyya disease they are whitish in colour and in thontha disease the tears are multi coloured. In Vali disease there will be excessive tears (epiphora). In disturbance of all three humours, eyes will be inflamed and reddish.
4. **FAECES EXAMINATION**

”Vali – faeces is hard, dry and black in colour. In Azhal vitiation, it is yellow. In Iyyam disturbance it is pale.”

In exacerbated Vali – faeces is hard, dry and black in colour. In Azhal vitiation, it is yellow. In Iyyam disturbance it is pale.

5. **URINE EXAMINATION**

”Neer’ refers to urine ‘kuri’ refers to sign. Theraiyar, one of the renowned authors of siddha medicine described urine examination and stages of health. He had explained about the colour and consistency of the urine in vitiated humour and disease. He also emphasised 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

1. Yellow colour – similar to straw soaked water – indigestion
2. Lemon colour – good digestion
3. Reddish yellow – heat in body
4. Colour similar to flame of forest red or flame coloured excessive heat
5. Colour of saffron – extreme heat

NEI KURI (நீக்குறி)

"அரவும் வேண்டும் அனியேகலம்
அம்ந அனேகன அகரண்ட குளோகக்கு
அரவு உட்கொண்டிருக்கும் வரவு
அறிவுச் சொல்லிய கருணை
நீகுறி நடைக்கூறு நிர்வகம் கருணை"

"ஏரித்தன் நிறச்சைத்தூட கொண்டு
அதுடன் பொருள் அடை நிர்வகம்
புதியகல் நிறத்தில் நடையாக்கு கொண்டே"

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 Iyya 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.

6. TOUCH (த்துட்சு, த்துறுத்து)

"மருத்துவம் வாத்துக்கும் உத்தரம்
நோய்களில் இருந்து நோய் நோய்
மருத்துவம் குறிப்பு குறிப்பு
மருத்துவம் விகிதத்தில் விகித வரும்"
In Vali disease some regions of the body feel 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

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 a most important role in Enavagai 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 humours is reflected in the naadi. These three humours organize, regularize and integrate basic functions of the human body. So, naadi serves as a good indicator of all ailments.
Naadi is felt by,

<table>
<thead>
<tr>
<th>Naadi</th>
<th>Felt By</th>
</tr>
</thead>
<tbody>
<tr>
<td>Vali</td>
<td>Tip of index finger</td>
</tr>
<tr>
<td>Azhal</td>
<td>Tip of middle finger</td>
</tr>
<tr>
<td>Iyyam</td>
<td>Tip of ring finger</td>
</tr>
</tbody>
</table>

The pulse is measured in wheat/grain expansive height\(s\). The normal unit of pulse diagnosis is 1 for Vali (Vatham), \(\frac{1}{2}\) for Azhal (Pitham) and \(\frac{1}{4}\) for Iyyam (Kapham).

THE PULSE PLAY:

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

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

1. C.3. MANIKADAI NOOL (Wrist circumetric sign)

Agathiya soodamanikayiru

\[\text{காலைக்காலுக்குள் காலைக்காலுக்குள் காலைக்காலுக்குள் காலைக்காலுக்குள்} \]
\[\text{விலகியது விலகியது விலகியது விலகியது} \]
\[\text{அவ்வர்களுக்குள் அவ்வர்களுக்குள் அவ்வர்களுக்குள்} \]
According to the Pathinen Siddhar Naadinool, Manikadainool is also helpful in diagnosis. Manikadai nool can be explained as

Mani= the protuberance of the wrist joint  
Kadai= the finger breadth  
Nool= the thread.

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.

**NAADI NADAI IN PAANIKKAMBA VATHAM**

"நடைநாதை பாணிக்கம் வதம் என்று அழைப்பன்

நாதை பாணிக்கங்கள் வாயுற்றை கொள்ளவேண்டும்

நோலை வரும் கால்வாய் உச்சம் புள்ளியாகும்

மநிக்காதை பாணிக்கங்கள் கிருட்டிகைத்தரும்

நோலையும் கல்லும் பாணிக்கங்கள் என்று உடையது

நோலை புள்ளியாகும் கிருட்டிகைத்தரும்

காசாகாம் வேலைப்பாடு காசாகாம்"
மார்க்க நூற்றாண்டு

"பார்வடு விஷ்ணுவின் செய்ய்கொள்ள
பார்வடு கிலை விளம்பு மோகன்தைத்திழாகுள
சிந்து பின்னணி கி வருத்தால்
சிங்கமலை முதல்கால திமுத்திமக
வாயிலாக வெள்ளையும் காலகண்ட
மானும் நீண்டு புனிதந்த உண்டு வரும் கூற்று
பானாகிட்டு கருப்பு கல்வைத்தை
அலங்காரங்கள் வாழ்ச்சிகளத்து முற்கிளையை”

பித்தளம் நூற்றாண்டு - ஆர்க்கிராம்

"பித்தளம் விசுவடையும் பித்தளம் வியாழ்க்காணும் கனவுள் முயலநிலைத்தல் நிறுவனமறைமடும
சிக்கலே விசுவடையும் குறுக்காய் முடிவுறுத்தமணம்
இறந்தும் விசுவடையும் விசுவடையும் முடிவுறுத்தமணம்
பித்தளம் விசுவடையும் விசுவடையும் முற்கிளையை”
4. READING BETWEEN THE LINES OF PAANIKKAMBA VADHAM IN GURU YUGIMUNIVAR’S LITERATURE

ACCORDING TO YUGI VAITHIYA SINTHAMANI - 800:

One of the three humours occupying the region below the naval. It is responsible for all the movements in the body, spreads throughout the body & causes respiration, hunger, thirst, etc, without itself undergoing any change.

BREAKUP SYMPTOMATOLOGY

<table>
<thead>
<tr>
<th>Tamil Term</th>
<th>English Term</th>
</tr>
</thead>
<tbody>
<tr>
<td>பானிக்கம்பா வாதம்</td>
<td>Loss of appetite</td>
</tr>
<tr>
<td>பானிக்கம்பா லோக்</td>
<td>Difficulty in walking</td>
</tr>
<tr>
<td>பானிக்கம்பா திருச்சுந்தரம்</td>
<td>Tremor</td>
</tr>
<tr>
<td>கம்பேண்டாதார திருச்சுந்தரம்</td>
<td>R rigidity of both upper limbs</td>
</tr>
<tr>
<td>கம்பேண்டாதார லோக்</td>
<td>Loss of sleep</td>
</tr>
<tr>
<td>கம்பேண்டாதார பானிக்கம்பா</td>
<td>Devoid of sense</td>
</tr>
<tr>
<td>கம்பேண்டாதார பானிக்கம்பா பானிக்கம்பா</td>
<td>Dry skin</td>
</tr>
<tr>
<td>மேம்பையும் அன்றார்களும்</td>
<td>Moaning</td>
</tr>
</tbody>
</table>
### ANALOGY BETWEEN YUGIMUNIVAR’S TEXT AND MODERN SYSTEM OF CLASSIFICATION

<table>
<thead>
<tr>
<th>Yugimunivar’s Text</th>
<th>Modern System of Classification</th>
</tr>
</thead>
<tbody>
<tr>
<td>மருத்குரல் (Searching)</td>
<td>விளையும் (becoming full)</td>
</tr>
<tr>
<td>அம்பிஞ்னோட் (Belly)</td>
<td>ஆரோக்ய் (food)</td>
</tr>
<tr>
<td>குர்னி (World)</td>
<td>சாலையும் (walking)</td>
</tr>
<tr>
<td>சிலிக்கார்கள் -- Tremor,</td>
<td>கை -- கரும் (arm)</td>
</tr>
<tr>
<td>சிலியுட்டி -- விலை (rigid)</td>
<td>மலர்கள் -- நோய்கள் (sleep)</td>
</tr>
<tr>
<td>அல்பார்விக் (devoid of sense)</td>
<td>கண்டுவர் -- சிலிக்கார்கள் trembling)</td>
</tr>
<tr>
<td>மருதும் -- பால்(body)</td>
<td>மருத்துவம் -- காய்ப்படும் (dryness)</td>
</tr>
<tr>
<td>மருதும் -- பாலி(lips)(mouth)</td>
<td>மருத்துவம் -- கூட்டப்படும் (moaning)</td>
</tr>
</tbody>
</table>

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**Quoting from YUGI VAITHYA SINTHAMANI**

"மருத்குரல் மருத்துவம் மீனென்பி சுருக்கி
மருத் தாவீரமியலில் குண்டு மறை லம்பப் பங்கு"  

**Quotings from modern text**

1. “20-30% PD cases having anorexia due to nausea, irregular bowel movements, constipation”

   📖 **TEXT BOOK OF PARKINSON’S DISEASE & MOVEMENT DISORDERS** by Jankovic Tolosa

2. “Somatic symptoms that discriminate Dementia in Parkinson’s Disease from Parkinson’s Disease included initial &middle insomnia, loss of appetite, loss of libido,”

   📖 **PARKINSONS DISEASE: Diagnosis &clinical management** by Stewart A. Factor
Quotings from MODERN TEXT

1. “Bradykinesia/akinesia is difficulty in initiating and slowness in executing, movement. It is the most disabling and progressive motor sign of Parkinson’s disease and is a core feature for diagnosis of Parkinson’s disease”

   THE OXFORD TEXTBOOK OF MEDICINE

2. “Gait disturbance with shuffling short steps and a tendency to turn en bloc is a prominent feature of PD. Impaired balance on turning ……..”

   PARKINSONS DISEASE Diagnosis and clinical management- Stewart A.Factor.

3. “Individuals with more progressive Parkinson's disease develop a distinctive shuffling walk... .Individuals may freeze in mid-stride and appear to fall forward while walking”.

   Clinical medicine-kumar&clark

Quotings from MODERN TEXT

1. “Rest tremor, at a frequency of 4-6 Hz, typically appears…”

   Harrisons principle of internal medicine

2. “Tremor is the most presenting sign of Parkinson’s disease. Approximately 70% of patients note tremor as the first symptom”

   PARKINSONS DISEASE Diagnosis and clinical management, Stewart A.Factor.

3. “A slow coarse tremor, worst at night but reduced by voluntary movement. It is more common in upper limbs…”

   Macleod’s clinical examination

4. “Often the presenting symptom is a slow resting tremor, worse at rest (4–7 Hz), although up to 30% of cases do not have a tremor at onset of the disease. The presence of an obvious tremor…”
5. Tremor

A. Resting 4-6 Hz
   a. Usually first in fingers/thumb
   b. Coarse, complex movements, flexion/extension of fingers
   c. Abduction/adduction of thumb
   d. Supination/pronation of forearm
   e. May affect arms, legs, feet, jaw, tongue
   f. Intermittent, present at rest and when distracted
   g. Diminished on action

B. Postural 8-10 Hz
   a. Less obvious, faster, finer amplitude
   b. Present on action or posture, persists with movement

Davidsons Principles & practise of Medicine

6. “Signs and symptoms associated with Parkinson’s disease, hypokinesia, bradykinesia, rigidity and rest tremor.”

Parkinson’s disease-national clinical; guideline for diagnosis and treatment

Quotings from YUGI VAITHYA SINTHAMANI

“ரிட்டியல் வடிவான தகுப்புக்கூட்டல் திண்மமாகக்”

Quoting from MODERN TEXT

1. “Rigidity is felt as a uniform resistance to passive movement about a joint throughout the full range of motion, accompanied by a characteristic "plastic" quality to the movement...”

Harrisons principle of internal medicine

2. “Common clinical presentations include progressive asymmetric rigidity and bradykinesia”

PD-national clinical guideline for diagnosis-
by royal college of physicians-pg222

3. “Rigidity is usually detected on examination and patients tend to
complain of muscular stiffness and pain. Parkinsonian rigidity, which can be activated by performing mirror movements in the opposite limb…”

The oxford textbook of Medicine

4. Rigidity, or increased muscular tone, causes stiffness and a flexed posture. Postural righting reflexes are impaired early on in the disease, but falls tend not to occur until later

Davidsons Principles & practise of Medicine

5. Rigidity - Stiffness develops throughout the range of limb movement and is equal in opposing muscle groups - in sharp contrast to the selective increase in tone found in spasticity.

Clinical medicine-kumar&clark

Quoting from YUGI VAITHYA SINTHAMANI

“இந்துப்பாசில்”

Quoting from MODERN TEXT

1. “Sleep disorders:
   A. Difficulties falling asleep.
   B. Nocturnal cramping.
   C. Nocturnal tremor.
   D. Frequent awakenings “

   Davidson’s principles and practice of medicine.

2. “A variety of non-motor symptoms, including autonomic, sensory, Sleep, cognitive, and psychiatric disturbances”

3. “ Sleep disorders and impaired daytime alertness are common in PD”

   Harrisons principle of internal maedicin

4. Sleep disorders
   A. Restless legs and periodic limb movements
   B. REM (rapid eye movement) behaviour disorder and REM loss of atonia
   C. Non-REM sleep-related movement disorders
   D. Excessive daytime somnolence
E. Vivid dreaming
F. Insomnia
G. Sleep-disordered breathing

The oxford textbook of Medicine

5. **“Sleep disturbance** is a common yet under diagnosed feature of PD. The frequency of sleep disturbance in PD ranges from 60% to more than 90%.”

PARKINSONS DISEASE - Diagnosis and clinical management, Stewart A. Factor.

Quoting from YUGI VAITHYA SINTHAMANI

"எண்பது விளக்கம்"

Quoting from MODERN TEXT

1. “Motor signs and symptoms include gait and posture disturbances such as *festination*, speech and swallowing disturbances including voice disorders, *mask-like face expression* or small handwriting”
   
   Parkinson’s disease and movement disorders. Hagerstown, MD: Lippincott Williams & Wilkins. pp. 50

2. “The face often becomes *expressionless (masked face or hypomimia)* with reduced blinking”.

3. “*Hypomimia* (*masked* face), freezing episodes (sudden failure of movement), seborrhoea of the scalp, mental/cognitive disturbance; Hyposmia (impaired olfaction ) were important clinical features of Parkinson’s disease”

   The oxford textbook of Medicine

4. “The posture is sometimes called 'simian' to describe the apelike forward flexion, immobility and *lack of animation*....”

   Clinical medicine-Kumar &Clark
Quoting from MODERN TEXT

1. “The problem **dry skin** can occur anywhere in the body”
   
   *Parkinsons disease, an essential guide, Jacky hunt Christensen*

2. Mild autonomic dysfunction
   
   *HUTCHISON’S CLINICAL MEDICINE*

---

Quoting from MODERN TEXT

1. “Mild or moderate cognitive abnormalities affect many patients with PD. These occur in the later stages of the illness and present as frontal lobe dysfunction. Difficulties with complex tasks, long-term planning, and memorizing or retrieving new information are common.”

   *PD- national clinical guideline for diagnosis.*

2. “A wide range of nonmotor symptom complexes (NMSs) Neuropsychiatric symptoms as
   
   A. Depression, apathy, anxiety
   B. Anhedonia
   C. Attention deficit
   D. Hallucinations, illusion, delusions
   E. Dementia
   F. **Obsessional behavior**, repetitive behaviour
   G. Confusion
   H. Delirium (could be drug induced)
   I. Panic attacks

   Were also seen in Parkinson’s disease from an early stage, all of which are likely to have a major effect on the health-related quality of life of patients. These symptoms include depression,
3. “Although parkinsonian features are initially unilateral, gradual bilateral involvement is the rule.

4. As the disease progresses, about one-third of patients develop cognitive impairment”

READING BETWEEN THE LINES

Quoting from YUGI VAITHYA SINTHAMANI

"நார் காற்றுருவம் மறவு முடிவும் விளையாட்டு இருந்து
மூழியின் குரியமையிலே காரணம் மதன்”

1. In these lines of Sage Yugimunivar, it is apparent that there is derangement in vadha humor leading to the features of loss of appetite, improper food intake.

2. Quantitative Increase in Vadha humour has the characters of constipation, wasting, affinity to hot foods, etc. Overturning this, constipation will lead to increase in Vadham. Constipation will obviously continue with loss of appetite, which may prolong as improper food intake.

3. The sage is not explaining about the wasting of muscles, as anorexia will continue only as derangement in oon, kozhuppu thathu of the whole body and will not continue as wasting of particular muscles.

4. One among the key features of depression in Parkinson’s disease is loss of appetite, i.e., the symptom is present both in early and late stages of the disease with or without depression. Guru Yugimunivar may be trying to explain the condition present in both acute and chronic stages. Anorexia is more prominent in patients of Parkinson’s disease. Depression is an alleviating factor for loss of appetite in Parkinson’s disease.

5. Even then not all the patients in chronic stage have anorexia. Only 20 - 30% were said to have loss of appetite. This explains about Guru Yugimunivar’s thoughts that, Anorexia among the patients of Parkinson’s disease have been explained in Paanikkamba vadham.
1. The disturbance in gait is that the patient walks with difficulty. But Sage Yugimunivar Quotes the complete deficit in movement. Gait and balance are controlled by extra pyramidal system, the major disorder of which is Parkinson’s disease. In Parkinson’s disease, there is defect in walking and hence it is captioned as MOVEMENT DISORDER.

2. Freezing of gait starts with hastened but synchronised activation of leg muscles and continues as an ineffective activation of leg muscles. Freezing episodes are unrelated to muscle weakness or abnormal muscle tone. There is a decreased activity of the orbitofrontal cortex on the affected side. Freezing episodes are of 3 subtypes;
   A. No Movement- Akinesia
   B. Trembling in place and
   C. Shuffling forward

3. A disturbed gait is a common, debilitating symptom of Parkinson’s disease. Patients with severe gait disturbances are prone to falls and may lose their functional independence. Festination’ occurs when the patient appears to hurry and then stops suddenly as if rooted to the ground. Initially the patient walks with shuffling gait, followed by derangement in entire movement. Hence in later stages the condition becomes more worse, leading to akinesia.

4. Circuits between the basal ganglia and the motor cortex constitute the extra pyramidal system, which controls the muscle tone and body posture, and give way for the initiation of movement. Lesions in various parts of the motor system produce distinctive patterns of motor deficit. Involvement of extranigral areas are postulated to play a role in the non-motor (e.g., autonomic, sleep, emotional, and cognitive) and levodopa unresponsive motor aspects such as Gait, postural instability of Parkinson’s disease. The lesions in such areas can lead to symptoms of weakness, lack of coordination, lack of stability and stiffness. The combinations of flexed posture along with loss of reflexes cause the patient to accelerate the rate...
of movement, trying to catch up the body’s centre of gravity. Hence it leads to frequent falls in the initial stage. Freezing of gait is present in more advanced Parkinson’s disease.

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**Quoting from YUGI VAITHYA SINTHAMANI**

"போளோர் வைத்தியா சின்னமணி ராஜா சேலுங்கா"**

**READING BETWEEN THE LINES**

1. By this, Sage Yugimunivar means tremor. The whole quoting implies tremor present in both upper limbs. The characteristic resting tremor is well established in upper limbs than the lower limbs and hence the sage specifies the upper limbs. 94% of tremor occurs in hands, whether unilateral or bilateral. Tremor typically appears first distally, involving the digits and wrist, where it may have pill-rolling character. Tremor is defined as a rhythmic, involuntary, oscillatory movement of body parts. Resting tremor occurs when the affected part is completely supported against gravity. For e.g.: hands resting on the lap. Amplitutde increases during mental stress (counting backwards) or with general movement (walking) and diminishes with target directed movement (finger nose test).

2. Loss of dopamine in the brain circuit containing the thalamus disrupts operations of the thalamus. When the levels of dopamine reach a critically low level, the thalamus loses its normal regulatory input and tremor ensues. The defect in sensory feedback about the movements leads to tremor. Most complex movements of fingers and hands are first affected and the most affected. The muscles affected in initial stage are extensor Carpi radialis and the tibialis anterior.

3. In Parkinson’s disease there is an increase in neuronal activity in the dorso lateral region of subthalamic nucleus. The somato tropically organised projections from neurons on increasing their frequency of discharge leads to passive movements. It may appear later in the lower limbs, lips, tongue, and jaw but spares the head and neck. Hence the quoting differs from tremor of head & neck present in titubation. Tremor is a presenting symptom during derangement of Vadham.
Quoting’s from YUGI VAITHYA SINTHAMANI

"சொக்காட்டல் கச்சிக்கோணம் சேரிவாசமாக்கும்"

READING BETWEEN THE LINES

1. Sage Yugimunivar explains about the rigidity. The full line of the quoting may also be taken as tremor, rigidity in upper limbs. Rigidity is more specific in upper limbs. It is the thalamo cortical route, through which basal ganglia output leads to rigidity.

2. Rigidity is defined as inflexibility in movements. An Arm or leg is said to be rigid, when it resists movement. Rigidity is felt as a uniform resistance to passive movement about a joint throughout the full range of motion, accompanied by a characteristic "plastic" quality to the movement. Brief, regular interruptions of resistance during passive movement, due to subclinical tremor, may give rise to a "cog wheeling" sensation. It is one of the primary symptoms of Parkinson’s disease, common in arms or legs. Rigidity of neck and trunk is known as axial rigidity, resulting in a curving of the spine or a stooped posture.

3. Rigidity is usually detected on examination and patients have muscular stiffness and pain. Parkinsonian rigidity presents as one of two types:
   A. ‘Lead-Pipe’ Rigidity—a constant resistance to passive movement, in the absence of tremor
   B. ‘Cogwheel’ Rigidity—a superimposed clicking resistance, in the presence of tremor.

4. Rigidity in Parkinson’s disease can be activated by performing mirror movements in the opposite side. Guru Yugimunivar quoted about the presence of rigidity in Parkinson’s disease.
1. Insomnia, along with Vadha disorder has been explained by the sage. Sleep disorders and impaired daytime alertness are common in PD. Factors that disrupt sleep include night time re-emergence of bradykinesia and rigidity, with difficulty turning in bed, as well as tremor and involuntary movements. Rapid eye movement behavioural disorder often precedes the onset of motor signs of PD. Vivid dreams and hallucinations related to dopaminomimetic therapy may also contribute to sleep disruption. Finally, sleep apnea and other sleep disturbances can also occur. Correction of these sleep disorders may improve daytime functioning, but often alertness remains impaired, pointing to a separate disorder of arousal or to drug-induced sedation.

2. Several nonmotor features of Parkinson’s disease, e.g. olfactory loss and sleep disorders such as rapid eye movement disorder (RBD), seem to occur from the brainstem and olfactory bundle involvement. It precedes the development of motor Parkinson’s disease. Involvement of these extranigral areas is postulated to play a role in the non-motor (e.g., autonomic, sleep, emotional, and cognitive) symptoms.

3. Increase in vadham has the features of weakness, insomnia, giddiness, etc. The defect in Vadha humor is emphasised in Paanikkamba Vadham.

Quoting’s from YUGI VAITHYA SINTHAMANI

READING BETWEEN THE LINES

1. The quoting implies the loss of sensation, that is either sensory defect in olfactory nerve or facial expression.

2. About 80% of people with PD have impaired sense of smell (hyposmia)

3. A hypomimic, expressionless physiognomy or complete lack of facial affect, a finding characteristic of Parkinson's disease, which may be seen in depression, myotonic dystrophy, Wilson's disease. The person's face
lacks expression and animation (known as “masked face”) or that the person remains in a certain position for a long time or does not move an arm or leg normally.

4. The main pathological feature is degeneration of neuromelanin-containing neurons in the pars compacta of the substantia nigra, which leads directly and indirectly to excessive inhibition of the thalamus and consequent bradikinesia. The face often becomes expressionless (masked face or hypomimia) with reduced blinking.

Quoting’s from YUGI VAITHYA SINTHAMANI

"இளவுடைய எளியது தோற்றம் குறைவு காட்டும்"

READING BETWEEN THE LINES

1. The quoting means dryness of the whole body, which is a significant feature of increase in Vadham. Dryness of the body means dryness of skin. The dryness of the skin may be due to too little perspiration.

2. Skin problems may occur as a result of Parkinson’s disease and improper functioning of the autonomic nervous system, or sometimes as a side effect of anti-Parkinson drugs.

3. This is more prominent around the eyebrows, scalp, forehead and ears. Dry skin of the body called xerosis, may lead to break down of skin and infections.

Quoting’s from YUGI VAITHYA SINTHAMANI

"நருத்தில் எளியது தோற்றம் குறைவு காட்டும்"

READING BETWEEN THE LINES

1. One of the commonest symptoms in the Parkinson’s disease is moaning/screaming, depression, anxiety, confusion, etc. moaning and groaning and complaining in a demented way. They include gastrointestinal and urinary symptoms, depression, anxiety, hallucinations, hypomania, moaning/screaming, confusion, cognitive dysfunction, sexual
deviations and dopamine dysregulation syndrome (DDS), pain, akathisia, internal tremor, numbness/parasthesia, and dyspnea.

2. Changes in mood, cognition, and behavior are common accompaniments of PD, especially in its later stages, and may be the direct result of PD or its co morbid pathologies.

3. Depression affects approximately half of patients with PD and can occur at any phase of the illness. Recognizing even mild depression is particularly important since it can account for otherwise unexplained albeit reversible worsening of parkinsonian motor symptoms, new somatic symptoms, and sleep disruption. Depression can also be aggravated iatrogenically by antiparkinsonian and psychotropic agents used to treat other symptoms.

4. Mild or moderate cognitive abnormalities affect many patients with PD. These occur in the later stages of the illness and present as frontal lobe dysfunction. Difficulties with complex tasks, long-term planning, and memorizing or retrieving new information. Although some of these symptoms represent bradyphrenia, dysfunction includes working memory, attention, mental flexibility, visuospatial function, and word fluency.

5. The incidence of significant dementia in PD may be as high as six times that in age-matched controls and, in subspecialty clinics, can be as high as 70% or greater with long-term observation (8 years). In late stages the presence of substantial cognitive impairment may limit therapeutic options and contribute more to overall disability than the motor symptoms in PD. In most instances, accumulating amyloid and -synuclein pathologies in the frontal lobes, basal forebrain, hippocampus, and amygdala account for the progression of these symptoms.
5. REVIEW OF LITERATURE
PAANIKKAMBA VADHAM

A. INTRODUCTION TO VALI

According to T.V. Sambasivam Pillai, the Vali is defined as the one of the three humours (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.

"அல்லாஹ்தன் வீரச்சுருக்கு முதுகும் மத்தியர்
மைந்து நமுட்சு சுருக்கு வீரங்கு முதுகும்”

5.4.1. THE SITES OF VALI

" வீரச்சுருக்கு மருந்தமருந்தத்து பெற்று
சித்தராலையால் வீரச்சுருக்கு இறையுண்மு
சீரங்கு சென்று வானை கண்கள்
சென்று பெறும் பக்தி மொழியும் சார்ந்தது பார்வை”

"தென்னசேர தோண்டமுண்டி தூக்கத்து காசு
சித்தராலையால் நந்தி மொழியும் சார்ந்தது
சார்ந்தது நந்தி மொழியும் காசு காசு”

According to Vaidya sathakam, Vali dwells in the following places Umbilicus, rectum (Abanan), abdomen, anus, bones, hip-joints, skin, navel plexus, joints, hair follicles and muscles.
According to Sage Thirumoolar and Yugi Mini, the places of vali are the anus and below the navel region.

According to Agasthiyar Vaithiya Kaviyam, the Vali exists all over the body.

According to Anuboga Vaithiya Brahma Ragasiyam, the Vali exists between the umbilicus and navel region.
5. A.2. 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.A.3. PROPERTIES OF VALI

The following are the natural properties of Vali.

1. To stimulate.
2. To respiration.
3. To activate the Body, mind and the Intellect.
4. To expel the fourteen different kinds of natural reflexes.
5. To activate the seven physical constituents in functional co-ordination.
6. To strengthen the five sense organs.

In the above processes Vali plays a vital role to assist the body functions.
According to Parasasekaram the properties (Gunam) of Vali are increased sleep, fantasies of flying in dreams, dislike on cold and liking of hot food items.

"According to the Saint Thirumoolar, the properties of Vali are pain in extremities and flanks, generalized body pain, flatulence and constipation.

According to the Angaathipatham the actions of Vali are blinking of eyes, flexion and extension of hands and legs, respiration, braveness, expulsion of stools, urine and semen.

5. A.4. CAUSES FOR VALI DISEASES

"According to the Anusatikaram and Sthabaththiruvagam, the cause of Vali diseases is due to the excessive consumption of animal fat, honey, and milk."
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.
Pararasa sekaram also stated the same cause that is already stated in
Yugi Vaithya Sinthamani. He also, increased intake of varagu, thinai, ghee and
kaippu taste, increased intake of food, increased fear, increased anger, increased
sadness, increased exposure to forcible flow of air, altered dietary timings.

"According to Analagaapatham, increased starvation and increased anger
will produce Vali disease."
According to Theraiyar vagadam, walking under hot sun, increased sexual desire, increased intake of food and bitter guards will produce Vali disease.

According to Agathiyar kanma kaandam, felling of trees and killing of animals will produce Vatha disease.

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

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

"According to Agathiyar kanma kaandam, felling of trees and killing of animals will produce Vatha disease."

"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.

According to Vatha Kooru Virutham deranged vali produces fatigue, lethargy, Loss of appetite, abdominal discomfort, diarrhoea, constipation, cough, insomnia and joint pain.

Physical nature of vatha dhehi is dark coloured face, eye, teeth and stool.
(Aetiology)

**Environmental factors:**

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

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

**DIET**

According to Sabaapathi Kaiyedu increased intake of tubers, increased exposure to wind, Residing at higher altitudes, increased sexual desire; increased exposure to chill weather will aggravate Vali diseases."
According to pararasasekeram, increased intake of bitters, astringents, sour tastes, increased intake of cooked old rice, day slumber and staying back at night will increase Vali.

पुष्करंगमुद्रणमेय (Habits):

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

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

5. A.5.FUNCTIONS OF DERANGED VALI:

(Altered functions of vali)
According to Pararasa sekaram the deranged Vali will produce cough, delirium, diarrhoea and abdominal distension.

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

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

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

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

According to Agathiyar Vatha Kaaviyam, the deranged Vali produces abdominal discomfort, pain in joints, oliguria, dysuria, constipation and flatulence.
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. Abaanan (excretory functions)
3. Viyaanan (Perfusion of oxygen & nutrients)
4. Udhaanan (Reverse peristalsis)
5. Samaanan (Homeostatic functions)
6. Naagan (Higher intellectual functions)
7. Koorman (Constrictor functions)
8. Kirukaran (Secreting functions)
9. Devadhatthan (Mental & physical sluggishness)
10. Dhananjayan (Bloater of the body).

1. UYIR KAAL – PRAANAN (RESPIRATORY FUNCTIONS)

"பிடித்தும் மிகுதியுடன் நிற்பவை எனப்படும்
பைசுவையும் குழுப்பில் ஒளியும் மின்கலத்தான்
ஒலிப்பதி மூலம் போன்று குறுக்கு
துரித்து மற்றும்போள் புராணத் தரைத்
ஒலிப்பதி மூலம் பெருமூழ்த் போஸ்தர்களின்
பைசுவையுடன் மேல் மாற்றிக்கொண்டு
துரித்தை ஒளியும் கூற்றுத்தக்கத்தான் புரவின் பகுதியும்
முக்கோணம் மிகுதியுடன் தியான நாச்சை
முக்கோணம் பைசுவை முதல் நாள்படி
நுட்பார்வையுடன் தொட்டியானது சுமார்க்கினை
நுட்பார்வையுடன் சுமார்க்கினை
சுமார்க்கினை கிளைப்பொழுதுள்ளது
சுமார்க்கினை குறுக்கு பகுதியும்
சுமார்க்கினை குறுக்கு
சுமார்க்கினை குறுக்கு
சுமார்க்கினை குறுக்கு
சுமார்க்கினை
சுமார்க்கினை
சுமார்க்கினை
சுமார்க்கினை
சுமார்க்கினை
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சுமார்க்கினை
சுமார்க்கினை

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 are utilized by the body and the rest will go waste.

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

"காய்கைகள் மண்டலத்தில் எல்லாம் எல்லாத்தர் காய்கைகள் ஆண்டுகின்றன;
எவ்வித குழாய்கள் கையேற்றி மாறும்
அவ்விதமான சிக்குத்துக்கு கோளந்த குளிரும்
மாறுக்கை மின்னுத்துக்கு படையா மாறும்
அவ்விதமான பக்தங்களுக்கு குழாய்கள் மாறும்
அவ்விதமான வருகைகளுக்கு சுவாசமாகும்
அவ்விதமான எல்லாம் எல்லாத்தர் காய்கைகள்
அவ்விதமான குழாய்களில் பொருள் உடைய"

Abaan, the downward Air, starts from Swathittanam and descends down and is responsible for excretion of urine and faeces. 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–VIYAANAN (PERFUSION OF OXYGEN & NUTRIENTS):

"நியன் வியானன் விவசாயம் இனமாகும்
நியன் வியானன் விவசாயம் இனமாகும்
அந்தந்த வியானன் விவசாயம் இனமாகும்
அந்தந்த வியானன் விவசாயம் இனமாகும்
அந்தந்த வியானன் விவசாயம் இனமாகும்
அந்தந்த வியானன் விவசாயம் இனமாகும்"

Vyanan 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):

"Samanan 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):**

"Naaganan maaramkari kiiyamakath izzathan
samaaram saalamad maanakum kiiyam
samaaramba manaaraikaam kannamaikaithum
maanakum camaaraikaithum izzathum maanakum
samaaramba maaraarikarum maanakamaikarum
samaaramba manamaikarukkal kreedum saradam".

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

7. **KOORMAN (CONSTRICTORY AND VISUAL ASSOCIATION FUNCTIONS).**

"Koormanamaaram kaaramkari kareekarikath izzathan
saalamba manaaraikaamikku manaaraikaam
saalamikaam koorman kregoam izzathan
sookam sadanu saanum manaamaikarum kreadum
kaaramkari kareekarikathum izzathum maanakum
kaaramkareem saanum koorman kreadum
saanum koorman kreadum saanum kreadum
samaaram koorman kreadum saanum koorman kreadum
kreadum saanum koorman kreadum kreadum saradam".

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 colour is white (pale).

8. **KIRUKARAN (SECRETORY FUNCTIONS):**

"Koormanamaaram kaaramkari kareekarikath izzathan
saalamba manaaraikaamikku kareekarikathum
kareekarikathum izzathan saanum koorman kreadum
kareekarikathum saanum koorman kreadum saanum kreadum
saanum koorman kreadum saanum koorman kreadum
koorman kreadum saanum koorman kreadum saanum kreadum".

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 colour 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 vatham. 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):

Laziness is attributed to Devadaththan. Ocular movements and human passions are attributed to this vatham. It stays either at the anus or at urinary orifice. The colour is that of a crystal and the God is Devandran.
Dhananjayan functions on the nose and it is responsible for the bloating of the body after death and also for the smell. The god is Dhanwantri and the colour is blue.

5. A.7. CLASSIFICATION OF VATHAM IN CLASSICAL LITERATURE:

<table>
<thead>
<tr>
<th>S.NO</th>
<th>NAMES OF THE BOOKS</th>
<th>TYPES OF VATHAM</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Yugi vaithiya sinhramani</td>
<td>80</td>
</tr>
<tr>
<td>2.</td>
<td>Astanga sangiragam</td>
<td>85</td>
</tr>
<tr>
<td>3.</td>
<td>Noi Naadal Noi Mudal Naadal vol – 2</td>
<td>81</td>
</tr>
<tr>
<td>4.</td>
<td>Theraiyar Vaagadam</td>
<td>81</td>
</tr>
<tr>
<td>5.</td>
<td>Dhanvantri vaithiyam</td>
<td>81</td>
</tr>
<tr>
<td>6.</td>
<td>Jeevarakshamirtham</td>
<td>80</td>
</tr>
<tr>
<td>7.</td>
<td>Agathiyar - 2000</td>
<td>80</td>
</tr>
<tr>
<td>8.</td>
<td>Bohar vaithiyam</td>
<td>84</td>
</tr>
<tr>
<td>9.</td>
<td>Agathiayar kurunaadi</td>
<td>84</td>
</tr>
<tr>
<td>10.</td>
<td>Agathiayar rathna churukkam – 500</td>
<td>84</td>
</tr>
<tr>
<td>11.</td>
<td>Pararasa sekaram</td>
<td>27</td>
</tr>
<tr>
<td>12.</td>
<td>Aviyalikkum amutha murai churukkam</td>
<td>Diseases according to various parts of the body.</td>
</tr>
</tbody>
</table>

TYPES OF VATHA DISEASES IN VARIOUS PARTS OF THE BODY

ACCORDING TO VATHA NOI - MARUTHUVAM, SIDDHA MARUTHUVAM AND SIDDHA MARUTHUVA NOI NAADAL PART -2:

<table>
<thead>
<tr>
<th>Head  - 2</th>
<th>Hair - 1</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hand - 1</td>
<td>Forehead - 1</td>
</tr>
<tr>
<td>Spinal cord – 1</td>
<td>Neck - 2</td>
</tr>
<tr>
<td>Back of the trunk – 1</td>
<td>Mouth - 2</td>
</tr>
<tr>
<td>Fingers – 2</td>
<td>Tooth - 2</td>
</tr>
<tr>
<td>Body – 4</td>
<td>Tongue - 3</td>
</tr>
<tr>
<td>Scrotum – 2</td>
<td>Eyes - 6</td>
</tr>
<tr>
<td>Body Part</td>
<td>Quotations</td>
</tr>
<tr>
<td>-----------------</td>
<td>------------</td>
</tr>
<tr>
<td>Nerves – 3</td>
<td></td>
</tr>
<tr>
<td>Ears - 4</td>
<td></td>
</tr>
<tr>
<td>Throat - 4</td>
<td></td>
</tr>
<tr>
<td>Nose - 2</td>
<td></td>
</tr>
<tr>
<td>Knee joint – 3</td>
<td></td>
</tr>
<tr>
<td>Rectum - 2</td>
<td></td>
</tr>
<tr>
<td>Leg – 6</td>
<td></td>
</tr>
<tr>
<td>Bladder - 1</td>
<td></td>
</tr>
<tr>
<td>Intestine – 7</td>
<td></td>
</tr>
<tr>
<td>Penis - 1</td>
<td></td>
</tr>
<tr>
<td>Trunk – 2</td>
<td></td>
</tr>
<tr>
<td>Shoulder - 2</td>
<td></td>
</tr>
<tr>
<td>Texture – 2</td>
<td></td>
</tr>
<tr>
<td>Cheek - 4</td>
<td></td>
</tr>
<tr>
<td>Blood - 2</td>
<td></td>
</tr>
<tr>
<td>Larynx - 3</td>
<td></td>
</tr>
<tr>
<td>Brain – 2</td>
<td></td>
</tr>
<tr>
<td>Chest - 1</td>
<td></td>
</tr>
<tr>
<td>Soul – 1</td>
<td></td>
</tr>
<tr>
<td>Nipple - 1</td>
<td></td>
</tr>
<tr>
<td>Lateral part of the trunk - 1</td>
<td></td>
</tr>
</tbody>
</table>

**QUOTINGS RELATED TO PAANIKKAMBA VADHAM**

According to **Agasthiyar Vaithya Sinthamani**, kamba vadham is present with symptoms of trembling of limbs, tremor of head, loss of sleep at night, moaning due to pain and sufferings.

According to **Agasthiyar Vaithya Sinthamani**, oortha kamba vatham is present with symptom of derangement in vali, astounded in the functions of joints, eyeball, pathetic condition of body and mind.
According to Agasthiyar mani 4000,

Vadha diseases have been classified 80. They were different from those explained by other siddhars.


diseases - 80

1. புது விதம் (புது விதம்)
2. எனக்கேர்த்து (பார்கீ, எனக்கேர்த்து)
3. பார்கீ (பார்கீ விதம்)
4. பார்கீ (பார்கீ விதம்)
5. பார்கீ (பார்கீ விதம்)
6. பார்கீ (பார்கீ விதம்)
7. தலைக்கேயம் (தலைக்கேயம்)
8. பிள்ளிகேய விதம் (அலுவலையைப் பிள்ளிகேய விதம்)
9. குழுக்கேயம் (குழுக்கேயம்)
10. எனக்கேயம் (எனக்கேயம்)
11. வெள்ளிகேயம் (வெள்ளிகேயம்)
12. முன்னையை விதம் (முன்னையை விதம்)
13. முன்னையை விதம் (முன்னையை விதம்)
14. பார்கீ (பார்கீ)
15. வெள்ளிகேயம் (வெள்ளிகேயம்)
16. தலைக்கேயம் (தலைக்கேயம்)
17. புது விதம் (புது விதம்)
18. வெள்ளிகேயம் (வெள்ளிகேயம்)
19. முன்னையை விதம் (முன்னையை விதம்)
20. முன்னையை விதம் (முன்னையை விதம்)
21. முன்னையை விதம் (முன்னையை விதம்)
22. முன்னையை விதம் (முன்னையை விதம்)
23. தலைக்கேயம் (தலைக்கேயம்)
24. வெள்ளிகேயம் (வெள்ளிகேயம்)
25. முன்னையை விதம் (முன்னையை விதம்)
26. பார்கீ (பார்கீ)
27. வெள்ளிகேயம் (வெள்ளிகேயம்)
28. காரவில்லம் (அமிர்தம் காலம்)
29. தம்பரம் (மஞ்சளிலிருந்து விளைவு பூச்சிக்கம்)
30. வாழ்க்கைப்பொருள் (இறுதிப்பாடு நேரம் அறிவிப்புச் செயல்கொண்டு)
31. வைக்கைக்காலம் (இறுதிபாட்டு வைக்கைக்குள் அப்படி மேற்கொண்ட)
32. மணறசுரப்பாடு (வருபடு ஆரம்பம்)
33. சுருக்குத்தொழில் (சுருக்குத் தொழில்)
34. பல்லுரிசைவாயில் (சுருக்குத் தொழில்)
35. காலத்தக்கத்தில் (சுருக்குத் தொழில்கொள்ளத்)
36. முதலிலான விளைவில் பிற்கும் சிறைச் செயல்கொண்டு (செயல்கொண்டு)
37. கால்களப்பாதுக்கம் (சுருக்குத் பிளப்பு விளைவில் மேற்கொண்ட)
38. பல்லுரிசைல் (சுருக்குத் பிளப்பு விளைவில் மேற்கொண்ட)
39. வாழ்க்கைப்பொருள் (சுருக்குத் பிளப்பு விளைவில் மேற்கொண்ட)
40. அர் பொருள் (சுருக்குத் பிளப்பு விளைவில் மேற்கொண்ட)
41. குறுவழியில் (பல்லுரிசை பிளப்பு விளைவில் மேற்கொண்ட)
42. காலத்தக்கத்தில் (பல்லுரிசை மேற்கொண்ட)
43. தூரத்து (அயோ)
44. குறுவழியில் (சுருக்குத் பிளப்பு)
45. மாணவைக்கத் (சுருக்குத் பிளப்பு அயோ)
46. கருவைக்கத் (சுருக்குத் பிளப்பு)
47. பாக தூரத்து (சுருக்குத் தூரத்து)
48. அருந்துக்கள் (சுருக்குத் தூரத்து)
49. பார்வதாக (சுருக்குத் தூரத்து)
50. அருந்துக்கள் (சுருக்குத் தூரத்து)
51. காலத்தக்கத்தில் (சுருக்குத் தூரத்து காலத்தக்க மேற்கொண்ட)
52. கல்வியும் (சுருக்குத் தூரத்து)
53. மாணவைக்கத் (சுருக்குத் தூரத்து)
54. மாணவைக்கத் (சுருக்குத் தூரத்து)
55. குறுவழியில் (சுருக்குத் பிளப்பு)
56. குறுவழியில் (சுருக்குத் பிளப்பு)
57. குறுவழியில் (சுருக்குத் பிளப்பு)
58. வாழ்க்கை (சுருக்குத் பிளப்பு)
59. புதுமணிக்கும் (புதுமண் அம்பக்கும்)
60. ஆலானீஸ் (ஆலானீஸ் பிரபலம் புராணத்தில் மோசு)
61. பிரேராசங்கு (பிரேராசங்கு)
62. தோகோலூனிப்பாஸ் (பொருளாட்சிகள் புலனப்பிரிவு)
63. பூச்சிரங்கு (பூச்சிரங்கு காண்களில் குள் பகுதி முற்பலம் சாத்துமூல் விஷாதற்கு செயலாக்கம்)
64. சக்னாவா இளிமன் (சக்னாவா இளிமன் முற்பலநாய் மருத்வம் புராணத்தில்)
65. ஜெய்ப்லா (ஜெய்ப்லா)
66. புராணத்தில் இளிமன் (சக்னா, சக்னா இளிமனில் பகுதிகள் முற்பலநாய் மருத்வம் புராணத்தில்)
67. சஞ்சாரம் (சஞ்சாரம் முற்பலம் புராணத்தில்)
68. மஹாத (மஹாத புராணத்தில்)
69. பூயாம் (பூயாம்)
70. பூங்கா (பூங்கா)
71. புகைக்குரு (புகைக்குரு)
72. பிக்கை (பிக்கை)
73. புதுக்கை (புதுக்கை)
74. புதுக்கை (புதுக்கை)
75. கேக்கா (கேக்கா)
76. புதுக்கை (புதுக்கை)
77. புதுக்கை (புதுக்கை)
78. புதுக்கை (புதுக்கை)
79. 79 பற்றாமுன (பற்றாமுன)
80. புதுக்கை (புதுக்கை)
CLINICAL FEATURES:
PAANIKKAMBA VADHAM:
ACCORDING TO YUGI VAITHIYA SINTHAMANI - 800:

As by reading Yugimunivar’s lines, Vadham one of the vital humor dwell in the body as a whole with other features of

- Anorexia,
- Improper diet,
- Deficit in walking,
- Tremor in upper limbs,
- Rigidity,
- Restlessness,
- Devoid of sense,
- Dryness all over the body,
- Moaning due to sickness.
6. PATHOLOGY OF PAANIKKAMBA VADHAM

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.

Due to increased intake of vatha producing diet (increased intake of pullipu and thuvarppu suvaigal) and vatha prone activities (like frequent starvation, intense fear, and increased irritability) the vatha humour of the body gets derangement. Vatham increased in its level. If it is not treated the vatham derangement will be extensive and would affect the other two humours and the ratios of three humours are altered.

Deranged 96 thathuvas are as follows

- **Iymboothams (Five Elements)**
  - Water
  - Fire
  - Wind

- **Iymporigal**
  - Mei

- **Iympulangal**
  - Sparisam
  - Kandham

- **Kanmenthiriyam / Kanmavidayam**
  - Kai
  - Kaal
- **Anthakaranam (components of mind)**
  - Manam - Depressed
  - Puthi - Difficult to analyses
  - Sitham - Reduced ability to achieve, difficulty in walking
  - Ahankaram - Indecisiveness

- **Naadi (differential pulse perception)**
  - Idakalai – difficulty in walking
  - Pinkalai- difficulty in walking
  - Suzhumunai- Involuntary Movements
  - Sangini – impairment in sexual function.
  - Kugu - Constipation

- **Asayam**
  - Amarvasayam
  - Malavsayam
  - Sukkilavasayam

- **Kosam (body Systems)**
  - Annamaya kosam
  - Vignanamaya kosam
  - Anandhamaya kosam

- **Mandalam (body zones)**
  - Three mandalam are affected.

- **Edanai (affinity)**
  - All the three edanai are affected.

- **Gunam (character)**
  - Rasogunam
DERANGED UYIR THATHUKKAL (vitiated humours)

HUMORAL OR TRIDOSHA PATHOLOGY
Panchaboothams are manifested in the body as three vital forces,
- Vatham
- Pitham
- Kabham

A.VATHAM OR VAYU:
The word vayu not only implies wind but also comprehends all the phenomena which come under the function of the central and sympathetic nervous system. Structurally it is the combination of Vayu 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 panikamba vatham, primarily affected Vayukkal are,
- Abanan
- Viyanan
- Samanan
- Kirugaran
- Devadathan

These vayukkal affect udal thathukkal.

<table>
<thead>
<tr>
<th>S.NO</th>
<th>Types of vatham</th>
<th>Derangements</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Abaanan</td>
<td>Constipation</td>
</tr>
<tr>
<td>2.</td>
<td>Viyanan</td>
<td>Difficulty in walking, trembling of limbs</td>
</tr>
<tr>
<td>3.</td>
<td>Samaanan</td>
<td>Difficulty in walking</td>
</tr>
<tr>
<td>4.</td>
<td>Kirukaran.</td>
<td>Increased salivary secretion</td>
</tr>
<tr>
<td>5.</td>
<td>Devathathan</td>
<td>Fatigue feeling and increased anger.</td>
</tr>
</tbody>
</table>
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 pirana vayu, bladder, moolaakini, Heart, Umbilical region, abdomen, stomach, sweat, saliva, blood, eyes and skin.

As moolaatharam is in the akkini mandalam (fire zone), any pathological condition here can harm the moolakini and eventually derange the pitha humor. Symptoms are produced when deranged pithams affect the seven thathuvas and malam.

In paanikamba vatham, primarily affected pitham components are

1. Ranjagapitham
2. Saadhagapitham
3. Prasagam

This is best illustrated in the table below

<table>
<thead>
<tr>
<th>S. No</th>
<th>Types of pitham</th>
<th>Derangement</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Ranjagapitham</td>
<td>Pallor of tongue, eyes, skin.</td>
</tr>
<tr>
<td>2</td>
<td>Saathagam</td>
<td>Difficulty in walking.</td>
</tr>
<tr>
<td>3</td>
<td>Prasagam</td>
<td>Dryness of the skin.</td>
</tr>
</tbody>
</table>

C. KABAM

Kabam is constituted by Appu and Pirithivi boothams. It is responsible for Co-ordination and defence mechanism of the body.

Kabam is located in samaanavayu, semen, suzhumunai, blood, bone marrow, nose, chest, nerve, bone, brain, eyes, and joints.

In Paanikkamba vatham, primarily affected kabam are

1. Avalambagam
2. Pothagam
3. Tharpagam
4. Sandhigam

This is best illustrated in the table below
<table>
<thead>
<tr>
<th>S. No</th>
<th>Types of Kapham</th>
<th>Derangement</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Avalambagam</td>
<td>Pain, rigidity in the limbs</td>
</tr>
<tr>
<td>2.</td>
<td>Santhigam</td>
<td>Difficulty in walking</td>
</tr>
</tbody>
</table>

When thathuvams, including Vatham, Pitham, and Kabam are deranged, they affected seven udal thathukkal Viz, Saaram, Senneer, Oon, Kozhuppu, Enbu, Moolai, Sukkilam or Suronitham and Udalthees. They affect three malams and inturn produce various symptoms according to the severity and the site of ailment.

13. DERANGED UDAL THATHUKKAL

Saaram - Dry skin  
Senneer - Increased pullipu taste  
Oon - Rigidity of limbs  
Kozhuppu - Difficulty in walking.  
Enbu - Difficulty in walking
The nervous system consists of two main divisions: the central nervous system (CNS), consisting of brain and spinal cord, and the peripheral nervous system, consisting of cranial and spinal nerves, and their associated ganglia.

Summary of Brain Development

**DEVELOPMENT OF NERVOUS SYSTEM IN 12 WEEK**

- Development of the central nervous system commences on day 18, with the formation of the neural plate in the ectoderm anterior to the primitive pit.
- The cells in this area of ectoderm begin to differentiate into a thick plate of pseudo stratified columnar neuroepithelium, forming the neural groove and the neural folds.
- The nervous system develops from the neural plate, which is an ectodermal thickening in the floor of the amniotic sac. During the third week, the plate forms paired neural folds that fuse to form the neural tube and neural canal.
- The formation of the neural tube is termed neurulation.
- Even before neurulation begins, the brain starts to develop from the rostral (front) end of the tube, which expands to form three vesicles termed the forebrain, or prosencephalon, the midbrain or mesencephalon, and the
hindbrain, or rhombencephalon. These three form the embryonic brain stem.

- During the fifth week, the prosencephalon divides further to form the telencephalon and diencephalon. The telencephalon is comprised of the cerebral hemispheres. The rhombencephalon also divides to form the metencephalon and myelencephalon. After these divisions, the embryonic brain now consists of five vesicles. Towards the end of the fourth week, the neuroepithelium of the neural tube begins to differentiate into the neuroblasts, glioblasts, and ependymal cells of the central nervous system.

- At 14 weeks the lobes of the cerebral hemispheres are defined; they are the frontal, parietal, temporal, and occipital lobes. At 16 weeks, the corpus callosum is formed, as is the optic chiasm. The basal ganglia are defined, as are the thalamus, hippocampus, anterior commissure, and fornix.

**Development of the Mesencephalon**

- The mesencephalon is composed mainly of dense tracts of neurons passing from the forebrain to the spinal cord. Neuroblasts derived from the alar plates give rise to structures such as the substantia nigra, the aqueductal gray matter, and the stratified nucleus of the inferior colliculus.

- The anterior and hippocampal commissures are the earliest to develop and they connect the olfactory bulbs and hippocampi respectively. The largest commissure is the corpus callosum, connecting the neocortices, whose growth extends beyond the lamina terminalis over the roof of the diencephalon.

- The functional unit of the nervous system is the neuron. Neurons have one or more dendrites through which they receive input from other neurons and one axon that synapses other neurons or non-neural tissues, such as the musculature. Within the adult human brain, there are approximately 130 billion neurons forming 150 trillions synapses.

- Neurons can be categorized in a number of ways, but the principle features used to distinguish populations of neurons are neurotransmitter phenotype and their morphologic appearance.
Neurons have high metabolic rate, which makes them extremely vulnerable to certain global toxic insults that impair intracellular energy metabolism.

**HISTOLOGY OF SUBSTANIA NIGRA**

- The region takes its name from the accumulation of neuromelanin in the large dopaminergic neurons in substantia nigra.
- Neurons typically secrete a single small molecule neurotransmitter most commonly glutamate (in excitatory cells) or γ-aminobutyric acid (GABA; inhibitory cells), as well as certain small peptide neurotransmitters such as enkephalin or paravalbumin. There are many sizes and shapes of neurons. Large pyramidal neurons, such as projection neurons of the cerebral cortex, have relatively large cell bodies, nuclei with a single prominent nucleolus, and prominent Nissl substance (rough endoplasmic reticulum) in the peripheral soma. These features may not be apparent in smaller neurons, such as granule neurons of the cerebellar cortex. Interneurons are usually smaller than projection neurons (so called because their long axons innervate distant central nuclei or peripheral tissues). However, there are clear exceptions that are larger than the prevalent GABAergic medium spiny projection neurons.

**The Cranial Nerves**

There are twelve bilateral pairs of cranial nerves, in rostrocaudal order of their attachment to the brain. The first two, the olfactory and optic nerves are
attached directly to the forebrain, while the others are attached to the brain stem.
Cranial nerves may be **sensory** or **motor**, and may serve more than one function.
There are various types of nerves, classified in terms of their function.

<table>
<thead>
<tr>
<th>number</th>
<th>name</th>
<th>description</th>
<th>associated ganglion and type</th>
</tr>
</thead>
<tbody>
<tr>
<td>I</td>
<td>olfactory</td>
<td>SSE</td>
<td></td>
</tr>
<tr>
<td>II</td>
<td>optic</td>
<td>SSE</td>
<td></td>
</tr>
<tr>
<td>III</td>
<td>oculomotor</td>
<td>SE, VE</td>
<td>ciliary-parasympathetic</td>
</tr>
<tr>
<td>IV</td>
<td>trochlear</td>
<td>SE</td>
<td></td>
</tr>
<tr>
<td>V</td>
<td>trigeminal</td>
<td>SA, BE</td>
<td>semilunar (SA)</td>
</tr>
<tr>
<td>VI</td>
<td>abducens</td>
<td>SE</td>
<td></td>
</tr>
<tr>
<td>VII</td>
<td>facial</td>
<td>BE, SA, VA, VE</td>
<td>geniculate, Pt., submand. (VA)</td>
</tr>
<tr>
<td>VIII</td>
<td>vestibulocochlear</td>
<td>SSE</td>
<td>spiral, vestibular (SSE)</td>
</tr>
<tr>
<td>IX</td>
<td>glossopharyngeal</td>
<td>BE, SA, VA, VE</td>
<td>otic (VE); inferior, superior (SA, VA)</td>
</tr>
<tr>
<td>X</td>
<td>vagus</td>
<td>BE, SA, VA, VE</td>
<td>intramural, inferior, superior (SA, VA)</td>
</tr>
<tr>
<td>XI</td>
<td>accessory</td>
<td>BE</td>
<td></td>
</tr>
<tr>
<td>XII</td>
<td>hypoglossal</td>
<td>SE</td>
<td></td>
</tr>
</tbody>
</table>

BE: branchial efferent; SA: somatic afferent; SE: somatic efferent; 
SSE: special sensory; VA: visceral afferent; VE: visceral efferent; Pt: pterygopalatine; submand: submandibular

1. **Branchial efferents** (BE) innervate muscles. They mediate chewing (V), facial expressions (VII), swallowing (IX and X), vocalization (X), and head turning (XI).
2. **Somatic efferent** (SE) nerves innervate the skeletal muscles. They mediate eye movements (III, IV, and VI) and tongue movements (XII).
3. **Visceral efferent's** (VE) innervate smooth muscles of the inner eye (III), the lacrimal and salivary glands (VII, IX), and bowel, heart, and lung muscles that mediate secretions and movement (XI).
4. **Somatic afferent** (SA) fibers carry sensory inputs from the mucous membranes and skin of the head to the CNS (V). There are also afferent fibers in nerves VII and IX, which terminate in the trigeminal nuclei.
5. **Visceral afferents** (VA) carry sensory inputs from the blood vessels, GIT, heart, and lungs (IX and X). Taste (gustatory) inputs are carried by fibers in VII, IX, and X.
6. **Special sensory** (SSE) fibers carry messages about olfactory inputs (I), vision (II), and balance or equilibrium (VII)
The cranial nerves are associated with certain **ganglia**. The ganglia associated with **afferent** inputs do not have synapses.

Ganglia with synapses lie on **efferent** autonomic motor routes. The ganglia serving efferent pathways are classically designated part of either the sympathetic or parasympathetic nervous systems.

The afferent cranial nerves that carry inputs to the head terminate in **cranial nerve nuclei**. Efferent cranial nerves also arise in brain stem cranial nerve nuclei.
Metabolic Disposition of Dopamine

Dopamine is a major CNS catecholaminergic neurotransmitter, which has been implicated in certain diseases of the CNS, for example Parkinson’s disease and also in normal neuroendocrine function. Thus, dopamine has been identified as an important inhibitor of the release of prolactin from the anterior pituitary gland. Therefore, dopamine agonists and dopamine precursors have been developed to treat neuroendocrine disorders involving abnormal prolactin release, and to treat Parkinson’s disease.

Dopamine is metabolized by MAO and COMT. The major urinary metabolites of dopamine are 3, 4-dihydroxyphenylacetic acid (DOPAC) and 3-methoxy-4-hydroxyphenylacetic acid (homovanillic acid, HVA). Metabolism and excretion are very rapid, and at least 80% of an administered dose of dopamine is excreted in the urine within 20 minutes of administration of the dose. Lesser amounts of dopamine are metabolized directly by COMT to methoxytyramine, and to nor epinephrine by dopamine-ß-hydroxylase.

Extrapyramidal Motor Pathways

The extrapyramidal pathways are those motor pathways that do not pass through the pyramids of the medulla oblongata. They consist of central pathways that modulate CNS motor areas in cerebral cortex, cerebellum, the brain stem, and spinal cord. The primary function of the extra pyramidal system is the ‘fine-tuning’ of voluntary movement to render it amenable to higher levels of conscious control. The absence of such fine-tuning becomes obvious in conditions such as Parkinsonism, when voluntary movement is hampered through the presence of uncontrollable tremor in the hands. Extra pyramidal fibers may originate in the frontal or parietal cortex, and travel to the cerebellum, or to other major extra pyramidal sites such as

i. Striatum,
ii. Substantia nigra,
iii. Reticular formation,
iv. Tegmental nuclei,
v. And red nucleus.
Components of the Basal Ganglia

The term **basal ganglia** refer to five sub cortical nuclei situated bilaterally in the white matter of the cerebral hemispheres. The word *ganglia* are inappropriate, as these are not strictly ganglia, but nerve cell nuclei. These nuclei are the

**Caudate nucleus,**

i. **putamen,**

ii. **sub thalamic nucleus,**

iii. **substantia nigra,**

iv. **globus pallidus**

The globus pallidus and putamen are sometimes referred to as the lentiform nucleus. The caudate nucleus and the putamen are cytoarchitecturally similar structures with small neuronal cell bodies, and are referred to as the striatum or neostriatum. The name implies that these structures are phylogenetically newer than the globus pallidus, which is also called the paleostriatum, or pallidum. The globus pallidus is composed of external and internal segments. Together, the neostriatum and paleostriatum are called the corpus striatum.
The **substantianigra** lies in the midbrain, and consists of two distinct zones; pars compacta, and pars reticulate *Substantia nigra* is a Latin term meaning *black substance*; inhumans, the area appears black when stained because of dopaminergic cell bodies rich in neuromelanin. The nuclei have been grouped as the **dorsal** and **ventral** basalganglia. The **dorsal nuclei** are the caudate nucleus and putamen (together the neostriatum), and the globus pallidus (paleostriatum). The basal ganglia have been divided into two functional units, namely (i) the striatal complex and (ii) the pallidal complex. The striatal complex is characterized by the presence of **striosomes**, also called **patches**.

**BASAL GANGLIA NEUROTRANSMITTERS**

**THE GENERATION AND TRANSMISSION OF THE NERVOUS IMPULSE**

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

1. The generation of an action potential with its conduction down axons,
2. 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:**

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.

**Neurotransmission and neurotransmitters.**

- An action potential arriving at the nerve terminal depolarises the membrane and this opens voltage-gated calcium channels.

- Entry of calcium causes the fusion of synaptic vesicles containing neurotransmitters with the pre-synaptic membrane and release of the neurotransmitter across the synaptic cleft.

- The neurotransmitter binds to receptors on the post-synaptic membrane to either
  1. open ligand-gated ion channels which, by allowing ion entry, depolarise the membrane and initiate an action potential, or
  2. Bind to metabotrophic receptors, which activate an effector enzyme (e.g. adenylyl cyclase) and thus via the intracellular second messenger system modulate gene transcription, leading to changes in synthesis of ion channels or modulating enzymes.

- Neurotransmitters are taken up at the pre-synaptic membrane and/or metabolised.

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’). 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'.

**Dopamine** is an extremely important neurotransmitter of the basal ganglia; its pathways originate in the **substantia nigra**, and project both to the **globus pallidus** and the **striatum**, as well as to sites in the midbrain reticular formation, and the superior colliculus. Loss of the nigrostriatal pathways results in
parkinsonian symptoms and this is a clue to dopamine and nigrostriatal roles in the control of muscle tone at rest, and in the initiation of movement.

**METABOLIC DISPOSITION OF DOPAMINE**

Basal Ganglia Neurotransmitters and Receptors

The **dopaminergic nigrostriatal** pathway is the largest brain pathway using **dopamine** as neurotransmitter, and has its importance in degenerative brain disease. It has been found that there is an interaction between striatal dopaminergic inputs and those that use as neurotransmitter the nucleoside **adenosine**. These effects of dopamine are essential for normal striatum function. Degeneration of more than 70% of the dopaminergic neurons of the pars compacta results in **excessive inhibition** of the motor areas of the thalamus, thereby impairing voluntary motor function.

In addition, hybridization studies have revealed the presence of subtypes of dopamine and adenosine receptors, situated both pre- and post synaptically on presynaptic terminals and cell bodies respectively, in **striatum, globus pallidus**, and the **substantia nigra**. These findings underline the complexity of action of dopamine in the basal ganglia.
D. Basal ganglia: afferent and efferent tracts

- Efferents of motor cortex
- Motor thalamus
- Glutamate
- Striatum
- Subthalamic nucleus
- Basal ganglia

- Superior colliculus
- GABA
- Glu
- D1
- D2
- SNC
- SNr
- GABA
- GABA/SP
- GABA/Enk
- DOPA
- Globus pallidum (GP)
- Pars interna (GPI)
- Pars externa (GPE)

Inhibition → Excitation

Failure leads to Parkinsonism
### BASAL GANGLIA

<table>
<thead>
<tr>
<th>DORSAL</th>
<th>VENTRAL</th>
</tr>
</thead>
<tbody>
<tr>
<td>Neostriatum</td>
<td>Paleostriatum</td>
</tr>
<tr>
<td>Caudate nucleus</td>
<td>Globus pallidus</td>
</tr>
<tr>
<td>Striatum</td>
<td>Pallium</td>
</tr>
<tr>
<td>Nucleus accumbens</td>
<td>Substantia</td>
</tr>
<tr>
<td>Olfactory tubercle</td>
<td>Inominata</td>
</tr>
</tbody>
</table>

### LOSS OF NIGROSTRIATAL PATHWAY

![Diagram showing the loss of nigrostriatal pathway](image)

**Basal Ganglia Disease: Loss of Nigrostriatal Pathway**

Damage to the basal ganglia through injury, stroke, or degenerative diseases produces characteristic motor, cognitive, and emotional symptoms. Motor disturbances may present as hyper- or hypokinesias. Hypokinesias may be akinesias (failure to initiate movement) or bradykinesias (reduction in amplitude and velocity of movement). There is evidence that basal ganglia activity is greatest during the planning stage of a voluntary movement, which may explain the akinesia to some extent. Bradykinesia is caused by a disturbance of the equilibrium between direct and indirect motor pathways.
Parkinson's disease is a progressive loss of movement accompanied by affective disorders. The aetiology of Parkinson's disease is unknown. Most patients do not exhibit symptoms until the fifth or sixth decade. Motor symptoms are akinesia, bradykinesia, oculomotor disturbance (e.g. absence of blinking), cogwheel rigidity, and loss of postural reflexes. Patients exhibit both normal and shuffling gait, have flexed posture and a ‘pill-rolling’ tremor of frequency 3 to 6 per second. There is evidence that the cause of the tremor is an abnormality of transmission between the cerebral cortex and the motoneuron cell body.

The disease is caused by the progressive degeneration of the dopaminergic nigrostriatal pathway at autopsy, the pars compacta lacks neuromelanin i.e. dopaminergic cell bodies. There is evidence of degeneration in other brain areas including the midbrain raphe nuclei, the nucleus ceruleus and the pars reticulata. Other aminergic (noradrenergic and serotonergic) pathways degenerate as well, but dopaminergic loss causes the symptoms.

**PATHWAYS OF PARKINSON’S DISEASE**

The aim of treatment is to replace the lost dopamine. This is attempted through the administration of a dopamine precursor, L-dopa, since dopamine will not cross the blood-brain barrier. L-dopa is particularly useful for counteracting the bradykinesia.
Parkinson’s disease

Parkinson’s disease (PD) is the most common form of a group of progressive neurodegenerative disorders

- Parkinsonian syndrome:
  1. Idiopathic PD or sporadic PD or Primary PD
  2. Acquired PD or Secondary PD
  3. Hereditary PD or Familial PD
  4. Parkinsonian plus syndrome or multiple system degeneration.

Parkinson’s disease is characterized by fine tremor of the hands at rest, and the characteristic ‘pill-rolling’ movement of the fingers and thumb. There is muscular rigidity, which is detected as an increase in resistance to passive limb movements, and hypokinesia, which is a decrease in the frequency of voluntary movement. Vast majority of cases of Parkinson’s disease were sporadic.

Fine motor control is also impaired, as evidenced by decreased manual dexterity and micrographia. Soft speech (hypophonia) and sialorrhea are other troubling manifestations of (bulbar) bradykinesia. Nearly all forms of Parkinsonism result from a reduction of dopaminergic transmission within the basal ganglia.

PHYSICAL ABNORMALITIES IN PARKINSONISM

- General
  - Expressionless face
  - Soft, rapid, indistinct speech
  - Flexed posture
  - Impaired postural reflexes

- Gait
  - Slow to start walking
  - Shortened stride
  - Rapid, small steps, tendency to run (festination)
  - Reduced arm swing
  - Festinating gait, a classic sign of Parkinsonism, results from the combination of flexed posture and loss of postural reflexes, which cause the patient to accelerate in an effort to "catch up" with the body’s centre of gravity.
Freezing of gait, a feature of more advanced PD, occurs commonly at the onset of locomotion (start hesitation), when attempting to change direction or turn around, and upon entering a crowded room or narrow space such as a doorway.

Dystonia involving the distal arm or leg may occur early in the disease, unrelated to treatment, especially in younger patients

- **Tremor**
  - Resting 4-6 Hz
  - Usually first in fingers/thumb
  - Coarse, complex movements, flexion/extension of fingers
  - Abduction/adduction of thumb
  - Supination/pronation of forearm
  - May affect arms, legs, feet, jaw, tongue
  - Intermittent, present at rest and when distracted
  - Diminished on action

- **Postural 8-10 Hz**
  - Less obvious, faster, finer amplitude
  - Present on action or posture, persists with movement

- **Rigidity**
  - Cogwheel type, mostly upper limbs
  - Plastic (leadpipe) type, mostly legs

- **Bradykinesia**
  - Slowness in initiating or repeating movements
  - Impaired fine movements, especially of fingers
  - Although parkinsonian features are initially unilateral, gradual bilateral involvement is the rule.
  - Muscle strength and reflexes remain normal, and plantar responses are flexor.
  - There is a paucity of facial expression (hypomimia) and the blink reflex may be exaggerated and fail to habituate (glabellar tap sign).
  - Eye movements are normal to standard clinical testing, provided allowance is made for the normal limitation of upward gaze with age.
Sensation is normal and intellectual faculties are not affected initially. As the disease progresses, about one-third of patients develop cognitive impairment.

Postural instability is one of the most disabling features of advanced PD, contributing to falls and injuries and leading to major morbidity and mortality.

It can be tested with the "pull test". The development of postural instability and falls in the first years of the illness, however, strongly suggest a diagnosis of atypical PD.

**Risk factors**

- Include a positive family history,
- Male gender,
- Head injury,
- Exposure to pesticides,
- Consumption of well water,
- And rural living.

**Factors associated with a reduced incidence of PD**

- Include coffee drinking,
- Smoking,
- Use of no steroidal anti-inflammatory drugs, and oestrogen replacement in postmenopausal women

A unilateral and gradual onset of symptoms further supports the diagnosis. Masked faces, decreased eye blinking, stooped posture, and decreased arm swing complete the early picture. The onset may also be heralded by vague feelings of weakness, fatigue, aching, and discomfort.

Although defined clinically as a **movement disorder**, it is now widely appreciated that PD can be accompanied by a variety of **non-motor symptoms**, including depression and anxiety, cognitive impairment, sleep disturbances, sensory abnormalities and pain, loss of smell (anosmia), and disturbances of autonomic function.
- Changes in mood, cognition, and behaviour are common accompaniments of PD, especially in its later stages, and may be the direct result of PD or its comorbid pathologies.
- The physiologic basis of the non-motor signs and symptoms are explained in part by widespread involvement of brainstem, olfactory, thalamic, and cortical structures.

**Pathogenesis:**

- In PD, nigral dopamine neurons and other cells die from a combination of factors, including:
  1. Genetic vulnerability (e.g., abnormal processing or folding of \(-\)synuclein)
  2. Oxidative stress
  3. Proteasomal dysfunction
  4. Abnormal kinase activity and
  5. Environmental factors, most of which are yet to be identified.
- Oxidative stress appears to play an important role in the sporadic forms of PD.
- Endogenous sources of oxidative stress include the free radicals produced by the metabolism of dopamine and melanin.
- Additional stress may come from defects in mitochondrial complex I of the oxidative phosphorylation chain. This defect has been detected in platelets and muscle and in post-mortem tissue from the substantia nigra.
- Several agents have been shown to cause oxidative toxicity and dopamine cell death in animal models of PD, further strengthening the above hypothesis. The most important of these are MPTP, a meperidine derivative, and rotenone, a commonly used insecticide.
- Both cause oxidative damage by inhibiting complex I. In vitro, oxidative stress can lead to aggregation of \(-\)synuclein and proteasomal dysfunction. Proteasomal system abnormalities have also been described in the substantia nigra from sporadic cases of PD.
- Other contributors to the selective dopamine neuron degeneration in PD are abnormal phosphorylation of proteins, microglial activation, low-grade...
inflammation, and apoptosis; each represents a potential target for therapeutic intervention.

- Although one genetic form, LLRK-2, causes PD in the same age range as sporadic PD, most patients with PD appear to have no strong genetic determinant, epidemiologic evidence points to a complex interaction between genetic vulnerability and environmental factors.

PATHOLOGY:

The pathology of the disease is characterized by the accumulation of a protein called alpha-synuclein into inclusions called Lewy bodies in neurons, and from insufficient formation and activity of dopamine produced in certain neurons within parts of the midbrain. Lewy bodies are the pathological hallmark of the idiopathic disorder

- Gross examination of the brain in PD reveals mild frontal atrophy with loss of the normal dark melanin pigment of the midbrain.
- Microscopically there is degeneration of the dopaminergic cells with the presence of Lewy bodies (LBs) in the remaining neurons and processes of the substantia nigra pars compacta (SNpc); other brainstem nuclei; and regions such as the medial temporal, limbic, and frontal cortices.
- LBs have a high concentration of -synuclein and are the pathologic hallmark of the disorder.

Mutations in the -synuclein gene can cause familial PD by promoting the formation of -synuclein-positive filaments that aggregate into LBs and Lewy neuritis

- this pathology appears first in the anterior olfactory nuclei and lower brainstem (glossopharyngeal and vagal nerve nuclei), with ascending brainstem involvement of the locus coeruleus, n. gigantocellularis, and the raphe, before extending to the magnocellular nuclei of the basal forebrain, the central nucleus of the amygdala, and the SNpc.

- Further progression extends to the thalamus and cerebral cortex. Involvement of these extranigral areas is postulated to play a role in the non-motor (e.g., autonomic, sleep, emotional, and cognitive) and levodopa unresponsive motor aspects (e.g., postural instability, gait, and bulbar disturbances) of PD.
The biochemical consequence of dopaminergic cell loss in the SNpc is gradual denervation of the striatum, the main target projection for the SNpc neurons. Other target regions of these neurons include the intralaminar and parafascicular nuclei of the thalamus, the globus pallidus, and the subthalamic nucleus (STN).

Dopamine denervation of the putamen, the motor portion of the striatum, leads to many of the motor symptoms of PD. Symptoms develop when striatal dopamine depletion reaches 50–70% of normal.

Parkinson's disease is caused by the progressive degeneration of the dopaminergic pathway from the substantia nigra in the midbrain to the corpus striatum in the basal ganglia. There is normally a balance between dopaminergic and cholinergic inputs to the striatum, which controls fine movements. A loss of Dopaminergic neurons unmask an excitatory cholinergic drive, and tremor results.

Dopa is a natural precursor of dopamine, and L-dopa may work by entering the synthetic pathway to flood the cell with more dopamine, or stimulate the release of existing dopamine stores from the nerve terminals. L-dopa is often prescribed together with carbidopa, which cannot cross the blood-brain barrier, and which blocks the conversion of L-dopa to dopamine. This minimizes unwanted dopaminergic effects outside the brain. An antiviral drug, amantadine, may alleviate symptoms through release of dopamine.

Differential Diagnosis and Screening Evaluation

- Primary and secondary causes must be considered in the differential diagnosis of parkinsonism
- Essential tremor (ET) is sometimes confused with rest tremor in PD, but the absence of other signs of parkinsonism, the bilaterality, higher frequency (8–10 Hz), and postural dependency of ET help differentiate this from the rest tremor of PD
- In individuals under 40, it is important to rule out Wilson disease
- In younger individuals, Huntington's disease (HD) sometimes presents with prominent parkinsonian features
Although parkinsonian features are often present in Alzheimer’s Disease, they occur late in the course and are greatly outweighed by cognitive and behavioral disturbances.

Parkinsonism may also develop following exposure to certain neurotoxins such as carbon monoxide or manganese.

MRI is useful in selected cases to rule out disorders such as normal pressure hydrocephalus, vascular disease, or mass lesions. Positron emission tomography (PET) is helpful in confirming the diagnosis but cannot reliably separate PD from the most common atypical forms. As yet, genetic screening has little place in general practice.

In evaluating individuals with PD, it is also important to rule out treatable conditions that may contribute to the disability, such as B₁₂ deficiency, hypothyroidism, testosterone deficiency, and vitamin D deficiency.

At present the frequency of misdiagnosis is still 10–25% even in the best of hands. The differentiation of sporadic (idiopathic) PD from atypical parkinsonism is often difficult, since early in their course these atypical forms may meet diagnostic criteria for PD.

Accordingly, it is important to watch for the development of early imbalance, falls, and characteristic abnormalities of vertical gaze that suggest progressive supranuclear palsy (PSP); and early urinary incontinence, orthostatic hypotension, and dysarthria suggestive of multiple system atrophy (MSA).

The early appearance of drug-induced hallucinations strongly favours the diagnosis of DLB (Dementia with Lewy bodies). As a rule, the different forms of atypical PD can be reliably differentiated from sporadic PD within the first 3–4 years of the illness.

In DLB the parkinsonian features are compounded by the early appearance of hallucinations and disturbances in arousal and behavior.
History and Examination Features Suggesting Diagnosis Other Than Parkinson's disease

<table>
<thead>
<tr>
<th>Signs /Symptoms</th>
<th>Alternative Diagnosis to Consider</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>History</strong></td>
<td></td>
</tr>
<tr>
<td>Falls as the first symptom</td>
<td>PSP</td>
</tr>
<tr>
<td>Exposure to neuroleptics</td>
<td>Drug-induced parkinsonism</td>
</tr>
<tr>
<td>Onset prior to age 40 Associated unexplained liver disease</td>
<td>If PD, think genetic causes Wilson's disease</td>
</tr>
<tr>
<td>Early hallucinations Sudden onset of parkinsonian symptoms</td>
<td>Lewy body dementia Vascular parkinsonism</td>
</tr>
<tr>
<td><strong>Physical Exam</strong></td>
<td></td>
</tr>
<tr>
<td>Dementia as first symptom</td>
<td>Dementia with Lewy bodies</td>
</tr>
<tr>
<td>Prominent orthostasis</td>
<td>MSA-p</td>
</tr>
<tr>
<td>Early dysarthria</td>
<td>MSA-c</td>
</tr>
<tr>
<td>Lack of tremor</td>
<td>Various Parkinson's-plus syndromes</td>
</tr>
<tr>
<td>High frequency (8–10 Hz) symmetric tremor</td>
<td>Essential tremor</td>
</tr>
</tbody>
</table>

**Investigations**

- The diagnosis is made clinically, as there is no diagnostic test for Parkinson's disease.
- Sometimes it is necessary to investigate patients to exclude other causes of Parkinsonism if there are any unusual features.
- Patients presenting before the age of 50 are usually tested for Wilson's disease,
  And imaging (CT or MRI) of the head may be needed if there are any features suggestive of pyramidal, cerebellar or autonomic involvement.
Confirmation of diagnosis

There are no specific tests for the diagnosis of Parkinson’s disease, which remains clinical.

<table>
<thead>
<tr>
<th>PARKINSON’S DISEASE</th>
<th>PARKINSON’S PLUS SYNDROMES.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rest tremor</td>
<td>Action tremor and impotence (MSA) myoclonus</td>
</tr>
<tr>
<td>Rigidity</td>
<td>Marked axial rigidity (PSP)</td>
</tr>
<tr>
<td>Bradykinesia</td>
<td></td>
</tr>
<tr>
<td>Bradyphrenia (slow thought)</td>
<td>Cognitive impairment (PSP, dlb)</td>
</tr>
<tr>
<td>Hypophonia</td>
<td>Dysarthria (PSP, masa)</td>
</tr>
<tr>
<td>Slightly jerky saccades and pursuit eye movements</td>
<td>Vertical supranuclear saccade palsy (PSP), broken pursuit (MSA)</td>
</tr>
<tr>
<td>Facial hypomimia (lack of facial expression)</td>
<td></td>
</tr>
<tr>
<td>Small handwriting</td>
<td></td>
</tr>
<tr>
<td>Stooped posture and festinant gait</td>
<td>Falls early in disease course, ataxic gait (MSA)</td>
</tr>
<tr>
<td>Mild autonomic dysfunction</td>
<td>Severe autonomic dysfunction (MSA)</td>
</tr>
</tbody>
</table>

DaTSCAN

This is single photon emission computed tomography (SPECT) using the labelled cocaine derivative $N$-ω-fluoropropyl-2β-carboxymethoxy-3β-(4-iodophenyl) tropane ($^{123}$I-labelled β-CIT and $^{123}$I-labelled FP-CIT), and is recommended in guidelines from the National Institute for Health and Clinical Excellence (NICE) and widely used to support diagnosis and differentiate Parkinson’s disease from essential tremor. It labels the presynaptic dopamine transporter and this provides assessment of the presynaptic neurons, which degenerate in Parkinson’s disease. Essential tremor is likely to show a normal DaTSCAN whereas in Parkinson’s disease there is diminished uptake of the ligand, usually correlating with the clinically affected side, and DaTSCAN also appears to have a close correlation with the progression of Parkinson’s disease.
However, DaTSCAN does not differentiate between Parkinson’s disease and other parkinsonian syndromes.

**PET SCAN**

Using $^{18}$F-labelled dopa the PET scan has similar properties and better resolution but is currently available as a research tool only. More recently, transcranial ultrasononography has been used to reveal characteristic hyperechogenicity of the SN in patients with early Parkinson’s disease, possibly suggestive of excessive iron deposition in the SN. However, this technique needs to be validated in large-scale studies before widespread use can be advocated.

**CT or MRI**

Scans are usually not needed for diagnosis, but a brain scan should be performed if Parkinsonism is purely unilateral or otherwise atypical, or if additional signs (pyramidal) are present. CT or MRI may also be used to rule out a space-occupying lesion, vascular disease, and normal-pressure hydrocephalus. MRI brain scan is preferrable to a CT brain scan.

- PET-Positron emission tomography
- SPECT- single photon emission Computed tomography
- Magnetic resonance imaging

Fludeoxyglucose (18F) (FDG)] PET scan of a healthy brain. Hotter areas reflect higher glucose uptake. A decreased activity in the basal ganglia can aid in diagnosing Parkinson's disease.
HIGHER INTELLECTUAL FUNCTION

Memory loss and slow thinking may occur, although the ability to reason remains intact

1. Consciousness
2. Intelligence
3. Memory
4. Speech

SENSORY SYSTEM

- SUPERFICIAL
  a. Pain
  b. Touch
  c. Temp
  d. Two Point Discrimination

- DEEP:
  a. Pressure
  b. Vibration
  c. Posture
  d. Joints
  e. Ability to recognise size,
  f. Wt Of Object

MOTOR SYSTEM

- POWER

Power is the force of contraction that can be generated voluntarily by the muscle.

Grading the muscle power:

a. Grade 5:-normal power
b. Grade 4 :-movement against resistance
c. Grade3:-movement against gravity
d. Grade2:-gravity eliminated movements
e. Grade1:-visible or palpable flicker of contraction but no resultant movement
f. Grade0:-total paralysis
TONE

Tone as defined as the degree of tension present in a muscle at rest.

a. Increased – hypertonia
b. Decreased - hypotonia

GAIT

Patient may be asked to walk in a straight line for at least 9 meters and then turn and walk back to the starting point.

NUTRITION

Nutrition of muscles of shoulder girdle, upper arms, fore arms, hand, hip, girdle, thigh, calves & feet.

a. To detect wasting or hypertrophy
b. Change can be detected by comparison with its normal side

ABNORMAL MOVEMENTS

Involuntary movements may be grossly visible

a. During rest or on attempting any voluntary movement
b. Mainly due to lesions affecting the extrapyramidal system

COORDINATION

Coordination of the limbs can be tested effectively only when the power of muscle is greater than Grade 3.

a. All tests done initially with eyes open and then eyes closed.
b. Under cerebellar control and influenced by the extra pyramidal system.

REFLEXES

Reflex is a consistent involuntary adaptive response to the stimulation of a sense organ

Grading of reflexes:

a. 0-Absent
b. 1-Present(as a normal ankle jerk)
c. 2-Brisk( as normal knee jerk)
d. 3-very Brisk
e. 4-clonus
CRANIAL NERVE EXAMINATION 12 PAIRS

Cns examination is essential in considering any disease associated with involuntary movements

1. Olfactory Nerve—Sensory
2. Optic Nerve—Sensory
3. Oculomotor Nerve—Motor
4. Trochlear Nerve—Motor
5. Trigeminal Nerve—Motor & Sensory
6. Abducent Nerve—Motor
7. Facial Nerve—Motor & Sensory
8. Vestibulo Cochlear Nerve—Sensory
9. Glossopharyngeal Nerve—Motor & Sensory
10. Vagus Nerve—Motor & Sensory
11. Spinal Accessory Nerve—Motor
12. Hypoglossal Nerve—Motor

Management -Drug therapy

- Levodopa combined with a peripheral-acting dopa-decarboxylase inhibitor provides the mainstay of treatment in Parkinson's disease but should only be started to help overcome significant disability.

- Other agents include
  1. Anticholinergic drugs,
  2. Dopamine receptor agonists,
  3. Selegiline,
  4. Comt inhibitors
  5. Amantadine
Surgery

- Stereotactic thalamotomy can be used to treat tremor, though this is needed relatively infrequently because of the medical treatments available.
- Other stereotactic lesions are currently undergoing evaluation, in particular pallidotomy to help in the management of drug-induced dyskinesia.
- The implantation of fetal mid-brain cells into the basal ganglia to enhance dopaminergic activity remains experimental.

Physiotherapy and speech therapy

- Patients at all stages of Parkinson's disease benefit from physiotherapy, which helps reduce rigidity and corrects abnormal posture.
- Speech therapy may help in cases where dysarthria and dysphonia interfere with communication.

Neural Stem Cells, Gene Therapy, and Neural Repair

Approaches to the treatment of cell damage in the nervous system have been revolutionized by the discovery that adult nerves can accept tissue grafts.
from fetal sources. Attempts are being made to repopulate the human brain of Parkinson’s patients with fetal dopaminergic grafts. A newer advance is the use of genetically engineered cells to repair damaged peripheral and central nervous tissue. There are two basic approaches. One is to create cells that synthesize growth factors such as NGF or metabolic enzymes that mediate neurotransmitter action. It is to be hoped that diseases such as Parkinson's disease, Huntington's chorea, and Alzheimer's disease will eventually be treatable, and even curable, using interventions that restore cell populations lost during the course of the disease.

Damage and Repair

Cholinergic neuron systems occur in the peripheral and central nervous systems within the striatum there are smaller cholinergic neurons involved in control of fine movement; blockade of these muscarinic receptors with atropine, a muscarinic antagonist, can be used to treat parkinsonian tremor.
8. MATERIALS AND METHODS

The clinical study on topic “PAANIKKAMBA VADHAM” (Parkinson’s disease) would be carried out in the Out patients and In Patients Department of Ayothidoss Pandithar Hospital of the National Institute of Siddha, Tambaram Sanatorium, and Chennai 47.

1. POPULATION SAMPLE

Out of the 100 cases screened, 15 diagnosed cases were selected from the outpatient department of Noi naadal department and followed under the supervision of the HOD and Lecturers of the Noi Naadal department.

2. SELECTION OF CASES:

Selection of cases is based on the screening of patient population as per the inclusion and exclusion criteria listed out in the Screening Preformat.

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

3. INCLUSION CRITERIA

MAJOR

1. Age between 20-70 years
2. Trembling of limbs
4. Slowness of movements.
5. Disordered gait [Parkinson gait].
6. Attitude of flexion

MINOR

1. Postural instability.
2. Excessive salivation.

Patients who fulfill any of the four major and one minor criteria are included to the study.
4. EXCLUSION CRITERIA
1. Essential tremor
2. Dementia
3. Babinski sign and hyper reflexia
4. Brain tumour
5. Titubation
6. Exposure to toxins
7. Chorea
8. Agitation
9. Vulnerable group.

METHODOLOGY

STUDY ENROLLMENT
➢ In the study, patients reporting at the OPD of Ayothidoss Pandithar Siddha Hospital with the clinical symptoms of “PAANIKKAMBA VADHAM” were referred to the study group. Those patients were 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 were included first and excluded from the study on the same day if they hit the exclusion criteria.
➢ The patients who were enrolled were 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 was obtained from them in the consent form (Form IV).
➢ All these patients were 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 study group easily for study purpose.
➢ The signs and symptoms of Paanikkamba Vadham as described by Sage Yugimumiwar are anorexia, improper diet, deficit in walking, tremor in
upper limbs, rigidity, restlessness, devoid of sense, dryness all over the body, moaning due to sickness.

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

- Fifteen Healthy volunteers of both sexes were selected for control group.
INVESTIGATIONS DURING THE STUDY:

The patients are subjected to basic siddha and modern parameters during the study.

EVALUATION OF CLINICAL PARAMETERS

During examination, the cases were subjected to careful enquiry, which involved history taking and examination of clinical features.

The detailed history of the past and present illness, dietary habits, occupational histories were also taken before considering a case for selection into this study. The patients fully satisfying the inclusion and exclusion criteria had been subjected to the study.

- The eight-fold examination + 2 (Ennvagai thervu + 2)
  a. Naa
  b. Niram
  c. Mozhi
  d. Vizhi
  e. Malam
  f. Moothiram
  g. Sparisam
  h. Naadi

  Wrist circumference sign (Manikadai Nool),
  Astrology (Sothidam)

- The seven body components (Udal thathukal)
- Trihumoural theory (Mukkutram)
- Habitat (Nilam),
- Season (Kaalam)

  Of the patient had been assessed.

MODERN PARAMETERS:

BLOOD

1. Hb _____ gms%
2. TC _______________ Cells/cu mm
3. DC
   P____%       L_____%       E_____%       M_____%
   B_____%
4. ESR  At 30 minutes _______ mm  At 60 minutes _______ mm
5. Blood Sugar-® _____mgs%
6. SGOT& SGPT _______
7. Serum Cholesterol _______mgs %
8. HDL ______ mgs%
9. LDL ______mgs%
10. VLDL ______mgs%
11. Triglycerides _____mgs%
12. Blood Urea ______mgs%
13. Serum Creatinine ______mgs%

URINE EXAMINATION
1. Sugar ______
2. Albumin ______
3. Deposits _____________________

MOTION EXAMINATION
1. Ova
2. Cyst
3. Occult Blood

OTHER INVESTIGATIONS
1.MRI
2.PET
3.SPECT

TREATMENT DURING THE STUDY
Normal treatment procedure followed in National Institute of Siddha is prescribed to the study patients and the treatment was provided at free of cost

8.8 STUDY PERIOD
- Total period - 1yr
- Recruitment for the study - up to 10 months
- Data entry analysis - 1 month
- Report preparation and submission - 1 month
ETHICAL ISSUES:

1. To prevent any infection, while collecting blood sample from the patient, only disposable syringes, disposable gloves, with proper sterilization of lab equipment’s were used.
2. The data collected from the patient had been kept confidentially. The patient were informed about the diagnosis.
3. After the consent of the patient (through written consent form) they were enrolled in the study.
4. Informed consent were obtained from the patient explaining in the understandable language to the patient.
5. This study involves only the necessary investigations and No other investigation (mentioned in the protocol) were done.
6. Patients were subjected to X-ray investigation which does not cause any major hazards and were taken free of cost in National Institute Of Siddha.
7. Normal treatment procedure followed in NIS had been prescribed to the study patients and the treatment were provided at free of cost.
8. There was no infringement on the rights of patient.

DATA MANAGEMENT

- After enrolling the patient in the study, a separate file for each patient had been opened and all forms were imported in the file. Study No. and Patient No. had been 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 was taken and necessary recordings were made at the assessment form or other suitable form.
- The screening forms were filed separately.
- The Data recordings were monitored for completion and adverse event and few missed data during the study, were collected from the patient, but the time related data had been recorded retrospectively.
- All collected data were entered using MS access / excel software onto computer.
- Investigators were trained to enter the patient data and cross checked by SRO.
9. OBSERVATION & RESULTS

The patients and healthy volunteers were observed based on the following parameters and results were elucidated.

1. AGE DISTRIBUTION

<table>
<thead>
<tr>
<th>Sl. No</th>
<th>Age</th>
<th>Patients</th>
<th></th>
<th>Healthy volunteers</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>No.</td>
<td>Percentage</td>
<td>No.</td>
<td>Percentage</td>
</tr>
<tr>
<td>1</td>
<td>20-30</td>
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<td>0</td>
<td>9</td>
<td>60</td>
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<tr>
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<td>31-40</td>
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</tr>
<tr>
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<td>41-50</td>
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<td>14</td>
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<tr>
<td>4</td>
<td>51-60</td>
<td>5</td>
<td>33</td>
<td>3</td>
<td>20</td>
</tr>
<tr>
<td>5</td>
<td>61-70</td>
<td>8</td>
<td>53</td>
<td>0</td>
<td>0</td>
</tr>
</tbody>
</table>

**Observation:**

The percentage patients between the age group of 20-30 were 0 %, 31-40 were 0%, 41-50 were 14%, 51-60 were 33%, 61-70 were 53%.

**Inference:**

The high percentage among the age group of 61 to 70yrs implies the increase in outburst of symptoms of Paanikkamba Vadham with age.
2. GENDER

<table>
<thead>
<tr>
<th>Sl.No</th>
<th>Sex</th>
<th>Patients</th>
<th></th>
<th>Healthy volunteers</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>No.</td>
<td>Percentage</td>
<td>No.</td>
<td>Percentage</td>
</tr>
<tr>
<td>1</td>
<td>Male</td>
<td>5</td>
<td>33</td>
<td>5</td>
<td>33.3</td>
</tr>
<tr>
<td>2</td>
<td>Female</td>
<td>10</td>
<td>67</td>
<td>10</td>
<td>66.67</td>
</tr>
</tbody>
</table>

Observation:

The percentage of male and female gender among the sample group were 33:67.

Inference:

The ratio of female gender falls high among the patients. This might not have association with the disease on considering the general population.
3. DIETARY HABITS

| Sl. No | Dietary Habits     | Patients |  | Healthy volunteers |
|--------|--------------------|----------|------------------------|
|        |                    | No.      | Percentage | No.     | Percentage |
| 1      | Vegetarian         | 4        | 27         | 3       | 20         |
| 2      | Non Vegetarian     | 11       | 73         | 10      | 66.7       |
|        | Occasionally       | 0        | 0          | 0       | 0          |
|        | Frequently         | 0        | 0          | 0       | 0          |

**Observation:**

The percentage of patients taking vegetarian diet was 27 and Non-vegetarian diet was 73.

**Inference:**

We found more number of patients were occasionally Non-vegetarian, since they were high among the general population.
4. HABITS

<table>
<thead>
<tr>
<th>Sl.no.</th>
<th>Habits</th>
<th>Patients</th>
<th></th>
<th>Healthy volunteers</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>No.</td>
<td>Percentage</td>
<td>No.</td>
<td>Percentage</td>
</tr>
<tr>
<td>1</td>
<td>Smoker</td>
<td>2</td>
<td>14</td>
<td>3</td>
<td>20</td>
</tr>
<tr>
<td>2</td>
<td>Alcoholic</td>
<td>0</td>
<td>0</td>
<td>1</td>
<td>7</td>
</tr>
<tr>
<td>3</td>
<td>Drug addiction</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>4</td>
<td>Betelnut chewer</td>
<td>1</td>
<td>7</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>5</td>
<td>Tea</td>
<td>14</td>
<td>93</td>
<td>13</td>
<td>87</td>
</tr>
<tr>
<td>6</td>
<td>Coffee</td>
<td>13</td>
<td>87</td>
<td>13</td>
<td>87</td>
</tr>
<tr>
<td>7</td>
<td>Milk</td>
<td>11</td>
<td>73</td>
<td>7</td>
<td>47</td>
</tr>
</tbody>
</table>

**Observation:**

Among the patients 14% have smoking habit, 7% have habit of tobacco chewing, 93% consume tea, 87% consume coffee and 73% drink milk. Among the control group smokers were 20%, alcoholic were 7%, 87% consume tea & coffee and 47% drink milk.

**Inference:**

Tea, coffee consuming habit had been noted among the patients. Smoking habit in 14% of patients, tea and coffee consumption is not associated with the disease, because smoking habit is more prevalent among the general population.
5. OCCUPATION

<table>
<thead>
<tr>
<th>Sl. No</th>
<th>Nature of Work</th>
<th>Patients</th>
<th>Healthy volunteers</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>No.</td>
<td>Percentage</td>
</tr>
<tr>
<td>1</td>
<td>Cooli</td>
<td>3</td>
<td>20</td>
</tr>
<tr>
<td>2</td>
<td>Homemaker</td>
<td>5</td>
<td>33</td>
</tr>
<tr>
<td>3</td>
<td>Worker in hostel</td>
<td>1</td>
<td>7</td>
</tr>
<tr>
<td>4</td>
<td>Worker in hospital</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>4</td>
<td>Printer operator</td>
<td>1</td>
<td>7</td>
</tr>
<tr>
<td>5</td>
<td>Rtd railway worker</td>
<td>2</td>
<td>13</td>
</tr>
<tr>
<td>6</td>
<td>Farmer</td>
<td>1</td>
<td>7</td>
</tr>
<tr>
<td>7</td>
<td>Security</td>
<td>1</td>
<td>7</td>
</tr>
<tr>
<td>8</td>
<td>Rtd post officer</td>
<td>1</td>
<td>7</td>
</tr>
<tr>
<td>9</td>
<td>Student</td>
<td>0</td>
<td>0</td>
</tr>
</tbody>
</table>

Observation:
The percentage of patients were 33% in home maker, 20% in cooli, 13% in rtd railway worker, 7% in worker in hostel, printer operator, farmer, security, Rtd post officer.
The percentage of healthy volunteers were 47% students, 33% hospital workers, 13% in security, 7% in home maker.

**Inference:**

The occupation of patients reveal their sedentary lifestyle which might be a foregOing reason for constipation. Healthy volunteers were mostly students and workers innovating their normal bowel and bladder habits.

### 6. GENERAL ETIOLOGY OF VATHAM:

<table>
<thead>
<tr>
<th>Sl.no</th>
<th>Aetiology</th>
<th>Patients</th>
<th>Healthy volunteers</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>No.</td>
<td>Percentage</td>
</tr>
<tr>
<td>1.</td>
<td>Increased intake of bitter taste</td>
<td>4</td>
<td>27</td>
</tr>
<tr>
<td>2.</td>
<td>Increased intake of astringent taste</td>
<td>10</td>
<td>67</td>
</tr>
<tr>
<td>3.</td>
<td>Increased intake of pungent taste</td>
<td>3</td>
<td>20</td>
</tr>
<tr>
<td>4.</td>
<td>Increased intake of sour taste</td>
<td>9</td>
<td>60</td>
</tr>
<tr>
<td>5.</td>
<td>Increased intake of old cooked rice</td>
<td>10</td>
<td>67</td>
</tr>
<tr>
<td>6.</td>
<td>Increased intake of Keil varagu (ragi)</td>
<td>2</td>
<td>14</td>
</tr>
<tr>
<td>7.</td>
<td>Increased intake of Varagu (Kodo millet)</td>
<td>1</td>
<td>7</td>
</tr>
<tr>
<td>8.</td>
<td>Increased intake of Thinai (Fox tail millet)</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>9.</td>
<td>Increased intake of Nei (ghee)</td>
<td>4</td>
<td>27</td>
</tr>
<tr>
<td>10.</td>
<td>Exposure to wind</td>
<td>10</td>
<td>67</td>
</tr>
<tr>
<td>11.</td>
<td>Altered dietary timings</td>
<td>12</td>
<td>80</td>
</tr>
<tr>
<td>12.</td>
<td>Increased intake of Water</td>
<td>8</td>
<td>53</td>
</tr>
</tbody>
</table>
Observation:

Among the patients 80% have improper dietary timings, 67% have habit of increased intake of old cooked rice, food with astringent taste, high exposure to wind, 53% have starvation, Increased intake of water, 47% have increased anger, 40% have habitual constipation, fear, 33% have sadness, 27% have habit of increased intake foods with bitter taste, foods with ghee, 20% have habit of increased intake of foods with pungent taste, running, day slumber, 14% have habit of frequent intake of keal varagu, 7% have habit of frequent intake of varagu.

Among the control group 47% have frequency of anger, 33% have altered dietary timings, have habitual constipation, day slumber, 27% have habit of increased intake of foods with ghee and running. 20% have habit of increased intake of foods with astringent taste, water and fear, 14% have habit of increased intake of old cooked rice, frequent exposure to wind, starvation, 7% Have habit of frequent of foods with bitter taste, keil varagu.

Inference:

Patients were noted with habit of improper dietary timings followed by frequent intake of old cooked rice, food with astringent taste, high exposure to wind, starvation and increased intake of water. These habits alleviate the derangement of Vadham, as per Guru Yugimunivar. A few of them have increased
anger, habitual constipation, fear, sadness, habit of increased intake foods with bitter taste, foods with ghee, pungent taste, running, day slumber, habit of frequent intake of keil varagu and varagu. The characters fear, sadness, increased anger, Foods with bitter, astringent taste, day slumber causative factors for the features of the patients.

7. CLINICAL SYMPTOMS OF PAANIKKAMBA VATHAM:

<table>
<thead>
<tr>
<th>Sl. No</th>
<th>Aetiology</th>
<th>No. of patients</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Difficulty in walking</td>
<td>15</td>
<td>100</td>
</tr>
<tr>
<td>2.</td>
<td>Trembling of Limbs</td>
<td>15</td>
<td>100</td>
</tr>
<tr>
<td>3.</td>
<td>Numbness of hands</td>
<td>10</td>
<td>67</td>
</tr>
<tr>
<td>4.</td>
<td>Slurring of speech</td>
<td>13</td>
<td>87</td>
</tr>
<tr>
<td>5.</td>
<td>Anesthesia</td>
<td>14</td>
<td>93</td>
</tr>
<tr>
<td>6.</td>
<td>Rigidity of lower limbs</td>
<td>15</td>
<td>100</td>
</tr>
<tr>
<td>7.</td>
<td>Loss of sleep</td>
<td>11</td>
<td>73</td>
</tr>
</tbody>
</table>

Observation:

100% of patients have Difficulty in walking, Trembling of Limbs and Rigidity of lower limbs. 93% have Anesthesia, 87% have Slurring of speech, 73% have Loss of sleep, 67% have Numbness of hands.
Inference:

Clinical features of Paanikkamba Vadham, is more evident with trembling of limbs, rigidity of lower limbs and difficulty in walking. The major symptoms seems to be more pertinent to a disorder of extra pyramidal system.

8. UDAL VANMAI

<table>
<thead>
<tr>
<th>Sl.No.</th>
<th>Parameter</th>
<th>Patients</th>
<th>Healthy volunteers</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>No.</td>
<td>Percentage</td>
<td>No.</td>
</tr>
<tr>
<td>1</td>
<td>Vanmai</td>
<td>8</td>
<td>53.3</td>
</tr>
<tr>
<td>2</td>
<td>Menmai</td>
<td>7</td>
<td>46.7</td>
</tr>
</tbody>
</table>

Observation:

Udal vanmai among the patients was noted as 53% vanmai and 46% menmai. Udal vanmai among the healthy volunteers was noted as 40% vanmai and 60% menmai.

Inference

Body constitution of patients were well build exploiting the distinct nature of the constitution and the disease.
8. THINAI REFERENCE

<table>
<thead>
<tr>
<th>Sl. No</th>
<th>Thinai</th>
<th>Patients</th>
<th>Healthy volunteers</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>No.</td>
<td>Percentage</td>
<td>No.</td>
</tr>
<tr>
<td>1</td>
<td>Kurinji (Hill Area)</td>
<td>1</td>
<td>6.7</td>
</tr>
<tr>
<td>2</td>
<td>Mullai (Forest Area)</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>3</td>
<td>Marutham (Fertile Land)</td>
<td>6</td>
<td>40</td>
</tr>
<tr>
<td>4</td>
<td>Neithal (Coastal Area)</td>
<td>8</td>
<td>53.3</td>
</tr>
<tr>
<td>5</td>
<td>Palai (Desert Land)</td>
<td>0</td>
<td>0</td>
</tr>
</tbody>
</table>

Observation

Among the patients 53% belongs to Neithal thinai, 40% belong to marutham, 7% belongs to Kurinji thinai. Among the healthy volunteers 87% belongs to Neithal thinai, 13% belong to marutham.

Inference:

The habitat of patients were predominantly Neithal, relevant to the fact of increased Vadham derangement in coastal areas.
9. KAALAM DISTRIBUTION:

<table>
<thead>
<tr>
<th>Sl. No</th>
<th>KAALAM</th>
<th>Patients</th>
<th>Healthy volunteers</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>No.</td>
<td>PERCENTAGE</td>
</tr>
<tr>
<td>1.</td>
<td>Vatha kaalam (67-99)</td>
<td>4</td>
<td>27</td>
</tr>
<tr>
<td>2.</td>
<td>Pitha Kaalam (34-66)</td>
<td>11</td>
<td>73</td>
</tr>
<tr>
<td>3.</td>
<td>Kabha Kaalam (1-33)</td>
<td>0</td>
<td>0</td>
</tr>
</tbody>
</table>

Observation

Among the patients 73% were from pitha kaalam, 27% were from Vadha kaalam. Among the control group 93% were from Kaba kaalam and 7% were from pitha kaalam.

Inference

Most of the patients belong to the kaalam of Pitha kaalam instead of vadha kaalam in the vadha disease, since they may get alleviated due to dietary habits, occupation, habitat, etc.
10. SEASONAL VARIATIONS:

<table>
<thead>
<tr>
<th>SL. NO</th>
<th>SEASONS</th>
<th>NO. OF PATIENTS</th>
<th>PERCENTAGE</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Kaar Kaalam (aug 16 – oct 15)</td>
<td>6</td>
<td>40</td>
</tr>
<tr>
<td>2</td>
<td>Koothir Kaalam (oct 16 – dec 15)</td>
<td>2</td>
<td>13</td>
</tr>
<tr>
<td>3</td>
<td>Munpani Kaalam (dec 16 – feb15)</td>
<td>3</td>
<td>20</td>
</tr>
<tr>
<td>4</td>
<td>Pinpani Kaalam (feb 16 – apr 15)</td>
<td>2</td>
<td>13</td>
</tr>
<tr>
<td>5</td>
<td>Elavenil Kaalam (apr 16 – june 15)</td>
<td>1</td>
<td>7</td>
</tr>
<tr>
<td>6</td>
<td>Muthuvenil Kaalam (june 16 – aug15)</td>
<td>1</td>
<td>7</td>
</tr>
</tbody>
</table>

Observation:

The symptoms of Paanikkamba Vadham get initiated in kaarkaalam in 40%, munpanikaalam in 20%, koothir & pinpani kaalam in 13%, elavenil & muthuvenil kaalam 7%.

Inference:

Seasonal variation of symptoms among the patients were principally in kaarkaalam in which vadha kutram is affected with a state of ectopic escalation.
### 11. Duration of Illness

<table>
<thead>
<tr>
<th>SL. NO</th>
<th>Kaalam</th>
<th>No. of Patients</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>15 days</td>
<td>1</td>
<td>6.7</td>
</tr>
<tr>
<td>2.</td>
<td>6 months</td>
<td>2</td>
<td>13.3</td>
</tr>
<tr>
<td>3.</td>
<td>10 months</td>
<td>1</td>
<td>6.7</td>
</tr>
<tr>
<td>4.</td>
<td>1 yr.</td>
<td>2</td>
<td>13.3</td>
</tr>
<tr>
<td>5.</td>
<td>2 yr.</td>
<td>3</td>
<td>20</td>
</tr>
<tr>
<td>6.</td>
<td>3 yr.</td>
<td>1</td>
<td>6.7</td>
</tr>
<tr>
<td>7.</td>
<td>4 yr.</td>
<td>1</td>
<td>6.7</td>
</tr>
<tr>
<td>8.</td>
<td>5 yr.</td>
<td>1</td>
<td>6.7</td>
</tr>
<tr>
<td>9.</td>
<td>6 yr.</td>
<td>1</td>
<td>6.7</td>
</tr>
<tr>
<td>10.</td>
<td>10 yr</td>
<td>2</td>
<td>13.3</td>
</tr>
<tr>
<td>11.</td>
<td>Total</td>
<td>15</td>
<td>100</td>
</tr>
</tbody>
</table>

![Duration of Illness Chart](chart.png)

The chart above illustrates the distribution of duration of illness among patients. The chart shows the percentage of patients within different duration categories: 15 days, 6 months, 10 months, 1 year, 2 years, 3 years, 4 years, 5 years, 6 years, 10 years. The chart visually represents the data in the table above.
Observation:
Among the patients observed the duration of illness is 15 days in 7%, 6 months in 13 %, 10 months in 7%, 1yr in 7%, 2 yr in 20%, 3 yr, 4 yr, 5 yrs, 6yrs in 7%, and 10yrs in 13%.

Inference:
The duration of illness is more than 2 yr in maximum no. of patients observed during the study. The symptoms were more prominent in chronic condition of the disease.

12.ZODIAC SIGN

<table>
<thead>
<tr>
<th>Sl. No</th>
<th>RASI</th>
<th>Patients</th>
<th></th>
<th>Healthy volunteers</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>No.</td>
<td>PERCENTAGE</td>
<td>No.</td>
<td>PERCENTAGE</td>
</tr>
<tr>
<td>1.</td>
<td>Mesham</td>
<td>1</td>
<td>7</td>
<td>2</td>
<td>14</td>
</tr>
<tr>
<td>2.</td>
<td>Rishabam</td>
<td>2</td>
<td>13</td>
<td>1</td>
<td>7</td>
</tr>
<tr>
<td>3.</td>
<td>Mithunam</td>
<td>0</td>
<td>0</td>
<td>2</td>
<td>14</td>
</tr>
<tr>
<td>4.</td>
<td>Kadagam</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>5.</td>
<td>Simam</td>
<td>0</td>
<td>0</td>
<td>3</td>
<td>20</td>
</tr>
<tr>
<td>6.</td>
<td>Kanni</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>7.</td>
<td>Thulam</td>
<td>0</td>
<td>0</td>
<td>1</td>
<td>7</td>
</tr>
<tr>
<td>8.</td>
<td>Virutchikam</td>
<td>0</td>
<td>0</td>
<td>2</td>
<td>14</td>
</tr>
<tr>
<td>9.</td>
<td>Thanusu</td>
<td>1</td>
<td>7</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>10.</td>
<td>Makaram</td>
<td>0</td>
<td>0</td>
<td>1</td>
<td>7</td>
</tr>
<tr>
<td>11.</td>
<td>Kumbam</td>
<td>0</td>
<td>0</td>
<td>2</td>
<td>14</td>
</tr>
<tr>
<td>12.</td>
<td>Meenam</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>13.</td>
<td>Not known</td>
<td>11</td>
<td>73</td>
<td>1</td>
<td>7</td>
</tr>
</tbody>
</table>
ZODIAC SIGN OF KNOWN PATIENTS

<table>
<thead>
<tr>
<th>Sl. No</th>
<th>RASI</th>
<th>Patients</th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>No.</td>
<td>PERCENTAGE</td>
<td></td>
</tr>
<tr>
<td>1.</td>
<td>Mesham</td>
<td>1</td>
<td>25</td>
<td></td>
</tr>
<tr>
<td>2.</td>
<td>Rishabam</td>
<td>2</td>
<td>50</td>
<td></td>
</tr>
<tr>
<td>3.</td>
<td>Thanusu</td>
<td>1</td>
<td>25</td>
<td></td>
</tr>
</tbody>
</table>

Observation:
Among the patients who knew their zodiac sign, 50% were Mesham, 25% were Rishabam and 25% were Thanusu.

Inference:
Among the patients who knew their zodiac sign, 50% were Rishabam, 25% were Mesham and 25% were Thanusu. Most of the patients were of geriatric age group and they don't know their zodiac sign. It explains the disorder of regions head, face and thigh are more prone among the individuals.

13. BIRTH STAR

<table>
<thead>
<tr>
<th>Sl. No</th>
<th>Natchathiram (birth stars)</th>
<th>Patients</th>
<th>Healthy volunteers</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>No.</td>
<td>PERCENTAGE</td>
</tr>
<tr>
<td>1.</td>
<td>Aswini</td>
<td>1</td>
<td>7</td>
</tr>
<tr>
<td>2.</td>
<td>Rohini</td>
<td>1</td>
<td>7</td>
</tr>
<tr>
<td>3.</td>
<td>Mirugaseeradam</td>
<td>1</td>
<td>7</td>
</tr>
<tr>
<td>4.</td>
<td>Thiruvathirai</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>5.</td>
<td>Punarpoosam</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Sl. No</td>
<td>Natchathiram (birth stars)</td>
<td>Patients</td>
<td></td>
</tr>
<tr>
<td>-------</td>
<td>-----------------------------</td>
<td>----------</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>No.</td>
<td>PERCENTAGE</td>
</tr>
<tr>
<td>1.</td>
<td>Aswini</td>
<td>1</td>
<td>25</td>
</tr>
<tr>
<td>2.</td>
<td>Rohini</td>
<td>1</td>
<td>25</td>
</tr>
<tr>
<td>3.</td>
<td>Mirugaseeradam</td>
<td>1</td>
<td>25</td>
</tr>
<tr>
<td>4.</td>
<td>Uthiradam</td>
<td>1</td>
<td>25</td>
</tr>
</tbody>
</table>

**Observation:**

Among the patients those who knew their birth stars were 25% aswini, rohini, mirugaseeradam, uthiradam.

**Inference:**

Most of the patients were of geriatric age group and they don’t know their birth star.
14. MANIKADAI NOOL

<table>
<thead>
<tr>
<th>S. no</th>
<th>Nool alavu</th>
<th>Patients</th>
<th>Healthy volunteers</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>No.</td>
<td>Percentage</td>
</tr>
<tr>
<td>1.</td>
<td>7</td>
<td>2</td>
<td>14</td>
</tr>
<tr>
<td>2.</td>
<td>7 1/4</td>
<td>3</td>
<td>20</td>
</tr>
<tr>
<td>3.</td>
<td>7 3/4</td>
<td>4</td>
<td>27</td>
</tr>
<tr>
<td>4.</td>
<td>8</td>
<td>1</td>
<td>7</td>
</tr>
<tr>
<td>5.</td>
<td>8 1/4</td>
<td>5</td>
<td>33</td>
</tr>
<tr>
<td>6.</td>
<td>8 1/2</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>7.</td>
<td>8 3/4</td>
<td>0</td>
<td>0</td>
</tr>
</tbody>
</table>

**Observation:**

Among the patients wrist circumetric measurement noted were 7 in 14%, 7 1/4 in 20%, 7 3/4 in 27%, 8 in 7%, 8 1/4 in 33%. Among the Healthy volunteers wrist circumetric measurement was noted as 7 in 7%, 7 1/4 in 7%, 7 3/4 in 13%, 8 in 33%, 8 1/4 in 7%, 8 1/2 in 27%, 8 3/4 in 7%.

**Inference:**

The patients of Paanikkamba Vadham observed had a manikkadai nool ranging between 7 to 8 1/4. The symptoms pertaining to the range were constipation, loss of appetite, dryness, pain, increase of basal metabolic rate, etc. which were found among the patients. Among the control group, the manikkadai
nool range of 7 to 8 3/4 had been noted. The volunteers having the range may expect symptoms similar to that of patients.

### 15.NAADI

<table>
<thead>
<tr>
<th>Sl. No</th>
<th>Naadi</th>
<th>Patients</th>
<th>Healthy volunteers</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>No</td>
<td>PERCENTAGE</td>
</tr>
<tr>
<td>1.</td>
<td>Vali</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>2.</td>
<td>Azhal</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>3.</td>
<td>Iyyam</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>4.</td>
<td>Vali Azhal</td>
<td>6</td>
<td>6.7</td>
</tr>
<tr>
<td>5.</td>
<td>Azhal Vali</td>
<td>53.3</td>
<td>53.3</td>
</tr>
<tr>
<td>6.</td>
<td>Iyya Vali</td>
<td>26.7</td>
<td>26.7</td>
</tr>
<tr>
<td>7.</td>
<td>Vali Iyyam</td>
<td>6.7</td>
<td>6.7</td>
</tr>
<tr>
<td>8.</td>
<td>Azhal Iyyam</td>
<td>6.7</td>
<td>6.7</td>
</tr>
<tr>
<td>9.</td>
<td>Iyya Azhal</td>
<td>0</td>
<td>0</td>
</tr>
</tbody>
</table>

**Observation:**

Among the observed patients naadi Vali Azhal was in 7%, Azhal Vali was in 53%, Iyya Vali was in 27%, Vali Iyyam was in 7%, Azhal Iyyam was in 7%.

Among the healthy volunteers naadi Vali Azhal was in 40%, Azhal Vali was in 33%, Iyya Vali was in 7%, Vali Iyyam was in 7%, Iyya Azhal was in 13%.

**Inference:**

Among the observed patients naadi Azhal Vali was 53%, Iyya Vali was 27% were predominant. The symptoms noted were moaning, pricking pain in body, loss.
of consciousness, disease of head, pain present along the nerves, pain present in occipital region of head, etc.

16. UDAL KATTUGAL

<table>
<thead>
<tr>
<th>Sl. No</th>
<th>Udar Kattugal</th>
<th>Patients No</th>
<th>Percentage</th>
<th>Healthy volunteers No</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Saaram</td>
<td>15</td>
<td>100</td>
<td>1</td>
<td>7</td>
</tr>
<tr>
<td>2</td>
<td>Senneer</td>
<td>4</td>
<td>27</td>
<td>1</td>
<td>7</td>
</tr>
<tr>
<td>3</td>
<td>Oon</td>
<td>3</td>
<td>20</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>4</td>
<td>Kozhuppu</td>
<td>3</td>
<td>20</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>5</td>
<td>Enbu</td>
<td>14</td>
<td>93</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>6</td>
<td>Moolai</td>
<td>15</td>
<td>100</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>7</td>
<td>Sukkilam/Suronitham</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
</tbody>
</table>

Observation:

The patients affected in saaram & moolai 100%, enbu 93%, senneer 27%, oon, kozhuooup 20%.

Among the healthy individuals the udal kattugal saaram & senneer were affected in 7%.
Inference:

The patients of Paanikkamba Vadham had derangement in saaram & moolai thathu followed by enbu, senneer, oon & kozhuppu. The symptoms were Loss of appetite, excessive salivation, diminished activity, heaviness, pallor, cold, decreased physical constituents, dyspnoea, flatulence, cough, Dryness of skin, tiredness, loss of weight, lassitude and irritability while hearing louder sounds.

17. TONGUE

<table>
<thead>
<tr>
<th>SL. NO</th>
<th>NAA</th>
<th>PATIENTS</th>
<th>HEALTHY VOLUNTEERS</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>NO</td>
<td>PERCENTAGE</td>
</tr>
<tr>
<td>1</td>
<td>Thanmai (Appearance)</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Maapadinthiruthal (Coated)</td>
<td>2</td>
<td>14</td>
</tr>
<tr>
<td></td>
<td>Vedippu (Fissured)</td>
<td>1</td>
<td>7</td>
</tr>
<tr>
<td>2</td>
<td>Niram (Colour)</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Karuppu</td>
<td>3</td>
<td>20</td>
</tr>
<tr>
<td></td>
<td>Manjal</td>
<td>6</td>
<td>40</td>
</tr>
<tr>
<td></td>
<td>Velluppu</td>
<td>1</td>
<td>7</td>
</tr>
<tr>
<td></td>
<td>Normal</td>
<td>5</td>
<td>33</td>
</tr>
<tr>
<td>3</td>
<td>Suvai (Taste)</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Pulippu (Sour)</td>
<td>3</td>
<td>20</td>
</tr>
<tr>
<td></td>
<td>Kaippu (Bitter)</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td></td>
<td>Inippu (Sweet)</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td></td>
<td>Normal</td>
<td>12</td>
<td>80</td>
</tr>
<tr>
<td>4</td>
<td>Vaineer Ooral (Salivation)</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Normal</td>
<td>12</td>
<td>80</td>
</tr>
<tr>
<td></td>
<td>Increased</td>
<td>3</td>
<td>20</td>
</tr>
<tr>
<td></td>
<td>Decreased</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td></td>
<td>Total</td>
<td>15</td>
<td>100</td>
</tr>
</tbody>
</table>

Observation:

The thanmai of naa was observed. Maa padinthiruthal was found in 14% and vedippu was noted in 7% of patients. Maa padinthiruthal was found in 27% and vedippu was noted in 20% of healthy volunteers.

The parameter niram in naa had been noted as karuppu 20%, manjal 40%, and veluppu 7%, normal 33% among the patients. Niram in naa had been noted
as karuppu 7%, manjal 47%, veluppu 14%, and normal 33% among the healthy volunteers.

Pulippu suvai in naa was noted as 20% in patients and 7% in healthy volunteers. Normal taste sensation had been noted in 80% patients & 93% healthy volunteers.

Salivation is normal in 80% in both patients & control group, increased in 20% of patients, 7% of volunteers, decreased in 14% of volunteers.

**Inference:**

The appearance of naa was observed. Maa padinthiruthal resemble the constipation of patients. The parameter niram in naa has been noted as karuppu 20%, manjal 40%, and veluppu 7%, normal 33% among the patients. The parameter is relevant to the kutram Vadham and pitham. Normal taste sensation has been noted in 80% patients. Taste sensation is not altered in Parkinson’s disease. Salivation is normal in 80% in both patients. It is different from the symptom of increased salivary secretion in Parkinson’s disease. Karuppu niram is seen in 47% of patients with manjal 73% & veluppu niram 7%. The body colour is nearing to derangement in Vadham and Pitham. 73% piralntha oli was noted among the patients. Speech and language difficulties were noted among the patients, as indistinct, stammering, rapid, quiet

**18.COMPLEXION, VOICE, EYES, SKIN**

<table>
<thead>
<tr>
<th>Sl. No</th>
<th>NAME OF THE PARAMETER</th>
<th>THANMAI (CHARACTER)</th>
<th>Patients</th>
<th>Healthy volunteers</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>NO.</td>
<td>PERCENTAGE</td>
</tr>
<tr>
<td>1</td>
<td>Niram (Complexion)</td>
<td>Karuppu (Dark)</td>
<td>3</td>
<td>47</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Manjal</td>
<td>11</td>
<td>73</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Velluppu</td>
<td>1</td>
<td>7</td>
</tr>
<tr>
<td>2</td>
<td>Mozhi (Voice)</td>
<td>Thazhndha oli (Low pitch)</td>
<td>1</td>
<td>7</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Urahtha oli (High pitch)</td>
<td>1</td>
<td>7</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Sama oli (Normal)</td>
<td>2</td>
<td>14</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Piralntha oli</td>
<td>11</td>
<td>73</td>
</tr>
</tbody>
</table>
### Observation:

Karuppu niram is seen in 47% of patients with manjal 73% & veluppu niram 7%. Among the control group 27% karuppu, 40% manjal & 20% veluppu. Among the patients 7% uratha oli, 7% thalntha oli, 14% sama oli, 73% piralntha oli was noted. In control group mozhi was noted as 20% uratha oli, 20% thalntha oli, 60% sama oli.

<table>
<thead>
<tr>
<th>3</th>
<th>Vizhi</th>
<th>Niram</th>
<th>Sivappu (Red)</th>
<th>1</th>
<th>7</th>
<th>1</th>
<th>7</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>Karuppu (black)</td>
<td>2</td>
<td>14</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Vellupu (pallor)</td>
<td>3</td>
<td>20</td>
<td>1</td>
<td>7</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>No discoloration</td>
<td>8</td>
<td>53</td>
<td>13</td>
<td>87</td>
</tr>
</tbody>
</table>

| 4 | Meikuri | Thanmai | Kanneer | 12 | 80 | 0 |
|   |         |         | Erichal (Burning sensation) | 1 | 7 | 2 | 14 |
|   |         |         | Peelai seruthal | 1 | 7 | 0 |

| 4 | Meikuri | Veppam (Warmth) | Mitha veppam (Mild) | 12 | 80 | 14 | 93 |
|   |         |         | Migu veppam (High) | 3 | 20 | 1 | 7 |
|   |         |         | Thatpam |

| 4 | Meikuri | Viyarvai (Sweating) | Normal | 10 | 67 | 13 | 87 |
|   |         |         | Increased | 5 | 33 | 2 | 14 |
|   |         |         | Reduced | 0 | 0 |

| 4 | Meikuri | Thodu vali (Tenderness) | Absent | 15 | 100 | 15 | 100 |
|   |         |         | Present | 0 | 0 |   |   |
Among the patients the vizhi niram has been noted as sivappu 7%, karuppu 14%, veluppu 20%, no discolouration 53%. Among the patients the vizhi niram has been noted as sivappu 7%, veluppu 7%, no discolouration 87%.

According to thanmai of vizhi, kanneer has been noted in 80% patients, erichal 7% & peelai serthal 7%. According to thanmai of vizhi, erichal has been noted in 14% patients.

In patients mitha veepam is prominent in 80% and migu veppam in 20%. Among the control group mitha veppam 93%, migu veppam in 27%.

Viyarvai is normal in 67% and increased in 33% of patients. In control group, it is 87% and 13% respectively.

Thodu vali absent in all 100% of patients & control group.

**Inference:**

Considering the complexion, manjal niram was more prominent among the patients and control group. In Paanikkamba Vadham patients increased lacrimal secretion is noted, which was normal in healthy individuals. Warmth was mild in both patients and control group. Sweating was reduced in patients and normal in control group.

**19. MOTION**

<table>
<thead>
<tr>
<th>Sl. No</th>
<th>Malam</th>
<th>Patients</th>
<th>Healthy volunteers</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>No.</td>
<td>Percentage</td>
</tr>
<tr>
<td>1.</td>
<td>Thanmai</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Sikkal (Constipation)</td>
<td>4</td>
<td>27</td>
</tr>
<tr>
<td></td>
<td>Siruthal</td>
<td>4</td>
<td>27</td>
</tr>
<tr>
<td></td>
<td>Vemmai</td>
<td>2</td>
<td>14</td>
</tr>
<tr>
<td>2.</td>
<td>Niram (Colour)</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Karuppu (Dark)</td>
<td>1</td>
<td>7</td>
</tr>
<tr>
<td></td>
<td>Manjal (Yellowish)</td>
<td>14</td>
<td>93</td>
</tr>
<tr>
<td></td>
<td>Vellupu (Pallor)</td>
<td>0</td>
<td>0</td>
</tr>
</tbody>
</table>
Observation:

The thanmai of malam is sikkal in 27%, siruthal in 27% and vemmai in 14% of patients. The thanmai of malam is sikkl in 20%, and vemmai in 7% of healthy volunteers.

The niram in malam is karuppu in 7%, manjal in 93% of patients. It is karuppu in 14% and 87% manjal among the healthy volunteers.

Inference:

Habitual constipation is mostly present in patients and control group. The colour explains the body type of the patient and the healthy volunteers.

20. URINE

<table>
<thead>
<tr>
<th>S No</th>
<th>Neerkuri</th>
<th>Patients</th>
<th></th>
<th>Healthy volunteers</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>No.</td>
<td>Percentage</td>
<td>No.</td>
<td>Percentage</td>
</tr>
<tr>
<td>1</td>
<td>Niram (Colour)</td>
<td>Colourless</td>
<td>1</td>
<td>7</td>
<td>0</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Straw</td>
<td>10</td>
<td>47</td>
<td>15</td>
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<tr>
<td></td>
<td></td>
<td>Orange</td>
<td>4</td>
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</tr>
<tr>
<td></td>
<td></td>
<td>Total</td>
<td>15</td>
<td>100</td>
<td>0</td>
</tr>
<tr>
<td>2</td>
<td>Manam (odour)</td>
<td>Mild aromatic odour</td>
<td>14</td>
<td>93</td>
<td>15</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Ammoniacal</td>
<td>1</td>
<td>7</td>
<td>0</td>
</tr>
<tr>
<td>3</td>
<td>Nurai (Frothy)</td>
<td>Clear</td>
<td>13</td>
<td>87</td>
<td>15</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Cloudy</td>
<td>2</td>
<td>14</td>
<td>0</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Total</td>
<td>15</td>
<td>100</td>
<td>15</td>
</tr>
<tr>
<td>4</td>
<td>Enjal (Deposit)</td>
<td>Abnormal</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Normal</td>
<td>15</td>
<td>100</td>
<td>15</td>
</tr>
<tr>
<td>5</td>
<td>Edai (Density)</td>
<td>Normal</td>
<td>15</td>
<td>100</td>
<td>15</td>
</tr>
<tr>
<td>6</td>
<td>Alavu (Volume)</td>
<td>Oliguria</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Polyuria</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Normal</td>
<td>15</td>
<td>100</td>
<td>15</td>
</tr>
</tbody>
</table>
**Observation:**

The colour of urine is colourless in 7%, straw colour in 47%, orange colour in 27% of patients. Among the healthy volunteers 100% of them was straw colour.

The odour of urine is mild aromatic in 93% and ammoniacal in 7% in patients. In control group, 100% of them were mild aromatic.

In urine of patients, 87% of them were clear and 14% cloudy. Among the control group, 100% clear.

Urine deposits were absent in both patient and control group.

**Inference:**

The colour of urine is colourless in 7%, straw colour in 47%, orange colour in 27% of patients. The abnormal colour of urine is due to intake of synthetic dopa along with MAO- inhibitors in few patients. The odour of urine is mild aromatic. In Parkinson’s disease there is normal odour of urine.

**Neikuri:**

<table>
<thead>
<tr>
<th>Sl no.</th>
<th>Neikuri</th>
<th>Patients</th>
<th></th>
<th>Healthy volunteers</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>No</td>
<td>Percentage</td>
<td>No</td>
<td>Percentage</td>
</tr>
<tr>
<td>1</td>
<td>Mellena paraval</td>
<td>4</td>
<td>27</td>
<td>1</td>
<td>7</td>
</tr>
<tr>
<td>2</td>
<td>Muthu</td>
<td>8</td>
<td>56</td>
<td>11</td>
<td>77</td>
</tr>
<tr>
<td>3</td>
<td>Salladaikkan pol thondri maraithal</td>
<td>3</td>
<td>27</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
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<td>Neerudan kalanthu nitral</td>
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<td>0</td>
<td>3</td>
<td>21</td>
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</tbody>
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**Observation:**

Among the patients, 56% had muthu(pearl), 27% had mellena paraval(slowly spreading), 27% had salladaikkan pol thondri maraithal(sieve like). Among the healthy volunteers, 77% had muthu(pearl), 21% had neerudan kalanthu nitral(mingle with urine) and 7% had mellena paraval(slow spreading).

**Inference:**

Majority of the patients had muthu pol nitral which explores the derangement in kabham. Mellena paraval refers to slow prognosis of disease. Salladaikkan expresses kabham, but there is no inference for salladaikkan pol thondri maraithal.

Among the healthy volunteers, most of them had muthu referring to their, kabha constitution.
Neerkuri:

<table>
<thead>
<tr>
<th>OP NO</th>
<th>AGE</th>
<th>Gender</th>
<th>Neerkuri Colour</th>
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</thead>
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<tr>
<td>C17768</td>
<td>62</td>
<td>F</td>
<td>Colourless</td>
</tr>
<tr>
<td>C9787</td>
<td>56</td>
<td>M</td>
<td>Yellow colour</td>
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</table>

139
<table>
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<th>Neerkuri</th>
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<tr>
<td>C238</td>
<td>65/F</td>
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</tr>
<tr>
<td>C2847</td>
<td>70/F</td>
<td>Muthu</td>
</tr>
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<td>AGE:62/F</td>
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<tr>
<td>----------------</td>
<td>---------</td>
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<tr>
<td>Neikuri : Muthu</td>
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</table>

<table>
<thead>
<tr>
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</thead>
<tbody>
<tr>
<td>Neerkuri : Sallaadikkan pol thondri maraithal(sieve)</td>
<td></td>
</tr>
<tr>
<td>OP NO</td>
<td>AGE</td>
</tr>
<tr>
<td>---------</td>
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</tr>
<tr>
<td>AC1096</td>
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<th>Neikuri</th>
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<tbody>
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<tr>
<td>OP NO</td>
<td>AGE</td>
<td>Condition</td>
</tr>
<tr>
<td>--------</td>
<td>------</td>
<td>------------</td>
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<tr>
<td>C15925</td>
<td>65/M</td>
<td>Vizhi: No discolouration</td>
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<td></td>
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<td>Naa: Vedippu(fissures)</td>
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21. BODY CONSTITUTION

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<th>Sl. No</th>
<th>Thega Elakkanam</th>
<th>Patients</th>
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<td></td>
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<td>Percentage</td>
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<tr>
<td>3.</td>
<td>Pitha vadham</td>
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<td>33</td>
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<td>4.</td>
<td>Pitha kabam</td>
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<td>Kabavadham</td>
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<td>Kabham</td>
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</tbody>
</table>

**Observation:**

Thega elakkanam was noted as vadhapitham 7%, pitha vadham 47%, pithakabam 7%, kabavadham 27% among the patients. In the control group, vadhapitham 40%, vadhakabam 14%, pithavadham 33%, kabapitham 14%

**Inference:**

Pithavadham and kabavadham were more prominent among the patients. Vadhapitham and kabapitham were high among the control group.
### 22. VATHA HUMOR

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<th>Sl. No</th>
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<td>Praanan</td>
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<td>26.7</td>
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<td>Abaanan</td>
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<td>20</td>
</tr>
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<td>3.</td>
<td>Uthaanan</td>
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<td>66.7</td>
</tr>
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<td>4.</td>
<td>Viyaanan</td>
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<tr>
<td>5.</td>
<td>Samaanan</td>
<td>4</td>
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<td>6.</td>
<td>Koorman</td>
<td>4</td>
<td>26.7</td>
</tr>
<tr>
<td>7.</td>
<td>Naagan</td>
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<td>0</td>
</tr>
<tr>
<td>8.</td>
<td>Kirukaran</td>
<td>8</td>
<td>53.3</td>
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<tr>
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<td>Devathathan</td>
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<td>13.3</td>
</tr>
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<td>10.</td>
<td>Dhananjeyan</td>
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</tr>
</tbody>
</table>
Observation:
Among the types of vadham, the derangements noted were Praanan 27%, Abaanan 20%, Uthaanan 67%, Samaanan 27%, Koorman 27%, Kirukaran 53%, Devathathan 33%. Among the types of vadham, the derangements noted were Abaanan 20%, Uthaanan 67%, Koorman 7%, Devathathan 7%.

Inference:
The derangements have been noted in pranan, abaan, uthan, samaan, koorman, kirukan. The symptoms, laziness, habitual constipation, trembling of limbs, blurred vision, loss of sleep forms the part in derangement of vadham types.

23.PITHA HUMOR

<table>
<thead>
<tr>
<th>Sl. No</th>
<th>Pitham</th>
<th>Patients</th>
<th>Healthy volunteers</th>
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<tbody>
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<td></td>
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<td>No.</td>
<td>Percentage</td>
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<tr>
<td>1.</td>
<td>Analam</td>
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<td>26.7</td>
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<tr>
<td>2.</td>
<td>Ranjagam</td>
<td>1</td>
<td>6.7</td>
</tr>
<tr>
<td>3.</td>
<td>Alosagam</td>
<td>5</td>
<td>33.3</td>
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<td>4.</td>
<td>Prasagam</td>
<td>9</td>
<td>60</td>
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<td>5.</td>
<td>Saathagam</td>
<td>15</td>
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</table>

PITHAM

- Analam: 26.7%
- Ranjagam: 6.7%
- Alosagam: 33.3%
- Prasagam: 13.3%, 13.3%
- Saathagam: 100%
Observation:
Among the patients, the derangement in pitham was analam 27%, Ranjagam 7%,
Alosagam 33%, prasagam 14%, saathagam 100%. Among the control group the
derangement in pitham was prasagam 14%.

Inference:
Sathagam, alosagam, analam, prasagam were deranged in pitham. The
symptoms, dry skin, increased anger, difficulty in walking, impairment in
assessment forms the derangement in pitham types.

24. KABHA HUMOR

<table>
<thead>
<tr>
<th>Sl. No</th>
<th>Kapham</th>
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<th>Healthy volunteers</th>
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<td>Santhigam</td>
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<td>66.7</td>
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</table>

![Kapham Chart](chart.png)
Observation:
Avlambagam 100%, klethagam 27%, pothagam 7%, tharpagam 74%, santhigam 67% were affected among the patients. In control group avalambagam 7% and pothagam 7% were affected.

Inference:
The derangement in kabam types is maximum in avalambagam, tharpagam and santhigam. The symptoms of variation in taste, pain in joints, difficulty in walking, trembling of limbs forms the derangement in kabam types.
### 25. Examination of Central Nervous System:

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<th>Sıno</th>
<th>Consciousness</th>
<th>Intelligence</th>
<th>Memory</th>
<th>Speech</th>
<th>Pain</th>
<th>Touch</th>
<th>Temp</th>
<th>Discr</th>
<th>Pre</th>
<th>Vib</th>
<th>Post</th>
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<th>Recog</th>
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</tbody>
</table>

**N – NORMAL AN – ABNORMAL + - Present**

**Observation:**

Higher intellectual functions were found to be abnormal in 27%- altered consciousness, 14%- reduced IQ, 33%- poor memory, 77%- stammering speech.
Pain is present in 100% of patients.
26. Examination of motor system:

<table>
<thead>
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<th>Sl no</th>
<th>Power</th>
<th>Tone</th>
<th>Gait</th>
<th>Nutrition</th>
<th>Abn.mov</th>
<th>Coordination</th>
<th>Reflex</th>
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</tr>
<tr>
<td>11</td>
<td>5</td>
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<tr>
<td>15</td>
<td>5</td>
<td>5</td>
<td>^</td>
<td>^</td>
<td>AN</td>
<td>N</td>
<td>N-SLOW</td>
</tr>
</tbody>
</table>

N- NORMAL AN – ABNORMAL . ^ - INCREASED, + PRESENT , - ABSENT

Observation:

Power was 5/5 in 100% of patients, In upper limbs 100% were hypertonic. In lower limbs 47% were hypertonic. Abnormal gait was observed in 100% of patients. Nutrition in both upper and lower limbs were 100%. Abnormal movements were present in 100% in upper limbs, 53% in lower limbs. Coordination was normal but slow in 77% of patients. Reflex were very brisk in 53%, brisk in 47% in upper limbs of patients, very brisk in 14%, brisk in 63%, present normal as ankle jerk in 28% in lower limb of patients.
## 27. CRANIAL NERVES EXAMINATION

<table>
<thead>
<tr>
<th>Sl no</th>
<th>Cranial nerve examination</th>
<th>examination</th>
<th>No. of cases affected</th>
<th>Percent age of cases affected</th>
<th>Changes in the examination</th>
</tr>
</thead>
<tbody>
<tr>
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<td>Olfactory N</td>
<td>Interrogation</td>
<td>7</td>
<td>47</td>
<td>Hyposmia</td>
</tr>
<tr>
<td>2</td>
<td>Optic N</td>
<td>Visual acuity Visual fields 'Swinging' torch test</td>
<td>4</td>
<td>27</td>
<td>Blurred vision</td>
</tr>
<tr>
<td>3</td>
<td>Oculomotor N</td>
<td>Eye movements (nystagmus) Eyelid movement Pupil size, symmetry, reactions</td>
<td>12</td>
<td>83</td>
<td>Saccadic slowing of movements</td>
</tr>
<tr>
<td>4</td>
<td>Trochlear N</td>
<td>Eye movements (nystagmus)</td>
<td>12</td>
<td>83</td>
<td>Saccadic slowing of movements</td>
</tr>
<tr>
<td>5</td>
<td>Trigeminal N</td>
<td>Sensation to face Corneal reflex Jaw movements</td>
<td>9</td>
<td>63</td>
<td>Involuntary movement of jaw</td>
</tr>
<tr>
<td>6</td>
<td>Abducent N</td>
<td>Eye movements (nystagmus)</td>
<td>12</td>
<td>83</td>
<td>Saccadic slowing of movements</td>
</tr>
<tr>
<td>7</td>
<td>Facial N</td>
<td>Facial symmetry and movements Taste sensation</td>
<td>11</td>
<td>77</td>
<td>Lack of expression, Loss of spontaneous facial movements</td>
</tr>
<tr>
<td>8</td>
<td>Vestibulocochlear N</td>
<td>Hearing Tuning fork tests</td>
<td>1</td>
<td>7</td>
<td>Mild defect in hearing</td>
</tr>
<tr>
<td>9</td>
<td>Glossopharyngeal N</td>
<td>Gag reflex</td>
<td>12</td>
<td>83</td>
<td>Disturbance in speed of tongue movement</td>
</tr>
<tr>
<td>10</td>
<td>Vagus N</td>
<td>Palatal elevation Gag reflex Cough</td>
<td>0</td>
<td>0</td>
<td>Nil</td>
</tr>
<tr>
<td>11</td>
<td>Accessory N</td>
<td>Wasting Elevation of shoulders Turning head to right and left</td>
<td>9</td>
<td>63</td>
<td>Shoulder lags behind the normal side</td>
</tr>
<tr>
<td>12</td>
<td>Hypoglossal N</td>
<td>Wasting/fasciculation Tongue protrusion</td>
<td>11</td>
<td>77</td>
<td>Tremor in protruded tongue</td>
</tr>
</tbody>
</table>
Observation:

47% were affected with olfactory nerve involvement, 27% optic N, 83% oculomotor N, 83% trochlear N, 63% trigeminal N, 83% abducence N, 77% facial N, 7% vestibulo cochlear N, 83% glossopgaryngeal N, 63% accessory N, 77% hypoglossal N. The changes in the examination were Hyposmia, Blurred vision, Saccadic slowing of movements of eyeball, Involuntary movement of jaw, Lack of expression in face, Loss of spontaneous facial movements, Mild defect in hearing, Disturbance in speed of tongue movement, Shoulder lags behind the normal side during shrugging, Tremor in protruded tongue.

OTHER EXAMINATIONS:

- Plantar Reflex – Flexor in all patients
- Myerson's sign - Positive in 70% of patients.
- Pull test - Positive
- Examination of posture-Retropulsion/Anteropulsion – Postural instability noted
- Finger-nose testing - Negative
- Heel-shin testing - Negative
- Dysdiadochokinesis - Absent
- Difficulty with gait (unsteadiness or inability to perform tandem gait) - Absent
- Micrographia - Present in 27% of patients.

Patients were asked to make rapid large amplitude movements bringing the fingers and thumb together and apart. - diminishing of amplitude after a few movements were noted in 40% of patients.

Patients were asked to make rapid alternating pronation and supination of the cupped hands - diminishing of amplitude after a few movements were noted in 40% of patients.
10. DIFFERENTIAL DIAGNOSIS

ACCORDING TO YUGI VAITHIYA SINTHAMANI - 800:

"Parakshakham parakshakham vidambhini aakarhtu
amedikakramikam superkarhtu
Parakshakham vyakratantu maamkathu
Parakshakham aadhimukham aakarhtu
Aakarshana ammadhikam sindhabharga
2面上の差異
Parakshakham parakshakham aakarhtu
Parakshakham aadhimukham aakarhtu.

DISCUSSION OF DIFFERENTIAL DIAGNOSIS BETWEEN PAANIKKAMBA VADHAM AND KAMBA VADHAM

"Vidambhini aadhimukham siddhina samapathivinnum
Vidambhini sukhapathivinnum vidambhanyam - aadhimukham
Aadhimukham aadhimukham kramabha vidambhanyam
Aadhimukham aadhimukham kramabha.

aadhimukham aadhimukham kramabha."
<table>
<thead>
<tr>
<th></th>
<th>PAANIKAMBA VADHAM</th>
<th>KAMBA VADHAM</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>SIMILARITIES</strong></td>
<td>Tremor</td>
<td>Tremor in head, upper and lower limbs</td>
</tr>
<tr>
<td></td>
<td>&quot; Nashville Vadham&quot;</td>
<td>&quot; Nashville Vadham&quot;</td>
</tr>
<tr>
<td></td>
<td>&quot;Tremor in upper limbs&quot;</td>
<td>&quot;Tremor in head, upper and lower limbs&quot;</td>
</tr>
<tr>
<td><strong>COGNITIVE</strong></td>
<td>Moaning/screaming in depression</td>
<td>Moaning</td>
</tr>
<tr>
<td>FUNCTION</td>
<td>&quot;Moaning&quot;</td>
<td>&quot;Moaning&quot;</td>
</tr>
<tr>
<td></td>
<td>Moaning/screaming in depression</td>
<td>&quot;Moaning&quot;</td>
</tr>
<tr>
<td></td>
<td>Loss of sleep</td>
<td>Sleeplessness</td>
</tr>
<tr>
<td><strong>SLEEP</strong></td>
<td>Deficit in walking</td>
<td>Pain present all over the body</td>
</tr>
<tr>
<td></td>
<td>Rigidity</td>
<td>Sense of heat</td>
</tr>
<tr>
<td></td>
<td>Loss of appetite</td>
<td>Obesity</td>
</tr>
<tr>
<td><strong>CONTRASTING</strong></td>
<td>Void of sense</td>
<td>Improper diet</td>
</tr>
<tr>
<td>FEATURES</td>
<td>Dryness all over the body</td>
<td></td>
</tr>
</tbody>
</table>

**DISCUSSION OF DIFFERENTIAL DIAGNOSIS BETWEEN PAANIKKAMBA VADHAM AND NADUKKU VADHAM**

"நாசில்குரோட்ட வாடம் பாலகரின் எருமையுடன் தன்மை கையற்றது கோவிலியின் பாழை உண்எக்காக பொற்றுள்ள எறும்பது நாசில்குரோட்ட வாடம் பாலகரின் எருமையுடன் தன்மை கையற்றது கோவிலியின் பாழை உண்எக்காக பொற்றுள்ள எறும்பது நாசில்குரோட்ட வாடம் பாலகரின் எருமையுடன் தன்மை கையற்றது கோவிலியின் பாழை உண்எக்காக பொற்றுள்ள எறும்பது நாசில்குரோட்ட வாடம் பாலகரின் எருமையுடன் தன்மை கையற்றது கோவிலியின் பாழை உண்எக்காக பொற்றுள்ள எறும்பது நாசில்குரோட்ட வாடம் பாலகரின் எருமையுடன் தன்மை கையற்றது கோவிலியின் பாழை உண்எக்காக பொற்றுள்ள எறும்பது நாசில்குரோட்ட வாடம் பாலகரின் எருமையுடன் தன்மை கையற்றது கோவிலியின் பாழை உண்எக்காக பொற்றுள்ள எறும்பது நாசில்குரோட்ட வாடம் பாலகரின் எருமையுடன் 

*மைக்க திறக்கக்கே 800.*
<table>
<thead>
<tr>
<th>SIMILARITIES</th>
<th>PAANIKAMBA VADHAM</th>
<th>NADUKKU VADHAM</th>
</tr>
</thead>
</table>
| TREMOR      | "தாங்குவது தாங்குவது"  
Tremor in both upper limbs | "தாங்குவது தாங்குவது"  
Trembling of the whole body |
| RIGIDITY    | "மாற்றம்செய்து மாற்றம்செய்து"  
Rigidity | "மாற்றம்செய்து மாற்றம்செய்து"  
Rigidity of upper & lower limbs |
| APPETITE    | "குளிர்காட்டு குளிர்காட்டு"  
Loss of appetite | "சூட்டு கூட்டு"  
"சூட்டு போக்கு"  
Weight loss and tiredness |
| WALKING     | "சுற்று சுற்று படுத்து"  
Deficit in walking | "பல்லாக நாடாகாடும்"  
Walking like a corpse |
| COGNITIVE FUNCTION | "மோன்னைல் வர்த்தம்"  
Moaning/screaming in depression | "சிறைக்கு"  
Mood, memory changes |
| CONTRASTING FEATURES | Impaired sense | Loss of speech |
|             | Loss of sleep | Abdominal distension |
|             | Dry skin | Edema |
|             | Dry skin | Rigor |
|             | | Drenching sweats |
|             | | Blurred vision |
DISCUSSION OF DIFFERENTIAL DIAGNOSIS BETWEEN PAANIKAMBA VADHAM AND PADHARU VADHAM

**PAANIKAMBA VADHAM**

- **TREMOR**
  - Trembling of both upper limbs

- **RIGIDITY**
  - Rigidity of upper & lower limbs

- **COGNITIVE FUNCTION**
  - Moaning/screaming in depression

**PADHARU VADHAM**

- **TREMOR**
  - Trembling of the whole body

- **RIGIDITY**
  - Rigidity of upper & lower limbs

- **COGNITIVE FUNCTION**
  - Depression with confusion & anxiety

**SIMILARITIES**

<table>
<thead>
<tr>
<th></th>
<th>PAANIKAMBA VADHAM</th>
<th>PADHARU VADHAM</th>
</tr>
</thead>
<tbody>
<tr>
<td>TREMOR</td>
<td>&quot;துற்றுவம் தொட்டிழலை&quot;</td>
<td>&quot;துற்றுவம் தொட்டிழலை&quot;</td>
</tr>
<tr>
<td></td>
<td>Trembling of both upper limbs</td>
<td>Trembling of the whole body</td>
</tr>
<tr>
<td>RIGIDITY</td>
<td>&quot;குடும்ப குடும்பம்&quot;</td>
<td>&quot;குடும்ப குடும்பம்&quot;</td>
</tr>
<tr>
<td></td>
<td>Rigidity</td>
<td>Rigidity of upper &amp; lower limbs</td>
</tr>
<tr>
<td>COGNITIVE FUNCTION</td>
<td>&quot;மொன்மருது அதிக மனைவி&quot;</td>
<td>&quot;மொன்மருது அதிக மனைவி&quot;</td>
</tr>
<tr>
<td></td>
<td>Moaning/screaming in depression</td>
<td>Depression with confusion &amp; anxiety</td>
</tr>
</tbody>
</table>

**CONTRASTING FEATURES**

<table>
<thead>
<tr>
<th></th>
<th>PAANIKAMBA VADHAM</th>
<th>PADHARU VADHAM</th>
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</thead>
<tbody>
<tr>
<td>IMPAIRED SENSE</td>
<td></td>
<td>Sufferings with trembling out of fear</td>
</tr>
<tr>
<td>LOSS OF SLEEP</td>
<td></td>
<td>Impairment in balance</td>
</tr>
<tr>
<td>DRY SKIN</td>
<td></td>
<td>Increased pain</td>
</tr>
<tr>
<td>DISTURBED GAIT</td>
<td></td>
<td></td>
</tr>
<tr>
<td>LOSS OF APPETITE</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
**DISCUSSION OF DIFFERENTIAL DIAGNOSIS BETWEEN PAANIKAMBA VADHAM AND VAJJRA ROOBA VADHAM**

<table>
<thead>
<tr>
<th></th>
<th>PAANIKAMBA VADHAM</th>
<th>VAJJRA ROOBA VADHAM</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>SIMILARITIES</strong></td>
<td>&quot;துச்சாகம் காய்ப்பீடு&quot; Trembling of both upper limbs</td>
<td>&quot;பித்தியம் திகழ்வு&quot; Tremor</td>
</tr>
<tr>
<td><strong>RIGIDITY</strong></td>
<td>&quot;சிலிகோம்&quot; Rigidity</td>
<td>&quot;சுருப்புஸ்து காய்ப்பீடு&quot; Rigidity with impaired nerve conduction</td>
</tr>
<tr>
<td><strong>CONTRASTING FEATURES</strong></td>
<td>Impaired sense</td>
<td>Pain in occipital region</td>
</tr>
<tr>
<td></td>
<td>Loss of sleep</td>
<td>Upward gaze of eyes without movement</td>
</tr>
<tr>
<td></td>
<td>Dry skin</td>
<td>Headache</td>
</tr>
<tr>
<td></td>
<td>Disturbed gait</td>
<td>Decreased micturition &amp; defecation</td>
</tr>
<tr>
<td></td>
<td>Loss of appetite</td>
<td>Laziness with yawning</td>
</tr>
</tbody>
</table>
11. DISCUSSION

Paanikkamba vadham, one among the 80 vadha diseases have been analysed and diagnostic methodology have been arrived on observing and investigating the patients. A sample size of 15 patients were taken into study and the derangements have been observed. Control group of 15 healthy volunteers were selected and the observations were noted. Diagnostic methodology, based on

Envagai thervugal +2(manikadai nool, sothidam)
Thega elakkanam,

had been taken into account.

Age of the patients were mostly among the third decade, since the derangements are well established above the age of 50yrs. The incidence rates rose rapidly in Parkinson’s disease after the age of 60yrs. Among the patients female were more prone to symptoms. The male female ratio considering the incidence of Parkinson’s disease is 1:9. The dietary habits, tea, coffee consuming habits, smoking habit were in association with the disease, considering the general population.

The occupations of patients reveal their sedentary lifestyle which might be a foregoing reason for constipation, Vadham derangement. Patients were noted with habit of improper dietary timings followed by frequent intake of old cooked rice, food with astringent taste, high exposure to wind, starvation and increased intake of water. These habits elevate the derangement of Vadham, as per Guru Yugimunivar. A few of them have increased anger, habitual constipation, fear, sadness habit of increased intake foods with bitter taste, foods with ghee, pungent taste, running, day slumber, habit of frequent intake of keil varagu and varagu. The characters fear, sadness, increased anger, Foods with bitter, astringent taste, day slumber were causative factors for the symptoms among the patients.

Clinical features of Paanikkamba Vadham, more evident with trembling of limbs, rigidity of lower limbs and difficulty in walking were present in all patients. A disturbed gait is a common, debilitating symptom of patients with Parkinson’s disease. Tremor is the most presenting sign of Parkinson’s disease. Approximately
70% of patients note tremor as the first symptom. Common clinical presentations of Parkinson’s disease include progressive asymmetric rigidity.

The habitat of patients was predominantly Neithal, relevant to the fact of increased Vadham derangement in coastal areas. The volunteers also belong to coastal area and are in risk of developing Vadham disease in future.

Seasonal variation of symptoms among the patients were principally in kaarkaalam in which vadha kutram is affected with a state of ectopic escalation.

The duration of illness is more than 2 yrs. in maximum no. of patients observed during the study. The symptoms were more prominent in chronic condition of Parkinson’s disease.

Among the patients who knew their zodiac sign, 13% were rishabam, 7% were mesham and thanusu. Most of the patients were of geriatric age group and they don’t know their zodiac sign. Among the known zodiac sign, it explains the disorder of regions head, face and thigh are more prone among the individuals. Among the healthy volunteers, most of them belong to simmam. This implies the individuals are more prone to disorder among chest region.

The patients of Paanikkamba Vadham had manikkadai nool ranging between 7 to 81/4. The symptoms pertaining to the range were constipation, loss of appetite, dryness, pain, increase of basal metabolic rate, etc. which were found among the patients. Among the patients naadi Azhal Vali is in 53%, Iyya Vali is in 27% were predominant. The symptoms noted are, moaning, pricking pain in body, loss of consciousness, disease of head, pain present along the nerves, pain present in occipital region of head, etc. Among the healthy volunteers naadi Vali Azhal is in 40%, Azhal Vali is in 33%, Iyya Vali is in 7%, Vali Iyyam is in 7%, Iyya Azhal is in 13%

The patients of Paanikkamba Vadham have derangement in saaram & moolai thathu followed by enbu, senneer, oon & kozhuppu. The symptoms are Loss of appetite, excessive salivation, diminished activity, heaviness, pallor, cold, decreased physical constituents, dyspnoea, flatulence, cough, Dryness of skin, tiredness, loss of weight, lassitude and irritability while hearing louder sounds.

The thanmai of naa is observed. Maa padinthuruthal reveals the nature of constipation among patients. The parameter niram in naa had been noted as karuppu 20%, manjal 40%, and veluppu 7%, normal 33% among the patients. The parameter is relevant to the kutram Vadham and pitham. Normal taste sensation
had been noted in 80% patients. Taste sensation is not altered in Parkinson’s disease.

Salivation was normal in 80% in all patients. Karuppu niram is seen in 47 % of patients with manjal 73% & veluppu niram 7%. The body colour is nearing to derangement in vadham and pitham.

73% of patients were noted with pirlnthha oli. Speech and language difficulties were noted among the patients, as indistinct, stammering, rapid, quiet. Among the patients the vizhi niram has been noted as sivappu7%, karuppu 14%, veluppu 20%, no discolouration53%. The patient on prolonged starvation due to loss of appetite may become anaemic, leading to pallor of conjunctiva. kanneer has been noted in 80% patients, erichal 7% & peelai serthal 7%. Increased secretion of lacrimal glands is present in Parkinson’s disease.

In patients mitha veepam was prominent in 80%. The normal basal metabolic rate was present in individuals, since there is no disorder of endocrine glands. Viyarvai was normal in 67% and increased in 33% of patients. Too little perspiration was noted among the patients. Thodu vali was absent in all 100% of patients.

The thanmai of malam is sikkal in 27%, siruthal in 27% and vemmai in 14% of patients. Constipation is commonly present in Parkinson’s disease.

The colour of urine was colourless in 7%, straw colour in 47%, orange colour in 27% of patients. The abnormal colour of urine is due to intake of synthetic dopa along with MAO- inhibitors in few patients.

The odour of urine is mild aromatic in 93% and ammoniacal in 7% in patients. In Parkinson’s disease there is normal odour of urine. 87% of them were clear and 14% cloudy. Urine Deposits were absent in 100% of patients. Among the healthy volunteers 100% of them were straw colour. Since the healthy volunteers were devoid of any medicine or supplement, the odour, colour, deposit was normal. In control group, 100% of them were mild aromatic...

Pithavadham and kabavadham were more prominent among the patients. The character resembles the naadi in its views. Vadhapitham and kabapitham were high among the control group. Among the types of vadham, the derangements noted were Praanan 27%, Abaanan 20%, Uthaanan 67%, Samaanan 27%, Koorman 27%, Kirukaran 53%, Devathathan 33%. The symptoms,
laziness, habitual constipation, trembling of limbs, blurred vision, loss of sleep forms the part in derangement of vadham types.

Among the patients, the derangement in pitham was analam 27%, Ranjagam 7%, Alosagam 33%, prasagam 14%, saathagam 100%. The symptoms, dry skin, increased anger, difficulty in walking, impairment in assessment forms the derangement in pitham types.

Avlambagam 100%, klethagam 27%, pothagam 7%, tharpagam 74%, santhigam 67% were affected among the patients. The symptoms of variation in taste, pain in joints, difficulty in walking, trembling of limbs forms the derangement in kabam types.

Clinical features of Paanikkamba Vadham, is more evident with trembling of limbs, rigidity of lower limbs and difficulty in walking. The major symptoms seems to be more pertinent to a disorder of extra pyramidal system. In precise the symptoms were more applicable to idiopathic Parkinson’s disease. The clinical analysis on the salient features of Paanikkamba Vadham also provides evidence to sustain its pertinence with Parkinson’s disease. The defect in the transmission of the neurotransmitter, dopamine through the nigro striatal pathway is the cause of all parkinsonian disorders.

The dorsolateral region of subthalamic nucleus containing neurons with large projections is responsible for the neuronal activity.

Lesions in various parts of the motor system produce distinctive patterns of motor deficit. Involvement of extranigral areas is postulated to play a role in the non-motor (e.g., autonomic, sleep, emotional, and cognitive) and levodopa unresponsive motor aspects such as Gait, postural instability of Parkinson’s disease. The lesions in such areas can lead to symptoms of weakness, lack of coordination, lack of stability and stiffness. Several nonmotor features of Parkinson’s disease seem to occur from the brainstem and olfactory bundle involvement. It precedes the development of motor Parkinson’s disease.

Central nervous system examination among the patients reveals the mood and memory changes in higher intellectual function. There was normal sensory function except for the pain in patients. In motor function examination, there was normal power, with increase in tone causing rigidity in both upper and lower limbs. Festinant gait was noted with short shuffling steps in almost all the patients.
Nutrition of muscles was normal. Abnormal oscillatory movements, major criteria for inclusion was noted in all the patients. Coordination was normal but slow in majority of patients. Reflex was very brisk in few patients, brisk in most of the patients.

Cranial nerves examination shows saccadic slowing of eyeball movements, disturbance in speed of tongue movements in 83%, lack of expression, spontaneous facial movements, and tremor in protruded tongue in 77%, involuntary movement of jaw, lagging of shoulder during elevation in 63%, hyposmia in 47%, and blurred vision in 27% of patients. This shows the defect in oculomotor, trochlear, abducent, glossopharyngeal, facial, hypoglossal, accessory, trigeminal, olfactory, optic pair of nerves.

Imaging studies of patients shows no significant abnormality. This reveals the normal morphological feature among the levodopa unresponsive motor areas in sub thalamic region. The price worthy technics of PET, SPECT were not eminent among the patients of geriatric age group.
12 .CONCLUSION

The significance of analysis is determined in various literatures of siddha and modern medical science. It aims at confirmation of diagnosis at most specific with the parameters that are cost-effective. This study enables the effortlessness in detection and diagnosis of Paanikkamba Vadham along with the help of modern parameters.

The observations made in this study helps in assessing the causative factor as reduction of dopaminergic transmission within the basal ganglia caused by loss of nigrostriatal pathways. Accumulation of protein alpha synuclein into inclusions called Lewy bodies in the neurons along with the insufficiency of dopamine forms the pathological importance in Parkinson’s disease.

Vadham dells in all parts of the body supported with the features of anorexia, tremor in limbs, insomnia, rigidity, screaming in distresses, dryness of the body which forms the importance hallmark of the idiopathic disorder.

The systematic study of human subjects enlighten the pathology of vadham and pitham. The observations made provide evidence in supporting the Vadha humour by elderly age, habitat in coastal area, sedentary life style, habitual constipation, upsurge of symptoms in KaarKaalam, along with derangements in Naa, Niram, Mozhi, Vizhi, Naadi, Sparisam, Malam, Neerkuri, Neikuri, ManikadaiNool and Sothidam. Perfect diagnosis can be arrived at by cautious study of the signs and symptoms by siddha parameters, eight fold examination +2(manikadai nool, astrology), thega elakkanam.
13. BIBLIOGRAPHY

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A STUDY ON DIAGNOSTIC METHODOLOGY AND SYMPTOMATOLOGY OF “PAANIKKAMBA VADHAM”

SCREENING AND SELECTION PROFORMA

1. O.P.No : 
2. I.P No : 
3. Bed No : 
4. S.No : 
5. Name : 
6. Age (years) : 
7. Gender : 
8. Occupation : 
9. Income : 
10. Address : 

11. Contact Nos : 
12. E-mail : 

13. Whether taken any other medication for the same disease previously

If yes,

A. Name of the medicines : 

B. Duration : 

C. Reasons for resorting to Siddha medicine : 
   a) Cost effectiveness : 
   b) Adverse drug reactions : 
   c) Non-curative effect : 

INCLUSION CRITERIA

A. MAJOR

1. Age between 20-70 years
2. Trembling of limbs
4. Slowness of movements.
5. Disordered gait [Parkinson gait].
6. Attitude of flexion

B. MINOR

1. Postural instability.
2. Excessive salivation.

Patients who fulfil any of the four major and one minor criteria are included to the study

EXCLUSION CRITERIA

1. Essential tremor
2. Dementia
3. Babinski sign and hyper reflexia
4. Brain tumour
5. Titubation
6. Exposure to toxins
7. Chorea
8. Agitation
9. Major illness
10. Vulnerable Group

DATE:                      SIGNATURE:
HISTORY PROFORMA

1. Sl. No of the case : 
2. Name : 
3. DOB : Age (years) : 
4. Height (Cms) : 
5. Weight (Kg) : 
6. Educational Status 
   A. Illiterate : 
   B. Literate : 
   C. Student : 
   D. Graduate/Postgraduate : 
7. Nature of work 
   A. Sedentary work : 
   B. Field work with physical labour : 
   C. Field work Executive : 
8. Complaints and Duration : 
9. History of present illness : 
10. History of Past illness 
    A. Systemic hypertension : 
    B. Ischemic heart disease : 
    C. Dyslipidaemia : 
    D. Jaundice : 
    E. Bronchial asthma : 
    F. Any drug allergy : 
    G. Any surgeries : 
    H. Any major illnesses : 

NATIONAL INSTITUTE OF SIDDHA, CHENNAI – 47. 
DEPARTMENT OF NOI NAADAL 
A STUDY ON DIAGNOSTIC METHODOLOGY AND SYMPTOMATOLOGY OF “PAANIKKAMBA VATHAM”
11. Habits
   A. Smoker
   B. Alcoholic
   C. Drug Addiction
   D. Betel nut chewer
   E. Tea
   F. Coffee
   G. Milk
   H. Type of diet
      I. Vegetarian
      II. Non-Vegetarian
      III. Mixed diet

12. Personal history
   A. Marital status
   B. No. of children
      i. Male
      ii. Female

13. Family history
   A. History of diabetes mellitus
      I. Father
      II. Mother
   B. Others

14. Menstrual & Obstetric history:
   A. Age at menarche _______ years
   B. Gravidity : Parity :
   C. Duration of the menstrual cycle :
   D. Constancy of cycle duration :
      I. Regular :
      II. Irregular :
15. GENERAL ETIOLOGY FOR VATHAM:
   A. Increased intake of bitter taste
   B. Increased intake of astringent taste
   C. Increased intake of pungent taste
   D. Increased intake of sour taste
   E. Increased intake of old cooked rice
   F. Increased intake of Keil varagu (ragi)
   G. Increased intake of Varagu (Kodo millet)
   H. Increased intake of Thinai (Fox tail millet)
   I. Increased intake of Nei (ghee)
   J. Exposure to wind
   K. Altered dietary timings
   L. Increased intake of Water
   M. Increased Anger
   N. Fear
   O. Sadness
   P. Running fast
   Q. Day slumber and staying back at night.
   R. Increased starvation
   S. Habitual constipation
   T. Increased sexual desire

16. CLINICAL SYMPTOMS OF PAANIKKAMBA VATHAM
   A. Difficulty in walking :
   B. Trembling of Limbs :
   C. Numbness of hands :
   D. Slurring of speech :
   E. Anesthesia :
   F. Rigidity of lower limbs :
   G. Loss of sleep :
A STUDY ON DIAGNOSTIC METHODOLOGY AND SYMPTOMATOLOGY OF “PAANIKKAMBA VATHAM”

CLINICAL ASSESSMENT

1. Sl. No of the case : 
2. Name : 
3. DOB : Age (years) : 
4. Date :

GENERAL EXAMINATION

1. Height (Cms) :
2. Weight (kg) :
3. BMI ______ (Weight Kg/ Height M^2) :
4. Temperature (^F) :
5. Pulse rate :
6. Heart rate :
7. Respiratory rate :
8. Blood pressure :
9. Pallor :
10. Jaundice :
11. Cyanosis :
12. Lymphadenopathy :
13. Pedal oedema :
14. Clubbing :
15. Jugular vein pulsation :

VITAL ORGANS EXAMINATION

1. Heart :
2. Lungs :
3. Brain :
4. Liver :
5. Kidney :
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

A. ENVAGAI THERVU [EIGHT-FOLD EXAMINATION]

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

a) Naadi Nithanam (Pulse Appraisal)
   i) 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) :
   ii) Desam (Climate of the patient’s habitat)
      (1) Kulir :
      (2) Veppam :
   iii) Vayathu (Age)
      (1) 1-33yrs :
      (2) 34-66yrs :
      (3) 3. 67-100 :
   iv) Udal Vanmai (General body condition)
      (1) Iyyalbu (Normal built) :
      (2) Valivu (Robust) :
      (3) Melivu (Lean) :
v) Vanmai (Expansile Nature)
   (1) Vanmai : 
   (2) Menmai : 

vi) Panbu (Habit)
   (1) Thannada (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)
   i) Vali : 
   ii) Azhal : 
   iii) Iyyam : 
   iv) Vali Azhal : 
   v) Azhal Vali : 
   vi) Iyya Vali : 
   vii) Vali Iyyam : 
   viii) Azhal Iyyam : 
   ix) Iyya Azhal : 

II. NAA (TONGUE)
   a) Maa Padinthiruthal (Coatedness)
      i. Present : 
      ii. Absent : 

   b) Niram (Colour)
      i. Karuppu (Dark) :
ii. Manjal (Yellow) :

iii. Velluppu (Pale) :

c) Suvai (Taste sensation)
   i. Pulippu (Sour) :
   ii. Kaippu (Bitter) :
   iii. Inippu (Sweet) :

d) Vedippu (Fissure)
   i. Absent :
   ii. Present :

e) Vai neer ooral (Salivation)
   i. Normal :
   ii. Increased :
   iii. Reduced :

III. NIRAM (COMPLEXION)
   a) Karuppu (Dark) :
   b) Manjal (Yellowish) :
   c) Velluppu (Fair) :

IV. MOZHI (VOICE)
   a) Sama oli (Medium pitched) :
   b) Urattha oli (High pitched) :
   c) Thazhantha oli (Low pitched) :
   d) Pirazhntha oli

V. VIZHI (EYES)
   a) Niram (Venvizhi) (Discolouration)
      i. Karuppu (Dark) :
      ii. Manjal (Yellow) :
      iii. Sivappu (Red) :
      iv. Velluppu (White) :
      v. No Discoloration :
   b) Kanneer
      i. Normal :
         IX
ii. Increased : 
iii. Reduced (Tears) :

(c) Erichchal
i. Present :
ii. Absent (Burning sensation) :

d) Peelai seruthal
i. Present :
ii. Absent (Mucus excrements) :

VI. MEI KURI (PHYSICAL SIGNS)

a) Veppam (Warmth)
i. Mitham (Mild) :
ii. Migu (Moderate) :
iii. Thatpam (Low) :

b) Viyarvai (Sweat)
i. Increased :
ii. Normal :
iii. Reduced :

c) Thodu vali (Tenderness)
i. Absent :
ii. Present :

VII. MALAM (STOOLS)

a) Niram (Color)
i. Karuppu (Dark) :
ii. Manjal (Yellowish) :
iii. Sivappu (Reddish) :
iv. Velluppu (Pale) :

b) Sikkal (Constipation)
i. Present :
ii. Absent :

c) Sirutthal (Poorly formed stools)
i. Present :
ii. Absent :

X
d) Kalichchal (Loose watery stools)
   i. Present :
   ii. Absent :

e) Seetham (Watery and mucoid excrements)
   i. Present :
   ii. Absent :

f) Vemmai (Warmth)
   i. Present :
   ii. Absent :

g) History of habitual constipation
   i. Present :
   ii. Absent :

h) Passing of
   i. Mucous :
   ii. Blood :

VIII. MOOTHIRAM (URINE)

a) NEER KURI (PHYSICAL CHARACTERISTICS)
   i. Niram (colour)
      A) Colourless :
      B) Milky purulent :
      C) Orange :
      D) Red :
      E) Greenish :
      F) Dark Brown :
      G) Bright red :
      H) Black :
      I) Brown red or yellow
   ii. Manam (odour)
      A) Ammonical :
      B) Fruity :
      C) Others :
   iii. Edai (Specific gravity)
      A) Normal (1.010-1.025) :
      B) High Specific gravity (>1.025) :
C) Low Specific gravity (<1.010):
D) Low and fixed Specific gravity (1.010-1.012):

iv. **Alavu**(volume)
   A) Normal (1.2-1.5 Lt/day):
   B) Polyuria (>2lt/day)
   C) Oliguria (<500ml/day):

v. **Nurai**(froth)
   A) Clear:
   B) Cloudy:

vi. **Enjal**(deposits)
   b) **NEI KURI**(oil spreading sign)
      i. Aravam (Serpentine fashion):
      ii. Mothiram (Ring):
      iii. Muthu (Pearl beaded appear):
      iv. Aravil Mothiram (Serpentine in ring fashion):
      v. Aravil Muthu (Serpentine and Pearl patterns):
      vi. Mothirathil Muthu (Ring in pearl fashion):
      vii. Mothirathil Aravam (Ring in Serpentine fashion):
      viii. Muthil Aravam (Pearl in Serpentine fashion):
      ix. Muthil Mothiram (Pearl in ring fashion):
      x. Asathiyam (Incurable):
      xi. Mellena paraval (Slow spreading):
      xii. Others:

B. **MANIKADAI NOOL**(Wrist circumference sign) (fbs):

C. **IYMPORIGAL /IYMPULANGAL**(Penta sensors and its modalities)
   a. Mei (skin):
   b. Vaai (Mouth/ Tongue):
   c. Kan (Eyes):
   d. Mookku (Nose):
   e. Sevi (Ears):
D. KANMENTHIRIYANGAL /KANMAVIDAYANGAL (Motor machinery and its execution)

a. Kai (Hands) :
b. Kaal (Legs) :
c. Vaai (Mouth) :
d. Eruvai (Analepy) :
e. Karuvaai (Birth canal):

E. YAKKAI (SOMATIC TYPES)

a. Vatha constitution
   1) Lean and lanky built :
   2) Hefty proximities of limbs :
   3) Cracking sound of joints on walking:
   4) Dark and thicker eye lashes :
   5) Dark and light admixed complexion:
   6) Split hair :
   7) Clear words :
   8) Scant appetite for cold food items:
   9) Poor strength despite much eating :
   10) Loss of libido :
   11) In generosity :
   12) Sleeping with eyes half closed :

b. Pitha constitution
   1) Thin covering of bones and joints by soft tissue :
   2) Always found with sweating and offensive body odour:
   3) Wrinkles in the skin :
   4) Red and yellow admixed complexion :
   5) Easily suffusing eyes due to heat and alcohol :
   6) Sparse hair with greying :
   7) Intolerance to hunger, thirst and heat :
   8) Inclination towards perfumes like sandal :
   9) Slender eye lashes :
   10) Pimples and moles are plenty :
c. Kaba constitution
   1) Plumpy joints and limbs :
   2) Broad forehead and chest :
   3) Sparkling eyes with clear sight :
   4) Lolling walk :
   5) Immense strength despite poor eating :
   6) High tolerance to hunger, thirst and fear :
   7) Exemplary character with good memory power:
   8) More liking for sweet taste :
   9) Husky voice :

RESULTANT SOMATIC TYPE: _____________________________

F. GUNAM
   a. Sathuva Gunam :
   b. Rajo Gunam :
   c. Thamo Gunam :

G. UYIR THATHUKKAL
   a. VALI
      1) Praanan(Heart centre) :
      2) Abaan (Matedial of muladhar centre) :
      3) Samaanan (Navel centre) :
      4) Udhaanan (Forehead centre) :
      5) Viyaanan(Throat centre) :
      6) Naahan(Higher intellectual function) :
      7) Koorman (Air of yawning) :
      8) Kirukaran(Air of salivation) :
      9) Devathathan (Air of laziness) :
     10)Dhananjeyan (Air that acts on death) :

   b. AZHAL
      1) Analapittham (Gastric juice) :
      2) Prasaka pittham (Bile) :
      3) Ranjaka pittham (Haemoglobin) :
      4) Aalosaka pittham (Aqueous Humour) :
      5) Saathaka pittham (Life energy) :
c. IYYAM  
1) Avalambagam (Serum) :  
2) Kilethagam (Saliva) :  
3) Pothagam (Lymph) :  
4) Tharpagam (Cerebrospinal fluid) :  
5) Santhigam (Synovial fluid) :

H. UDAL THATHUKKAL  
a. SAARAM (CHYLE)  
1) INCREASED  
1. Loss of appetite :  
2. Excessive salivation :  
3. Loss of perseverance :  
4. Excessive heaviness :  
5. White musculature :  
6. Cough, dyspnoea, excessive sleep :  
7. Weakness in all joints of the body :  
2) DECREASED  
1. Loss weight :  
2. Tiredness :  
3. Dryness of the skin :  
4. Diminished activity of the sense organs :

b. CENNEER(BLOOD)  
1) INCREASED  
1. Boils in different parts of the body :  
2. Anorexia :  
3. Mental disorder :  
4. Spleenomegaly :  
5. Colic pain :  
6. Increased pressure :  
7. Reddish eye and skin :  
8. Jaundice :  
9. Haematuria :  

2) DECREASED
   1. Anaemia : 
   2. Tiredness : 
   3. Neuritis : 
   4. Lassitude : 
   5. Pallor of the body : 

c. OON (MUSLE)
   1) INCREASED
      1. Cervical lymphadenitis : 
      2. Vernical ulcer : 
      3. Tumour in face, abdomen, thigh, genitalia : 
      4. Hyper muscular in the cervical region : 

   2) DECREASED
      1. Impairment of sense organs : 
      2. Joint pain : 
      3. Jaw, thigh and genitalia gets shortened :

d. KOZHUPPU (ADIPOSE TISSUE)
   1) INCREASED
      1. Cervical lymph adenitis : 
      2. Vernical ulcer : 
      3. Tumour in face, abdomen, thigh, genitalia : 
      4. Hyper muscular in the cervical region : 
      5. Dyspnoea : 
      6. Loss of activity : 

   1) DECREASED
      1. Pain in the hip region : 
      2. Disease of the spleen :

e. ENBU (BONE)
   1) INCREASED
      1. Growth in bones and teeth :

   2) DECREASED
1. Bones diseases : 
2. Loosening of teeth : 
3. Nails splitting : 
4. Falling of hair : 

f. MOOLAI (BONE MARROW)
   1) INCREASED
      1. Heaviness of the body : 
      2. Swollen eyes : 
      3. Swollen phalanges, chubby fingers : 
      4. Oliguria : 
      5. Non healing ulcer : 
   2) DECREASED
      1. Osteoporosis : 
      2. Sunken eyes : 

g. SUKKILAM/SURONITHAM
   1) INCREASED
      1. Infatuation and lust towards women / men : 
      2. Urinary calculi : 
   2) DECREASED
      1. Failure in reproduction : 
      2. Pain in the genitalia : 

I. MUKKUTRA MIGU GUNAM
   a. Vali Migu Gunam
      1) Emaciation : 
      2) Complexion – blackish : 
      3) Desire to take hot food : 
      4) Shivering of body : 
      5) Abdominal distension : 
      6) Constipation : 
      7) Insomnia : 
      8) Weakness : 

XVII
9) Defect of sense organs : 
10) Giddiness : 
11) Lake of interest : 

b. Pitham Migu Gunam 
   1) Yellowish discolouration of skin : 
   2) Yellowish discolouration of the eye: 
   3) Yellow coloured urine : 
   4) Yellowishness of faeces : 
   5) Increased appetite : 
   6) Increased thirst : 
   7) Burning sensation over the body : 
   8) Sleep disturbance : 

c. Kapham migu gunam 
   1) Increased salivary secretion : 
   2) Reduced activeness : 
   3) Heaviness of the body : 
   4) Body colour – fair complexion : 
   5) Chillness of the body : 
   6) Reduced appetite : 
   7) Eraippu : 
   8) Increased sleep : 

J. NOIUTRA KALAM 
   a. Kaarkaalam (Aug15-Oct14) : 
   b. Koothirkaalam (Oct15-Dec14) : 
   c. Munpanikaalam (Dec15-Feb14) : 
   d. Pinpanikaalam (Feb15-Apr14) : 
   e. Ilavanirkaalam (Apr15-June14) : 
   f. Muthuvenirkaalam (June15-Aug14) : 

K. NOI UTRA NILAM 
   a. Kurunji (Hilly terrain) : 
   b. Mullai (Forest range) : 
   c. Marutham (Plains) : 
   d. Neithal (Coastal belt) : 
   e. Paalai (Desert) : 

XVIII
<table>
<thead>
<tr>
<th>L. Date of Birth</th>
<th>M. Time of Birth</th>
<th>N. Place of Birth</th>
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<tr>
<td>[\text{M.}] Time of Birth: AM PM</td>
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<tr>
<th>O. Rasi (Zodiac Sign)</th>
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<tbody>
<tr>
<td>a. Mesam</td>
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<td>b. Rishabam</td>
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<td>c. Midhunam</td>
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<td>d. Katakam</td>
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<td>e. Simmam</td>
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<td>f. Kanni</td>
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<th>P. Natchathiram(birth stars):</th>
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<tbody>
<tr>
<td>a. Aswini</td>
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<td>b. Barani</td>
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<td>c. Karthikai</td>
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<td>d. Rohini</td>
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<td>e. Mirugaseeradam</td>
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<td>f. Thiruvathirai</td>
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<td>n. Chithirai</td>
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PATIENT INFORMATION SHEET

PURPOSE OF RESEARCH AND BENEFITS:

The diagnostic research study in which your participation is proposed to assess the diagnostic methods in Siddha methodology in Paanikkamba vadham patients. It is expected that you would benefit from this study. Knowledge gained from this study would be of benefit to patients suffering from such conditions for the diagnosis and prognosis.

STUDY PROCEDURE:

You will be interviewed and examined as OP and IP patients at the study centre. At the first visit the physician will conduct a brief physical examination and assess the condition followed by 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 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 to 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

P.G scholar : Dr. S. Yasodha, III Year,

Department of Noi Naadal

National Institute of Siddha,

Chennai-600 047.

E mail: dr_yasodha@yahoo.com

Mobile no :+91 9994867263
FORM IV A  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 “Paanikkamba vadham”. I may be asked to collect urine and need to draw blood at one time that is at the time of investigations.

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

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

Signature /thumb impression of the patient    :

Date    :

Name of the patient    :

Signature of the investigator    :

Date    :

Head of the Department    :

Date    :
NATIONAL INSTITUTE OF SIDDHA, CHENNAI – 47.
DEPARTMENT OF NOI NAADAL
A STUDY ON DIAGNOSTIC METHODOLOGY AND
SYMPTOMATOLOGY OF “PAANIKKAMBA VATHAM”

அப்பாலாராத்தன் சங்கநிதிக்கைமூலமாக

காரணிகள் அப்பாலாராத்தன் அவச்சனம் மிதமாகவுள்ளது சில்லாமல் மீண்டும் (அவச்சன நோய் விளக்கம்) காணப்படுவது உண்டு என்று நிறுவிக்கிறோம்.

செய்தி: சோதனைப்படி:

நிலை: தீர்வு:

வாய்ப்பாட்டின் புகழ்

காரணிகள் குழுநிலையாக ஒன்றாகவுள்ளது சில்லாமல் மீண்டும் (அவச்சன நோய் விளக்கம்) காணப்படுவது உண்டு என்று நிறுவிக்கிறோம்.

காரணிகள் பல்குழு அப்பாலாராத்தன் கழகத்தில் பல்குழு அப்பாலாராத்தன் கழகத்தில் பல்குழு அப்பாலாராத்தன் கழகத்தில் கண்டுபிடித்தோம்.

காரணிகள் பல்குழு அப்பாலாராத்தன் பல்குழு கழகத்தில் பல்குழு அப்பாலாராத்தன் பல்குழு கழகத்தில் பல்குழு அப்பாலாராத்தன் பல்குழு கண்டுபிடித்தோம்.

செய்தி: செய்தி:

நிலை: தீர்வு:

சோதனைப்படி: காரணிகளின் சோதனைப்படி:

மூலம்:
A STUDY ON DIAGNOSTIC METHODOLOGY AND SYMPTOMATOLOGY OF “PAANIKKAMBA VATHAM”

LABORATORY INVESTIGATIONS

1) O.P No : Lab. No : Serial No :

2) Name :

3) Date of birth : Age(years) :

4) Date of assessment :

5) Blood
   a) TC(Cells/cu mm) :
   b) DC
      i) P (%) :
      ii) L (%) :
      iii) E (%) :
      iv) M (%) :
      v) B (%) :
   c) ESR i. At 30 minutes (mm) :
      ii. At 60 minutes (mm) :
   d) Hb (gms%) :
   e) Blood Sugar-® (mgs% ) :
   f) SGOT & SGPT :
   g) Serum Cholesterol(mgs %) :
   h) HDL (mgs%) :
   i) LDL (mgs%) :
   j) Triglycerides (mgs%) :
   k) Blood Urea (mgs%) :
   l) Serum Creatinine (mgs%) :

6) Urine Examination
   a) Sugar :
   b) Albumin :
   c) Deposits :

7) Motion examination
   a) Ova :
   b) Cyst :
   c) Occult blood :

8) Other investigations
   a) MRI :
   b) PET :
   c) SPECT :

Date : Signature of the Doctor:
ETHICAL COMMITTEE CLEARANCE CERTIFICATE

NATIONAL INSTITUTE OF SIDDHA
(An Autonomous Body under Department of AYUSH)
MINISTRY OF HEALTH & FAMILY WELFARE
GOVERNMENT OF INDIA
TAMBARAM SANATORIUM, CHENNAI - 600 047
Tel: 044-22411611/Fax: 044-22381311
Email id: nischennai@siddha@yahoo.co.in

F.No.NIS/6-20/Rec/IEC/10-11 Date: 29.11.10

Ethical Committee Clearance Certificate

We, the Undersigned Chairman/Member Secretary of the Ethical Committee, functioning
in National Institute of Siddha have studied the proposed dissertation Project of

(Reg.No. 32033300) 1st Year Dept. of Nat.Needs

entitled "PAANIKKAMBA YATHAM"

applying for provisional registration as a part of M.D(S) course and hereby give the
certificate of clearance of approval by this Ethical Committee.

Station: Chennai-47
Date: 29-11-2010
(Dr.K.Manickavasakam)
Member Secretary

(Dr. V. Subramanian)
Chairman of IEC
CERTIFICATE FOR PARTICIPATING
“RESEARCH METHODOLOGY & BIOSTATICS”
Few non specific hyperintensities noted in the region of centrum semiovale on both sides on T2, FLAIR.

Two hyperintense lesions noted, one in the region of temporal lobe, the other lateral to mammillary body on right side on T2, with corresponding hypointensity on FLAIR. T1 suggests the cystic nature of the lesion.

No evidence of any other parenchymal lesion noted.

No evidence of infarct noted on diffusion weighted image.

No evidence of blooming on GE sequence to suggest hemorrhage.

MRA:

Bilateral internal carotid artery, vertebral and basilar arteries do not show significant pathology. Bilateral anterior cerebral artery, middle cerebral artery, posterior cerebral artery and their branches do not show significant pathology. No vascular malformation or occlusive disease seen.

Bilateral PCOM's are hypoplastic.

Impression:

- No significant abnormality detected.

Note: This imaging modality is having its own limitations. Hence this report should be correlated with clinical features and other parameters.
MRI SCAN REPORTS

NEURO SCAN
(MRI AND SPIRAL CT SCANS)
A.G. NEURO HOSPITAL (P) LTD

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<th>PATIENT'S NAME</th>
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MRI - BRAIN

SEQUENCES:
- T1WI: SAGITTAL AND AXIAL
- T2WI (FSE): AXIAL
- FLAIR: AXIAL

OBSERVATION:
Both cerebellar hemispheres, vermis, brainstem show normal signal intensity. Tonsils are normal in location. No mass is present at the craniovertebral junction and cerebello-pontine angle cisterns.

The pituitary gland, infundibulum, optic chiasm tracts are normal. There is no mass lesion in sella, parasellar and suprasellar angle regions.

The fourth, third and both lateral ventricles show normal size and configuration. The basal cisterns are seen normally.

The structures forming the floor of the third ventricle appear normal.

Both cerebral hemispheres show normal sulcal and gyral pattern with preserved grey white differentiation. The superficial and deep grey matter as well as the white matter in both hemisphere show normal signals.

No abnormal fluid collection is noted in extradural and subdural locations. There is no shift of midline structures.

165-F, Ammachi Gounder Street, Ramakrishna Road, Salem-636 007, PH: 31-2292, 31-2292, 316071-75.
The visualised portion of both the orbits and its contents paranasal sinuses and base of the skull appear normal.

The mastoid air cells on both sides appear normal. There is no mass lesion or fluid collection.

The major intracranial arteries and the dural sinuses show normal flow void signals.

**IMPRESSION:** MR IMAGE MORPHOLOGY IS SUGGESTIVE OF
- NORMAL STUDY OF BRAIN.

This modality is having its limitations and the report should be correlated with clinical parameters. This report and film(s) are not valid for medico legal purpose.
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<th>TC Cells /cu.mm</th>
<th>DC in %</th>
<th>ESR mm</th>
<th>B.SUGAR mgs/dl</th>
<th>SGOT &amp; SGPT</th>
<th>UREA</th>
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A STUDY ON
ON DIAGNOSTIC METHODOLOGY
AND SYMPTOMATOLOGY OF
Paanikkamba Vadham
(Parkinson’s disease)

Dissertation submitted to
THE TAMILNADU Dr. M.G.R MEDICAL UNIVERSITY
Chennai-32

For the partial fulfillment of the requirements to the Degree of
DOCTOR OF MEDICINE (SIDDHA)

DEPARTMENT OF NOI NAADAL
NATIONAL INSTITUTE OF SIDDHA
CHENNAI - 47
APRIL - 2012

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