AN OPEN COMPARATIVE CLINICAL EVALUATION ON "UTHIRA VATHA SURONITHAM (RHEUMATOID ARTHRITIS)" WITH SIDDHA TRIAL DRUGS "RASA CHENDHURAM" (INTERNAL) & "ROGA SANJEEVI THYLAM" (EXTERNAL) & OTTRADAM THERAPHY.

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DECLARATION BY THE CANDIDATE

I hereby declare that this dissertation entitled **An open comparative clinical evaluation on UTHIRA VATHA SURONITHAM (RHEUMATOID ARTHRITIS) with Siddha Trial Drugs Rasa Chendhuram (internal) and Roga sanjeevi thylam(external)** is a bonafide and genuine research work carried out by me under the guidance of **Dr. M. MOHAMED MUSTHAFA, M.D (S),** Post Graduate Department of **Sirappu Maruthuvam**, Govt. Siddha Medical College, Arumbakkam, Chennai-106 and the dissertation has not formed the basis for the award of any Degree, Diploma, Fellowship or other similar title.

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CERTIFICATE BY THE GUIDE

This is to certify that the dissertation entitled **An open comparative clinical evaluation on Uthiravatha suronitham (Rheumatoid arthritis) with Siddha Trial Drugs Rasa Chendhuram (internal) and Roga sanjeevi thylam (external)** is submitted to the Tamilnadu Dr.M. G. R.Medical University in partial fulfillment of the requirements for the award of degree of M.D (Siddha) is the bonafide and genuine research work done by **C.ARUNA** under my supervision and guidance. The dissertation has not formed the basis for the award of any Degree, Diploma, and Associate ship, Fellowship or other similar title.

Date: **Seal & Signature of the Guide**

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ENDORSEMENT BY THE HOD, PRINCIPAL/HEAD OF THE INSTITUTION

This is to certify that the dissertation entitled **An open comparative clinical evaluation on Uthiravatha suronitham (Rheumatoid arthritis) with Siddha Trial Drugs Rasa Chendhuram (internal) and Roga sanjeevi thylam (external)** is a bonafide work carried out by **C.ARUNA** during the year 2014-2017 under the guidance of **Dr.M.MOHAMED MUSTHAFA,M.D (S),** Post Graduate Department of Sirappu Maruthuvam, Govt. Siddha Medical College, Chennai - 106.

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Date: **Date:**

Place: Chennai **Place:** Chennai

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CONTENTS

INTRODUCTION

Siddha system is the most ancient traditional medicine it is taught that the siddhars laid the foundation for this system medication which is enriched with flora, fauna, mineral resources. Their contributions are well known in the field of Medicine, alchemy, meditation & yogic practices, knowledge & almighty.

Siddhars is “One who is accompalished” it refers to perfected masters who have achieved a high degree of physical as well as spiritual perfection or enlightenment.. They used such powers to control, time, space, body transformation, achieving immortality. And they practiced intense yogic practices including years of periodic fasting and meditation and were believed to have achieved supernatural power and gained the supreme wisdom &over all immortality.

The siddhars were possessing tremendous powers in themselves and could sustain their bodies for ages. They held that the body is the only instrument with which one could attain success in spiritual evolution and thereby get rid of diseases, decay, death.

Siddhars have explained more about the medicinal characters of all forms of herbo-mineral formulations and their purification techniques. Their knowledge of synergistic& antagonistic action of metals& minerals and herbal juice made them to formulate and detoxifying and their own acids and alkalines make the material into fine molecules which are easily absorbed in the body.

Siddhars had the knowledge of converting inorganic substances into nano and ionic form which is easily absorbed by the human cells. And it is easily penetrating and targeting the cells. The siddhars were efficient in distillation, calcinations, oxidations of metal by those process fit for human consumption those medium play their effective role in the treatment of incurable chronic disease.

Siddhar AGASTHIYAR, the most distinguished person in realm of tamil siddha medicine system is one among the 18siddhars.They belong to the class of 18 supernals or demigods, inhabiting the middle air and embracing several subdivisions. They also make not only of certain special medicinal drugs but also metallic preparations such as Mercury, sulphur, arsenic, gold etc…

Rasa means elixir of life and it is extensively used in the preparation of SIDDHA medicine after purification it is converted into healing nectar not only cures innumerable chronic diseases.

Also used in the alchemical rejuvenation medicine, anti oxidants, corporeal transmutation. Specially in siddha medicines mercury is used in the form of higher order medicines like parpam,chenduram,pathangam ,mezhugu,etc… are classified under **"ULL MARUNDHUGAL 32"** it is highly potent,longer shelf life, vast utility,fast action ,only smaller dose is enough,promotes longevity.

Rheumatoid arthritis is a generalised chronic multisystem disease affecting the connective tissues of the whole body with focalized involvement of the musculoskeletol system .

Though the most prominent manifestation of RA is inflammatory arthritis of the peripheral joints usually with symmetrical distribution followed by pain swelling,stiffness of the joints especially involving joints of hands,wrist,and feet and later on spread to the proximal joints such as the knee, hips, elbow, shoulder.

It is considered to be an auto immune response to an unknown antigen and the antibody formed is the rheumatoid factor which is identified as immunoglobulinM autoantibody is directed against the Fc portion of IgG antibodies.

RA is a common disease having peak incidence in 3rd and 4th decades of life with 3-5 times higher prepondarence in females .The Onset of disease is insidious, beginning with prodrome of fatigue, weakness, vague arthralgias and more frequent between 25and 40 years of age, but any age can be affected.

The individuals with histocompatibility such as high association with HLA-DR4 , HLA_DR1 and familial aggregation. 5% of the women and 2% of the men over the age of 55 years are affected.

In modern aspects it is treated with NSAIDs, DMARDs drugs and the surgical procedures are synovectomy in early stage, in later arthroplasty, arthrodesis.

To evaluate the siddha herbo-mineral formulations of RASA CHENDURAM (internal) ROGASANJEEVI THYLAM (EXTERNAL), OTTRADAM THERAPHY FOR THE STUDY OF UTHIRA VADHA SURONIDHAM.

Fomentation is a type of heat external theraphy is applied to the skin to release swelling or pain so as to alleviate the deranged vadha disease by bringing in fresh energy by improving cutaneous circulation and neural conductivity.

AIM AND OBJECTIVES

Aim:

To Study the safety and the therapeutic efficacy of Siddha medicine Rasa Chendhuram(Internal) and Roga sanjeevi thylam (External) and ottradam theraphy in "Uthira vadha Suronidham"(Rheumatoid arthritis)

OBJECTIVE:

Primary objective:

To study the safety and therapeutic efficacy of siddha medicine "Rasa chendhuram"(Internal) and Roga sanjeevi thylam(External) and ottradam theraphy in "Uthira vadha suronidham" (Rheumatoid arthritis).

SECONDARY OBJECTIVE:

1.To collect the various siddha literature and modern literature regarding the disease uthiravadhasuronidham (Rheumatoid arthritis)

2.To use modern parameters to confirm diagnosis, severity of the disease and progress of the disease.

3.To explore the traditional preparations with scentific evaluation of trial drug.

4.To evaluate the physico chemical analysis of siddha trial drug" Rasa chendhuram".

5.To evaluate the pharmacological and safety standard of trial drug in animal models.

6.To evaluate the efficacy of the trial drug in Rheumatoid patients in terms of pain assessment score before and after treatment .

7.To evaluate the therapeutiic efficacy of external theraphy Ottradam in Rheumatoid patients.

8.To evaluate the safety parameters of the siddha trial drug in Rheumatoid patients in terms of liver function and renal function test before and after treatment.

REVIEW OF LITERATURE

SIDDHA ASPECT

Man according to siddha system is production of divine mind and thought produced essence of the five elements, sole of the stars, and the spirit which is the stellar and temporal sides of magnum limbus from the matrix of nature formed of seven layers of tissues.

These five elements together constitute the human body and origin of other material objects are explained as Pancheekaranam (Mutual Intra Inclusion). None of these elements could act independently by themselves. They could act only in co-ordination with other four elements. All the living creatures and the non-living things are made up of these five basic elements. The five basic elements form the connecting link between the Microcosm (Man) and Macrocosm (World). Any change in the universe due to natural or unnatural causes will create changes in human systems.

"நிலம் நீர் தீ வளி விசும்போடைந்துங்

கலந்த மயக்கம் முலகமாதலின்"

--தொல்காப்பியம் பொருள் அகராதி

Again it is said, like the universe man is composed of five elements such as earth, water, air, fire, ether. Therefore life force is the basis for man's mental and spiritual activities on that nature may evolve him towards perfection.

- The earth gives shape to the body and release Sits energy, Bones, muscles, and tissues represent if in the body.
- Water makes the earth supple and helps in the transmission of energy, serum, lymph, saliva etc...Represent it in the body.
- Fire makes the form of the body steady and gives vigour and stimulation. Digestion and circulation represent it in the body.
- Air ignites the fire and works as a life carrier and is the support of all contact and exchange. Respiration and Nervous system represent it in the body.
- Ether is the creator of life itself in the body .A harmonious combination and function of these elements in the body produce a healthy and beautiful life.

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 96Thathuvams 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.

There are in our body several supports to the soul for the existence and sustenance of life and they are the five elements(Earth,water,fire,air,ether),the six plexus, the three humors(mukkuttram),72,000blood vessels and nerves etc.. Constituting in all 96 thathwas.i.e constitute principles in nature. These three humours (vatham, pitham, kabham) plays a major role in the body and their function remain in the balanced state in a normal healthy person and disturbance in their equilibrium leads to the development of diseases in the body.

If the siddha medicine is to accomplish its real mission it must start a double movement of revival and reform. It must to revive its tridoshic theory on which the whole ancient medicine is based..

முப்பிணிமருவிமுனிவுகொள்குறிப்பைத்

தப்பாதறியும்தன்மையும்வாத

பித்தவையம்பிரிவையுமவைதாம்

ஏறியிறங்கிஇனணந்துக்கலந்து

மாறிமாறிவரும்செயற்கையார்பிணி

நேர்மையறிந்துநீட்டுமருந்தே

சீரியதாமெனச்செப்புவர்சித்தரே

--நோய் நாடல் நோய் முதல் நாடல் திரட்டு

Man develops three distinct, personalities namely the mind and the vital or life force and the body .Through the mind he thinks and wills; through the vital or life force he executes his thought and will; through the physical body he expresses what he thinks and wills. The mind is vatha, vital or life force is Pitha, and the body is kabha.

- Vatha, pitha, kabha have multiple significances and symbolical in terms.
- Vatha represents Vayu, mind, dryness, pain, flatulence, sensitiveness, lightness, and also air.
- Pitha represents gastric juice, bile energy heat, inflammation, anger and irritation, etc...
- kabha represents feeling of cold ,heaviness, running of the nose, passing mucoid discharge and also the saliva.

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 FORMATION OF UYIR THATHUKKAL,

The Valinaadi is formed by the combination of Abanan and Idagalai.
The Azhalnaadi is formed by the combination of Piranan and Pinkalai.
The Iyyanaadi is formed by the combination of Samanan and Suzhumunai.

- Vaatham - Ten types
- Pitham - Five types
- Kabam - Five types

(a) Five forms of vatha:

These are the five main centres of the subtle physical body and correspond to the nervous plexuses of the gross physical body.

- Matedial of muladhar centre(அபானன்):This centre corresponds to the pelvic plexus and is the seat of kundalini or material energy and controls excretions
- Navel centre (சமானன்): This corresponds to the solar plexus in the navel region and controls digestion.
- Heart centre (பிரானன்): This refers to the cardiac plexus in the Heart and circulation.
- ThroatCentre (உதானன்): This corresponds to the pharyngeal plexus in the throat region and control breathing and speech.
- Forehead centre (வியானன்):This corresponds to the Naso-ciliary plexus at the root-of the nose and base of the skull and control "will"

(b) Five forms of pitha:

- Gastric juice (பாசகம்): This give appetie and helps Digestion.
- Bile (பிராசகம்): which gives complexion to the skin.
- Haemoglobin (இரஞ்சகம்): which colours the blood.
- Aqueous Humour(ஆலோசகம்):Which brightens the eyes
- Life energy (சாதகம்):Which controls the whole body

(c) Five form of kapha:

- Saliva(கிலேதம்):Which helps mastication
- Cerebrospiral fluid(தற்பகம்):Which keeps the head cool
- Lymph(போதகம்):Which gives taste
- Serum:(அவலம்பகம்)Which helps the Heart in pumping

- Synovial fluid :(சந்திகம்)Which lubricate and aids free movement of the joints

The three humours of vatha, pitha and kapha which are absorbed and circulated in the blood have each certain definite qualities: What are they actually,

1. VATHA.

(Own qualities-6)-	**(Opposite qualities-6)-**
Vatha is dry-*வறட்சி*	Unctuous-பசுமை
Vatha is cold-குளிர்ச்சி	Hot-அக்கினி
Vatha is subtle-அணுத்துவம்	Solid-கெட்டி
Vatha is rough-கடினம்	Soft-மிருது
Vatha is unstable-அசைதல்	Stable-ஸ்திரம்
Vatha is light-இலகு	Heavy-பளுவு

All this qualities are present in Air and hence air we inhale is Vatha

2. PITHA

(Own qualities-6)-	**(Opposite qualities-6)-**
Pitha is hot-அக்கினி	Cold-குளிர்ச்சி
Pitha is acid-புளிப்பு	Sweet-இனிப்பு
Pitha is mobile-பசுமை	Immobile-நிலைதிருத்தல்

Pitha is liquid-சலரூபம்	Solid-கெட்டி
Pitha is acute-குரூரம்	Mild or harmless-சாந்தம்
Pitha is pungent-காரம்	Bitter-கசப்பு

All this qualities are present in the gastric juice and hence the gastric juice is pitha

3. KAPHA

(Own qualities-6)-	**(Opposite qualities-6)-**
Kapha is cold -குளிர்ச்சி	Hot-உட்டிணம்
Kapha is heavy-பளுவு	Lite-இலகு
Kapha is immobile-அசைவின்மை	Mobile-அசைதல்
Kapha is sweet-இனிப்பு.	Pungent-காரம்
Kapha is soft-மிருது	Rough-கடினம்
Kapha is unctuous-ஈரம்	Dry-வறட்சி
Kapha is viscid-வழவழப்பு	Sandy-கரகரப்பு

All this qualities are present in in Saliva so Saliva is Kapha

VATHAM:

The term Vatham denotes Vayu, pain, dryness and flatulence. Vaatham is responsible for respiration and control of all movements.

Location -Abanan, faeces, Idakalai, Pelvic bone, spermatic cord, skin, nerves, joints, hairs and muscles.

Character -It governs the other two basic elements and responsible for all physical process in general. For this reason, disturbance in vatha tend to have more severe implication than the other two humours and other affect the mind as well as entire physical body and also responsible for respiration.

Functions -Pain in the whole body, twitching, pricking pain, inflammation, reddish complexion, and roughness of skin, hardness of limbs, astringent sense of taste in the mouth, constipation, and oliguria, blackish discolouration of skin, stool, urine and muddy conjunctiva.

So for 4448 diseases are classified by ***Agasthiyar rathina surukkam naadi***, and in this V***atha*** diseases are classified as 84 types

நாளடா நாற்பத்து நாலு நூறு

நயமுடனே நாற்பத்து எட்டு ரோகம்

பாரப்பா வாதமது எண்பத்து நாலு.

Vatham or vali is not mere wind, but also that causes motion, energy, and sensation of every cell in the body. vali relates to the nerve force. It is responsible for all movements in the mind and the body.

In human body the locomotors activity functions through voluntary muscles and its activities controlled by nerves system called Kanmendhriyam, likewise the sensation and its activities are known as Gnanendhriyam. These types of activities are governed by valikutram among the mukkutram.

LOCATION OF VATHA HUMOUR:

- Below the navel region (umbilicus)
- Urinary bladder, motion, Spermatic cord, Umbilical cord, thigh, bone, skin, nerves, joints, muscles, hair follicles, pelvis, ear.
- வாதத்தின் இருப்பிடம்: **பெருங்குடல்**.

NATURAL PROPERTIES OF VATHAM:

ஒழுங்குடன் தாதேழ் மூச்சோங்கி இயங்க

எழுச்சிபெற எப்பணியு மாற்ற எழுந்தரிய

வேகம் புலன்களுக்கு மேவச் சுறுசுறுப்பு

வாகளிக்கும் மாந்தர்க்கு வாயு.

-மருத்துவ தனி பாடல்,சித்த மருத்துவாங்க சுருக்கம்

பக்கம்-140

- Functioning of mind throughout the body
- Giving briskness
- Making the uniform functioning of seven udalkattugal
- Protection and strengthening of five sensory organs.
- Regulation of fourteen physiological reflexes.

QUALITIES OF VATHAM:

வாதங் கடுமை வறட்சியுடன் நொய்மை

சீதமுஞ்ச் சலனம் சிதறணுவு ஏதமுட

னிக்குணத்தோடுற் றேயியக்கந்த ருமளவிற்

தக்க பரிகாரந்தா.

-கண்ணுசாமியம்-பக்கம்-21

(Own qualities-6)-

Vatha is dry-*வறட்சி*

Vatha is cold-குளிர்ச்சி

Vatha is subtle-அணுத்துவம்

Vatha is rough-கடினம்

Vatha is unstable-அசைதல்

Vatha is light-இலகு.

வாத குணமாறுக்கு மாறுகுணமே னோக்கின்

ஒதமிரு தீரம் உயிர்பாரம் பேராதரவா

யுள்ள தீயோடுறதி யியற்றுத் திரளாக

உள்ள குணத்தையே யூட்டு.

-கண்ணுசாமியம்-பக்கம்-22

(Opposite qualities-6)-

Unctuous-பசுமை

Hot-அக்கினி

Solid-கெட்டி

Soft-மிருது

Stable-ஸ்திரம்

Heavy-பளுவு

VARIETIES OF VATHAM:

முறையாம் பிராணனோட பானன் வியானன்

மூர்க்கமா முதானனொடு சமான னாகும்

திறமையாங் கூர்ம் னொடுகிருகிர ன்றான்

தேவத் தனோடு தனஞ்செயனு மாகும்.

- சித்த மருத்துவாங்க சுருக்கம் பக்கம்-142

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

1. Uyirkaal (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 nokkukaal (Abanan)

It lies below the umbilicus. It is responsible for the downward expulsion of stools and urine, ejaculation of semen and menstruation.

3. Paravukaal (Viyanan)

This is responsible for the motor and sensory function of the entire body and the distribution of nutrients to various tissues.

4. Maelnokkukaal (Uthanan)

It originates at Utharakini. It is responsible for digestion, absorption and distribution of food. It is responsible for all the upward movements.

5. Samaanan (Nadu kaal)

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

6. Naagan

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

7. Koorman

It is responsible for the opening and closing of the eyelids and also vision. It is responsible for yawning.

8. Kirukaran

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

9. Devathathan

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

10. Dhanancheyan

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

As per yugi vaithiya chindhamani

"என்னவே வாதமது எண்பதாகும்
ஏற்றமாம் பேருடைய வெழிலைக் கேளாய்
.....
ஊனுதிரவாதசுரோணிந்தா தானோடு
..... வேதத்தினுண்மை தானே"

AETIOLOGY OF VATHA DISEASES:

According to *Yugi vaithiya chinthamani*

"என்னவே வாதம்தா ணென்பதாகும்
இகத்திலே மனிதர்களுக் கெய்யுமாறு
பின்னவே பெண்தனையே சோரஞ் செய்து
பெரியோர்கள் பிராமணரை தூறணித்தும்
வன்னவேவச்சொத்திற் சோரஞ் செய்து
மாதாபிதா குருவைம றந்தபேர்க்கும்
கன்னவே வேதத்தை நிந்தை செய்தால்
காயத்திற் கலந்திடுமே வாதந்தானே"

"தானென்ற கசப்போடுதுவர்ப்பு றைப்பு
சாதகமாய் மிஞ்சுகிலுந் சமைத்த வண்ண
ஆனென்ற வாறினது பொசித்தாலும்
ஆகாயத் தேறலது குடித்தலாலும்
பானென்றபகலுறக்க மிராவிழிப்பு
பட்டினிய மிகவுறுதல் பாரமெய்தல்
சீக்கிரமாய் வாதமது செனிக்குந்தானே"

- Excessive sexual indulgence
- Over consumption of bitters, astringents and rancid foods.
- Drinking rain water
- Day time sleep
- Night time work
- Starvation
- Lifting over weight
- Will initiate and aggravate vali

As per"*Konganavar Vatha Kaviyam"*

"ஆச்சப்பா யிதன்கூறை நலதாய்ச்சொன்னோம்
ஆகாகா யிந்நூல்தான் காவியகாண்டத்தில்
வாச்சப்பா வாதத்தின் கூறைச்சொன்னோம்
வாதமதின் வாயுநிலை மயங்கிப்போகும்
காச்சப்பா கலங்கியது தியங்கிப்போகும்
கண்மனியே வதுக்குமத்திபந்தான் கேளு
மாச்சப்பா மக்கினிதான் மதுவோடொக்க
மார்க்கமதாய் கூடிவிளை யாடும்பாரே

வாதம் தோன்றுதல்

"வெய்யிலில் நடக்கை யாலும் மிகதண்ணீர் குடிக்கை யாலும்
பையவே உண்கை யாலும் பாகற்காய் தின்கை யாலும்
தையலே வாத ரோகஞ் சனிக்குமென்றறிந்து கொள்ளே

- Excessive exposure to the sun
- Excessive intake of water
- Postponed of proper intake of food
- Excessive intake of bitter gourd

According to Agathiyar Kanma Kaandam

நூலென்ற வாதம் வந்த வகை தானேது
நுண்மையாய்க் கன்மத்தின் வகையை கேளு
காலிலே தோன்றியது கடுப்ப தேது
கைகாலிலே முடக்கியது வீக்கமது
கோலிலே படுக்கின்றவிருட்சமான
குழந்தை மரந்தனை வெட்டி மேல்தோ சீவல்
நானிலே சீவசெந்து கால் முறித்தல் நலித்தல் காணே

- cutting trees and barks
- Breaking the legs of living animals
- cutting the leaves of living trees

According to Agathiyar Gunavagadam,

அம்புவியில் வாத னோய் வருகும் நேர்மை
அப்பனே சொல்லி கிறேன்றி வாய்க்கேளு
அறுகுமடா மாமிசத்தின் வியாதி யாலும்
அப்பனே சூதகத்தின் பெருக்காலும்
குடிகெடுத்த வாதமது உண்டா மப்பா.

- Muscular diseases
- Menorrhagia
- Consumption of improper preparation of metallic compounds like mercury and lead will cause vatha diseases

CHARACTERISTICFEATURES OF VATHADISEASE:

1. As per Theraiyar Vaagadam:

- வாதவீறு அன்னமிறங்காது கடுப்புண்டாம் வண்ணமுண்டாம்
  மோது கட்டுரோகம் கரமுண்டா மிருமலுமா முறங்கா தென்றும்
  ஓது சூரிய வாதமனலாகு நடுக்கமுண்டாம் பொருள்களாய்த்
  தீதெனவே நரம்பிசித்து சந்துகள்தோறும் கடுக்குந் தினமுந்தானே

- Loss of appetite
- Pain and redness
- Fever and cough
- Insomnia
- Shivering
- Hyper pyrexia

சந்திரவாத முடம்பு குளிர்த்தெழுந்தே நடுக்குங் சீதவாய்வாம்
முந்திய குத்திசிவாஞ் சந்துகள் தோறுங் குடைந்து மொளிகள் வீங்கும்
வந்திய தொந்தவாதம் நரம்புகளெல்லா மிசித்துவலம் விடாது
அந்து அவ்வாகு வாதம் வீக்காமுண்டா முடற்றிமி ருண்டாமே

Chillness of the body

- Rigor and spasm
- Pain and tenderness of joints
- Swelling of the joints.

அறியதிம் மூன்றின தாண்மை சொன்னார் னநந்தி
பறியென நொந்து மற்பச்சை புண்ணாகும்
-திருமூலர் நாயனார் சிகிச்சா ரத்ன தீபம்

- Pain in the upper and lower limbs, pain in the costochondral junctions will be seen in vatham diseases.

வாதம் வந்துற்றபோது வயறது பொருமி கொள்ளும்
.....வந்த வாதத்தின் குணமிதாமே
-யூகி முனிவர் பெருனூல் வைத்திய காவியம்(1000)

- When vatham increases it produce abdominal discomfort, pain in the hip joint and all the joints of upper and lower limbs, constipation and painful voiding of urine and stools will be seen.
- The diseases will be precipitated in months from aani to karthigaii.e.,from June to December,(muthuvenil,kaar,andkoothirkaalam)

பகரவே வாதமது கோபித் தப்போ
பண்பாக பெண் போகமது தாமன் செய்யில
.....கனைக் காலும் கடுப்பு உண்டாமே
-யூகி வைத்திய சிந்தாமணி பாடல்-285

- Indulging in sexual act during vitiation of vatham
- Walking for long distance
- Exposing to cold and dampness and harmful combinations like fruits vegetables and tubers with curd ,causes toxic factors which affects bones and joints
- **In Aaviyalikkum Amutha murai Surukkam**

"சொல்லவே வாதமது மீறிற்றானால்
சோர்வடைந்து வாயுவால் தேகமெங்கும்
மெல்லவே கைகால்களசதி யுண்டாம்
மெய் முடங்கும் நிமிர வெண்ணா திமிருண்டாகும்
வெல்லவே வுடல் பொருமும் வயிருளைக்கும்
விரும்பி யன்னஞ்செல்லாதுவிந்துநட்டம்
சொல்லவே நாப்புளிக்கும் க ழிச்சல் உண்டாகும்
கூறினார் மலையமுனி கூறினாரே"

- Fatigue, tiredness
- Nausea
- Loss of appetite
- Pricking sensation all over the body
- Pain all over the joints.
- Diarrhoea
- Azoospermia
- Incontinence of urine
- Difficulty in flexion and extension
- Constipation

Agathiyar2000

"வாதத்தின் குணமேதன்னில் மயக்குந்தியங்கும் மலர்சிவக்கும்
பாதங்குளிர்ந்து சருவாங்கம்பற்றி நடக்குமுகங் கடுக்குஞ்
சீதத்துடனே வயிறு புண்ணாஞ் சிரிப்பித் தகுந்தெறி மூச்சாம்
போதத் தண்ணீர்தான் வாங்கும்புகழும்பஞ்ச குணமாமே"

- Giddiness
- Redness of eyes
- Stabbing pain in the face
- Abdominal distension
- Joint pain in upper and lower limbs
- Numbness in the limbs
- Oliguria
- Drowsiness
- Chillness of the body

வளி மிகுதலின் இயல்பு

தக்க வாயு கோபித்தால் சந்து வுளைந்து தலைநோவா

மிக்க மூரி கொட்டாவி விட்டங் கெரியு மலங்கட்டும்

ஒக்க நரம்பு தான்முடங்கும் முலர்ந்துவாய்நீ ரூறிவரும்

மிக்க குளிரும் நடுக்கமுமாம் மேனி குன்றி வருங்காணே.

- Pain in the joints
- Head ache
- Excessive yawning
- Constipation
- Burning sensation of the body
- Paralysis
- Excessive salivation
- Chillness and tremor

Inkaviyanaadi

"காணப்பா வாதமீறில் கால்கைகள் பெருத்து நோகும்"

UTHIRAVATHA SURONITHAM

"UTHIRAVATHASURONIDHAM" is one among the eighty types of vatha diseases described by the great siddha pathologist yugi munivar in the textbook of **"YUGIVAIDHYA CHINTHAMANI".**

A form of arthritis of rheumatic origin marked by severe pain and the formation of inflammatory nodules in the region of the joints and especially in the limbs of the body.

According to kathirai velpillai tamil mozhi agarathi

சுரோணிதம்-உதிரம்

உதிரவாதம்

According to sambasivam pillai dictionary

சுரோணிதம் - உதிரம்

மகளிர் சூதகம்

சுரோணித வாதம்:

A disorder of menstruation in women marked by affection in the chest and limbs extreme sensibility to pain, dryness in the dendrites nervous shock, accompanied by intense body pain.

Therayar vaagadam:

"சுரோணிதவாதம் பிரவிடையான் போதே தொடுக்குந் துடர்ந்து
நோகுங்....."

(பிரிவிடை- பெண்ணின்மத்தியபருவம்-)

The disease **"*suronithavatham*"** is occurs in the middle aged women.

"உரைபெறு உதிரவாத சொரோணித முறைக்குங் காலை
தரைபெறு வாதந்தூற்றே சுரோணிதக் குணமுந்தக்க
விரிவுறு பலித்துவாத சுரோணிதக் குணமுமிக்க
சுரைபெறு உதிரவாத சுரோணித குணமுமுண்டாம்"

Vitiation of *vatha* aggravates the signs and symptoms of "vathasuronitham".

Jeeva raksha mirtham classifies this disease into two types,

- Pitha sonitha vatha rogam, which is soft and cause emaciation.
- Slethuma sonitha vatha rogam has polyarthralgia and spindle shaped swelling in the phalanges.

Siddha pathology:

காணப்பா வாத மீறில் கால்கைகள் பொருத்து நோகும்.....

சொல்லவே வாதமது மீறிற் றானால்

சோர்வடைந்து வாயு வினால் தேகமெங்கும்

மெல்லவே கைகால் களசிக லுண்டாகும்

மெய்முடங்கும் நிமிர வொண்ணா திமிருண்டாகும்

-அகத்தியர்

வளிவாக நாலாயிரத்து நானூற்று நாற்பத்தெட்டு

வந்தணுகில் தெகமதில் வலுவியாதி

-அகத்தியர்

எரியநல் வாத மெறிக்குங்வ குணங்கேளு

குறியெனக் கைகால் குளச்சு விலாச் சந்து

--நோய் நாடல் நோய் முதல் நாடல் திரட்டு

Nadi pathology:

திருந்துமாம் வாதத் தோடே தீங்கொடு பித்தஜ்சேரில்

பொருத்துகள் தோறும் நொந்து

-குணவாகடம் நோயின் சாரம்

AETIOLOGY OF SURONITHA VATHAM

"கொண்டிடிற் சரீரம் கலந்தும் பதார்த்தங்கள் கொள்கையாலு
முண்டியிரத்தந் தன்னை யுறிஞ்சிடும் பதார்தத்தாலும்

மிண்டிய சாக்கிரத்தில் விருந்தத் திரைகளாலும்

மண்டுமை துணங்களாலும் வாதள பத்தையாலும்

ஆகிய செல்வமிஞ்சி நடவாம லிருக்கையாலும்
பாகமாங் குதிரையானை பலப்பட வேறலாலும்

பேதமாம் வாயுண்டாய் விபரீதமா யிரத்தஞ்
சோகமாய்வாங்கிச் சோர்ந்து சுரோணித வாதமுண்டாம்"

- Intake of spicy food stuff
- Intake of astringents
- Daytime sleep
- Sedentary life
- Food which decrease the absorption of iron
- Foods which increases the body heat.
- Riding over the elephant and horse

All these factors will affect vatha which along with blood produces Suronithavatham.

According to para rasa sekaram:

"தொழில் பெறுகைப்புக் கார்த்தல் துவர்த்தல் விஞ்சுகினுஞ் சோறும்

பழையதாம் வரகு மற்றையப்பைந்தினை யருந்தினாலும்

எழில் பெறப்பகலுறங்கி இரவினி லுறங்காத தாலும்
மழைநீர் குழலினாலே வாதங் கோபிக்குங்கானே"

- Over conception of bitters, astringents , savouries and rancid foods
- Intake of cold water
- Intake of varagu ,thinai

காணவே மிகவுண்டாலுங் க ருதுபட்டினி விட்டலும்
மானனை யார்கண் மோகமறக்கினு மிகுந்திட்டாலும்

ஆணவ மலங்கடம் மையங்களே விடாததாலும்
வானுதன் மடநல்லாளே வாதங் கோபிக்குங்காணே"

- Eating of excessive intake of food
- Starvation
- Excessive sexual indulgence
- Sleeping in the day time &not sleeping in the night
- Not taking food at proper time, Decreased intake of sour and ghee diet increase The vatham

"பாரினிற் பயப்பட்டாலும் பலருடன் கோபித்தாலும்
காரெனக் கருகியோடிக் கழுமரத்தினாலும்

ஏற்பெறு தனது நெஞ்சின் மிகத்துக்க மடைந்திருந்தாலும்
பாரிய காற்றினாளும்படரினும் வாதங்காணும்"

- Fear
- Anger
- Worry

In textbook of siddha medicine (sabaa pathy kaiyedu)

"வளிதரு காய்கிழங்குவரைவிலா தயிலல் கோழை

முழிதயிர் போன்மி குக்கு முரையிலா வுண்டி கோடல்
களித்தரு முயக்கம் பெற்றொர் கடிசெயல் கருவியாமல்"

- Intake of vatham containing food stuffs
- Intake of cold items
- Exposure to extreme cold air, rain, and snow
- Hereditary
- Stay in mountain

CLINICAL FEATURESOF UTHIRAVATHA SURONITHAM:

In yugi vaithiya chindhamani

"வைகிதமாய்க் கணைகாலு முழங்கால் தானு
மற்கடஞ் சந்துபுறவடியும்வீங்கிச்

செய்கிதமாய் சிறுவிரல்கள் மிகவு நொந்து

சிந்தைதடு மாறியே சலிப்புண்டாகும்

பைகிதமாம் பயித்தியத்தில் வாத மிஞ்சிப்

பாரமா யுற்பவித் தழலுண் டாகும்

உய்கிதமா மசனமது தானும் வேண்டா

- Swelling of the ankle and knee joints
- Swelling of the foot
- Pain in the fingers and toes
- Confusion
- Fatigue
- Loss of appetite

In Dhanvandhiri vaithiyam

"காணுமே எலி விஷம் போல் கனப்புடன் தடிப்புமாக
பூணுடம் புளையங்குத்தும் சொறி கனப்புந்

தோணிருந் துடிப்புத் தேகங் கிள்ளினாற் சோதியாது

மானில முலையாய் சுரோணிதவாதமாமே
கையினிற் கறண்டை தண்ணீர் கட்டுஞ் சதைதோல் வீங்கு

மெய்யினைப்பிளக்கும் வாதம் வியாப்பிக்கும் உடம்பதாக்கு
மையலர் உடல் தம்புக்கும் வாதசுரோணித மிதென்னே"

- Pyrexia and swelling of the body as in rat poison intoxication
- Pain and tenderness
- Twitching of muscles
- Loss of sensation
- Swelling of the wrist and phalanges
- Black and redness of swelling due to vascular failure
- Hyperaemia

சுரோணிதவாதம்

"ஓடிய சுரோணித வாதமுடல்தனை நெஞ்சுலரந்து
தேடிய கால் கைகள் திருமே பிளக்க வொண்ணா
வாடிய மேனிதானும் வறண்டிடும் நாவும் பல்லும்
மூடிறக் கடுத்து நொந்து அளைவுடன் குத்துமுண்டே"

According to Vaithiya Chindhamani by kannusamy

உதிரவாத சுரோணிதம் என்ற நோயில் கனைக்காலும், முழங்காலும், சந்துபுறங்களும்வீங்கி வடிவதுடன் விரல்களில் அதிக நோயுண்டாகும். இன்னும் சிந்தை தடுமாறல், சலிப்பு, ஆகார வெறுப்பு இவையும் பெற்றிருக்கும்.

- The disease name suronitha vaatham is also mentioned in **Aaviyalikkum**
- **Amuthamurai Churukkam**as painful and swollen joints.
- **Anubogavaithiya Deva Ragasiyam** also deals with vatha diseases.
- Instead of "Uthiravaatha suronitham"itis mentioned as "Sonithavaatharogam".
- **Jeevarakshamirtham** also deals it as sonithavaatharogam in Vaatharogapadalam and the symptoms are polyarthralgia, swelling, anaemia, spindle shaped swelling in the joints.

Inpararaasasekaram

"வீழிபெறு சுரோணி தந்தான் மிகவுடன் மெலிவு மாகித்
வாழ்வுறு கையுங்காலும்வசமின்றி யுழன்று நோவாம்

பாழ்பெறு மணங்கி நாளே பயனுறப் பகர்ந்திட் டோமே"

Decrease in the haemoglobin level

- Pain in the upper and lower limbs
- Swelling especially in the peripheral joint and deformities
- Morning stiffness present more than 1 hr.

"

பக்கமும் மார்பும் கூடப்பற்றியே இழுத்துக் கொண்டு
நெக்கியே மார்பிளைத்து நோதாய் நரம்பிழுத்து
ஒக்கவே சயித்தியங்கள் உயர்ந்துடன் மேலும் காலும்
மிக்குமே உதிரவாதம் என்றிதுவிளம்பலாமே"

"சொர்சீதே வுதிர சுரோணித முழங்கால் தாணும்
பொற்கனை காலுங்ந் சந்தும் புறவடி தாணும் வீங்கி
.....முண்டா முறுநூலிற் சொன்ன தாமே"

Swelling of the ankle and knee joint

- Swelling of hind foot
- Pain in the distal interphalangeal joint

According to Agathiyar Ayulvedham– 1200

"கைகால் நெற்றித்தலை பிடறி கனத்துநொந்து வுளைவுண்டாம்
மெய்யீன்ரூ பந்தான்கெட்டு வெதும்பி விதனமிக வுண்டாந்
தொய்யச் சுருட்டி முடக்கிவிடஞ் சுரோணிதவாதக் குணமிதுவென்
றையா முனிவர்தாளிதனாலறியஸ் சொன்னாரரிவாரே"

Pain in the upper and lower limbs, forehead and cervical region. Restricted joint movements.

DIFFERENTIAL DIAGNOSIS:

Among the 80 types of vaatha diseases mentioned in"yugivaithiyasindhaamani" the "Uthiravaathasuronitham"is differentiated from the following types of suronitham

வாத சுரோணிதம்:

- சித்துவாத சுரோணிதம்
- வைகிதவாத சுரோணிதம்
- பைத்தியவாத சுரோணிதம்
- சிலேட்டுமவாத சுரோணிதம்
- உதரவாத சுரோணித

வாத சுரோணிதம்

"அறிந்திட்ட அங்கமெலா மெலிவுமாகி
அசைவான தவ்விடங்கள் வீக்கமாகி

.....

வாதசுரோணிதந் தானும் வகுத்தவாறே"

- Emaciation
- Swelling of joints
- Restriction of movements
- Anorexia
- Excessive salivation
- Discomfort

சித்துவாத சுரோணிதம்

"வாறான சரீரமெலா நுழைந்தே யூதும்
மாசற்ற தோல்தானுந் திரைந்து போகும்

.....

மிக்கசித்து வாதசுரோ ணிதம தாமே"

- Anasarca
- Reduced haemoglobin level
- Wrinkles
- Neural pain
- Bullus eruption as in palms
- Glossy tongue
- Sialorrhoea
- Exfoliation, swelling and
- Warmness.

வைகிதவாத சுரோணிதம்

"ஆமென்றவீங்கினதோர் இடத்தில் ரத்த
மழுத்தமாய்த் திரண்டுமே யெங்கும்பாய்ந்து

.....

பாரமாய் வைகிதமாம் வாதந் தானே"

- Swelling with hyperaemia
- Soft on touch
- Cough
- Pyrexia
- Irritability

பைத்தியவாத சுரோணிதம்

உணர்ச்சியாய்ச் சுரோணிதந்தான் மிகவெ தும்பி

ஊக்கமாய்த் தேகமெங்கு மிகவே நொந்து

பயித்தியவாத சுரோணிதத்தின் பண்பு தானே

- Hyperaemia
- Tenderness in knee, elbow and smaller joints
- Polyarthralgia
- Pyrexia
- Anaemia

சிலேட்டுமவாதசுரோணிதம்

"பண்பாக வுடல்குளிர்ந்து வயிறு வீங்கிப்

பதைப்பான விடந்தொட்டாற் போல நோவாந்

.....

நற்சிலேட்ம சுரோணிதமாம் நாடுங் காலே"

- Chillness with abdominal distension
- Severe pain
- Head ache
- Bronchitis with dyspnoea
- Giddiness
- Dryness of mouth
- Tachycardia
- Syncope and Hallucination
- Anorexia

உதரவாத சுரோணிதம்

"நாடுமே சுரம்வந்து நடுக்கலுண்டாம்
நாவறண்டு தலை நொந்து உடம்ப ழுந்தி
.....
செயவுதர வாதசுரோ ணிதந்தா னென்னே"

- Fever with rigor
- Dryness of mouth
- Diarrhoea
- Headache and giddiness
- Excessive thirst
- Loss of appetite
- Pain all over the body

IN SIDDHA MODE OF PATHOLOGY

- Vatham is said to be phenomenon responsible for the movements of the parts involved in locomotor system, hence it is responsible for the articulation of the joints, tendons and muscles.
- Bone and lower abdomen is considered to be the place for vaatham.
- Santhiga kabam is said to be the phenomenon which is responsible for the normal maintenance of synovial fluid.
- Synovial fluid provides nutrition for the articular cartilages, disc ,meniscus and thereby avoids friction of the bones and erosion of the bones, it helps the smooth articulation.
- In Uthiravathasuronitham due to factors related to diet, habit, environment etc, adversely influence of vali and azhal mainly in mukkutram
- The involvement of viyanavayu and abanavayu plays a major role in the manifestations of signs &symptoms. Viyana is responsible for all the motor and sensory functions of the body and the nutrition of tissues.
- Abananvayu is responsible for the assimilation of the nutritional factors from the gastro intestinal tract distribution between various thathus and expulsion of waste product through faeces, urination etc...

AZHAL:

- The azhal is responsible for the healthy maintenance of every tissue of the body and its variation results in inflammatory changes in the bone and other accessory structures like tendons, cartilage and synovial membrane which helps in perfect articulation of joints.

IYAM :

- The deterioration of iya humour leads to structural changes in the bones and the fluids in the joints which are mainly controlled by the factors of santhigam.
- Disturbance in humours it produce different clinical manifestations. They Include,
- Swelling of the joints,
- Pain
- Stiffness
- Restricted movements of the joints due to disturbed vali.
- Inflammatory changes of the joints like redness hyperaemia, and warmness due to disturbed azhal and erosion of bone margin, increased synovial fluid due to disturbed iyam.
- The tridosha phenomenon and the functioning of the joints,

வளிமிகு வபான வியான வாயுக்களதிகரிக்கும்
இளமிகு மலனீர்க் கட்டும் இயம்பிய வபானன் செய்யும்
வளிவிலா வியானன் கீலின்விளங்குறு புழைகபோறும்
ஒளியுறு குற்றமெல்லா மொன்றிலென்று லவச்செய்யும்.

சபாபதி கையேடு-சித்த மருத்துவம்,பக்கம்-603

- **UYIRTHAATHUKKAL:**
- These are the fundamentals and essential factors in the composition and constitution of the human body.
    - Vaatham(vali)
    - Pitham(azhal)
    - Kabam(iyyam)

PINIYARI MURAIMAI-(DIAGNOSIS):

The methodology of diagnosing in siddha science is very unique and solely based on the clinical acumen of the physician.

It is based on the three main principles,

1. PORIYAL THERTHAL
2. PULANAL THERTHAL
3. VINATHAL

1. PORIYAL THERTHAL:

Pori means sense of perception. Poriyaltherthal understands by the five sense organs such as nose, tongue, eyes, skin, and ear.

2. PULANAL THERTHAL:

Pulan means objects of senses. Pulanaltherthal understands by the sense objects.

1. Smell (Manam)
2. Taste (suavai)
3. Vision (oli)
4. Somatic sense (ooru)
5. Sound (oosai)

In both of the above said methods, physician, pori and pulan are used as tools for examine the pori and pulan of the patients.

3. VINATHAL:

Vinathal is the process of obtaining the detailed history of the disease by interrogation the patient. By this gathering the history of disease, complaints, and duration, personal history, family history, clinical features, where an accurate history, is available, a disease can be easily diagnosed ever before clinical examinations carried out. It is the focal point of the "physician –patient" relationship and established the bonding necessary for patient cure.

The classified method of clinical examinations is known as **ENVAGAI THERVU,**

Siddhars have devolved a unique method of diagnosing the diseases by "ENVAGAI THERVU" eight basic diagnostic parameters namely,

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

NAADI NADAI IN UTHIRA VATHA SURONITHAM:

Naadi diagnosis is the confirmatory diagnosis, Naadi is the inherent seat anchor of energy on which vibration the entire thathus of the body are functioning.

1. Vathakapham

2. Kaphavatham.

வாத கபம்

"பாங்கான வாதத்தில் சேத்தும நாடி
பரிசித்தாற் திமிர்மேவு முளைச்சலாகுந்
.....
.....வெகு நோய்க்கு முறுதி தானே"

கப வாதம்

"கண்டாயோ சிலேற்பனத்தில் வாத நாடி
கலந்திடுகில் வயிறு பொருமல் கனத்த வீக்கம்
.....
.....பலவும் வந்து சிக்குந் தானே"

Derangements of vatham in uthiravathasuronitham: `

Abhanan: Constipation, polyuria, menstrual

Viyanan: Pain and tenderness in the affected joints

Samanan: Affected due to the derangements

Koormam:Extra articular features

Kirukiran: Loss of appetite

Derangements of pitham in uthiravathasuronitham:

Analagam: Loss of appetite

Ranjagam: Anaemia

Saadhagam: Disturbances in regular activities

Aalosagam: Disturbances in vision

Prasagam: Redness

Disturbances of kabham in uthiravathasuronitham:

Avalambagam: Dyspnoea (due to anaemia)

Kiledham: Loss of appetite

Sandhigam: Restriction of joint movements

Udalthathukkal:

In uthiravathasuronitham cases,

Saaram

Senneer

Oon

Kozhuppu

Enbu

Moolai

Are the most affected

Gnanendhiriyam:

In uthiravathasuronitham cases,

Mei: Pain and tenderness in the joints

Kan: Disturbances of vision (scleritis)

Kanmendhiriyam:

In uthiravathasuronitham cases,

- **Kai :** Difficulty to use the upper limbs
- **Kaal:** Difficulty to use the lower limb
- **Eruvai:** Constipation in some cases
- **Karuvai:** Irregular menstrual cycle in some cases

PININEEKAM:

Siddha system of medicine is a unique system of medicine in which treatment is given both for the body and mind. Thiruvalluvar in his thirukural under the heading "MARUNDHU" mentions about the diseases and its prevention, they are,

So in Siddha system, treatment is not only for the removal of diseases, but for prevention and improving the body condition-Rejuvenation.

1. Prevention

2. Treatment-curative

3. Restoration-promotive

1. PREVENTION:

It is very much, essential and stressed in all siddha literature. Body and mind should be very clean and free from evil thoughts and deeds.

2. TREATMENT:

A Good physician should know about the derangements of humours and should treat the patients on the basis of altered humours.

Treatment is based on,

To bring the tridosham to normal

To treat the disease according to its symptoms through medicines,

To increase the natural immunity

To normalize the tridosham,

விரேசனத்தால் வாதம் தாழும் .

Vatha disease can be brought down by vireasanam(purgation),by giving the laxatives and purgatives according to the patient conditions, Four requisites of successful treatment are explained by **"THIRUVALLUVAR"**

உற்றவன் தீர்ப்பான்மருந்துழைவச் செல்வானென்

றப்பனாறகூற்றே மருந்து.

RESTORATION:

- Reassurance is given to all the patients for fast recovery
- Not to be anxious
- Not to be depressive
- Avoid exposure to cold
- Avoid excessive workload
- To advice the patients to do asanas regularly

MANEGEMENT OFUTHIRAVATHASURONITHAM:

The treatment of siddha medicine is aimed at keeping the three humours in equilibrium and maintenance of seven elements. So proper diet, medicine and disciplined regimen of life are advised for the healthy living and to restore equilibrium of humours in diseased condition.

INTERNAL MEDICINE: RASACHENDHURAM 65mgwith honey twice daily, after food for the period of48 days.

EXTERNALMEDICINE: ROGA SANJEEVI THYLAM with **OTTRADAM** THERAPHY.

REVIEW OF LITERATURE - MODERN ASPECT

JOINTS :

Joints are mainly classified structurally and functionally. structural classification is determined by how the bones connect to each other ,while functional classification is determined by the degree of movement between the articulating bones.

There are three structural joints are,

1 .**Fibrous joints**-joined by dense regular connective tissue that rich in collagen fibres

2.**Cartilagenous joints**-joined by cartilage.

3.**Synovial joint**-the bones have synovial cavity.

Joints are sites where two or more bones of the skeleton or cartilages articulate.It admits more or less motion of one or more bones is termed as a joint.The articular surfaces of bones are covered by hyaline cartilage which is thicker in weight bearing areas than in non weight –bearing joint.

The joints can be classified functionally ;

1.Diarthrodial or synovial joints with a joint cavity

2.synarthrodial or nonsynovial joints without a joint cavity

3.Amphiarthrosis-cartilagenous joints,permits slight mobility.

Synarthroses (solid joints)are commonly grouped according to the principle type of interosseous connective tissue into fibrous joint and cartilaginous joints.

Disarthrosis (cavitated joints) between the ends of other circumscribed surface of endochondrial bones.

Most of the diseases of joints affect diarthrodial or synovial joints.In diarthrodial joints, the end of two bones are held together by joint capsule with ligaments and tendons inserted at the outer surface of the capsule.The joint space is lined by synovial membrane or synovium which forms synovial fluid that lubricates the joint during movement.

There basic structures of synovial joints are followed,

1**.CAPSULE-** It is made of tough membrane enclosing the joint.It connects the bone and holding them firmly in place.

2**.Articular cartilage-** It is composed of collagen and proteoglycans and 65.80% water which forms the cartilage matrix. And it is covering the end of the bones ,absorbing the shock while providing a slick surface so that the bone ends can easily glide across each other during movement.

3**.Synovium-** It secretes the synovial fluid to lubricate and nourish the cartilage

4.**Muscles-** It act as a shock absorber and contracts to provide a movement.

5**.Ligaments-** It attaches bone to bone and provide stability.

6.**Tendons-** It attaches muscles to bones and acts as a secondary joint stabilizer and also allow for free movements.

7**.Bursae-** It is sac like cavity situated in places in tissues to facilitate the gliding of muscles or tendons over bony or ligamentous surfaces.And protecting them against friction ,wear and tear.

CLASSIFICATION OF SYNOVIAL JOINTS:

1.Plane joints

2.Hinge joints

3.Pivot joints

4.Bicondylar joints

5.Ellipsoid joints

6.Saddle joints

7.Ball and socket joints

Syndesmosis:

The articulating bones are kept at a distance but united by a strong ligaments.e.g vertebral arches ,coracoids process, and clavicle.

Nerve supply:

The sources of nerve fibres to a joint conform well to Hilton's law- the nerves to the muscles acting on a joint as well as to the skin over the area of action of these muscles.The capsule and ligaments receive an abundant sensory nerve supply.

Blood supply.

The articular and epiphyseal branches of neibhoring arteries form a peri articular arterial plexes

The articular capsule is higly innervated but avascular (lacking blood and lymph vessels),and receives nutrition from the surrounding blood supply.The synovial membrane is higly vascular and lymphatic.

Diseases of joints and their classification:

1.Infective arthritis:

Bacterial,viral.and parasite

a.Acute infection:

- Acute pyogenic arthritis
- Acute gonococcal arthritis
- Acute rheumatic arthritis
- Small pox arthritis

b.Chronic infection:

- Non-specific: Pyogenic arthritis
- Specific:Tuberculous arthritis,syphilitic arthritis,gonococcal arthritis
- Parasitic:Guinea worm arthritis

2.Rheumatoid arthropathy

- Rheumatoid arthritis
- Juvenile rheumatoid arthritis

b.Seronegative spondyloarthropathy

- Ankylosing spondylitis
- Reiter's disease
- Psoriatic arthritis
- Enteropathic arthritis

3.Degenerative arthrosis(orteoarthritis)

- primary orteoarthritis
- secondary orteoarthritis

4.Neuropathic arthrosis

- Charcot's arthropathy
- Syringomyelia
- Leprosy
- Diabetes mellitus

5.Metabolic arthritis

- Gout
- Pseudo- gout
- Alkaptonuric arthritis

6.Arthritis in system disorders

- Haemophilic arthritis
- Reactive arthritis

7.Miscellaneous conditions

- Villonodular synovitis
- Synovial chondromatosis

8.Hysterical joints.

Arthritis is a generic term for inflammatory joint disease. With the involvement of synovium, articular surfaces, and capsule.The inflammation may be such a severity as to destroy the joint cartilage

AUTO IMMUNE DISEASE:

Auto immune disease affects up to 50 million americans ,according to the American Autoimmune Related diseases association **(AARDA).**The immune system contains a complex organization of cells and antibodies designed normally to "seek and destroy"invaders of the body ,particularly infections .Patients have antibodies and immune cells in their blood that target their own body tissues ,where they can be associated with inflammation, while inflammation of the tissue around the joints and inflammatory arthritis are characteristics feature of rheumatoid arthritis.

An auto immune disease devolps when your immune system which defends your body against disease decides your healthy cells are foreign .As a result your immune system attack healthy cells and your immune system produces antibodies (proteins that recognize and destroy specific substances) against harmful invaders in your body .

The cause of auto immune disease like bacteria or virus ,drugs ,chemical irritants environmental factors. The most common symptoms are fatigue,fever,general malaise Symptoms worsen during flare –ups and lessen during remission.It mainly affects the joints in the hand ,wrists,knees and interphalangeal joints are typically inflamed in a symmetrical distribution and linning of joints become inflamed causing damage to joint damage

RA can also affects other tissues throughout the body and cause problems in organs such as the lungs,heart,and eyes.

RHEUMATOID ARTHRITIS:

It is generalised chronic multisystem disease affecting the connective tissues of the whole body with focalized involvement of musculoskeletol system.Though the most prominent manifestation of RA is inflammatory arthritis of the peripheral joints usually with symmetrical distribution followed by pain, swelling, stiffness, of the joints especially involving joints of hands, wrists and feet and later on spread to the proximal

joints such as the knee, hips, elbow, shoulder. It is considered to be an auto immune response to an unknown antigen and the antibody formed is the rheumatoid factor which is identified as **immunoglobulin M** autoantibody is directed against the Fc portion of **IgG** antibodies.

Epidemiology of Rheumatoid arthritis:

RA is a common chronic disease that affects about 1% of the world population. The prevalence of RA in the united states, based on rates of RA from 1995 minnesota study and 2005 census data is currently estimated at approximately 1.3 million people or 0.6% of the population according to current census data. In india the prevalence of the disease 0.75% projected to the whole population, this would give a total of about seven million patients in india.

The diseases is 3-5 times highly prepondarence in females than in males. The disease can begin at any age and even affects children (juvenile idiopathic arthritis),but it most often starts after 40 years of age and before 60 years of age .The courses and severity of the illness can vary considerably. Around 80% moderately to severly disable within 20 years ,around 40%of RA patients registered disabled within 3 years and 25%will require a large joint replacement.

The risk of RA may be highest when people with these genes HLA DR1, DR4 and MHC class 2 familial aggregation.cigratte smoking increases a person's risk of devolping RA and can make the disease worse.

Women who have never given birth may be at greater risk of devolping RA.Obesity also increase the risk of devolping RA.But the women who have breastfeed their infants have a decreased risk of devolping RA.

Etiopathogenesis:

Present concept on etiology and pathogenesis proposes the RA occurs in an immunogenetically predisposed individuals to the effect of microbial agents acting as trigger antigen.The role of superantigens which are produced by several micro organisms with the capacity to bind to HLA-DR molecules(MHC-II REGION) has also emerged

1.Immunologic derangements

Detection of circulating autoantibody called rheumatoid factor(RF)against Fc portion of autologous IgG in 80%cases of RA.

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

Antigenecity of proteoglycans of human articular cartilage.Association of RA with amyloidosis.

The presence of other autoantibodies such as anti nuclear factor(ANF) antibodies to collagen type II and to cytoskeleton.

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

2.Trigger events:

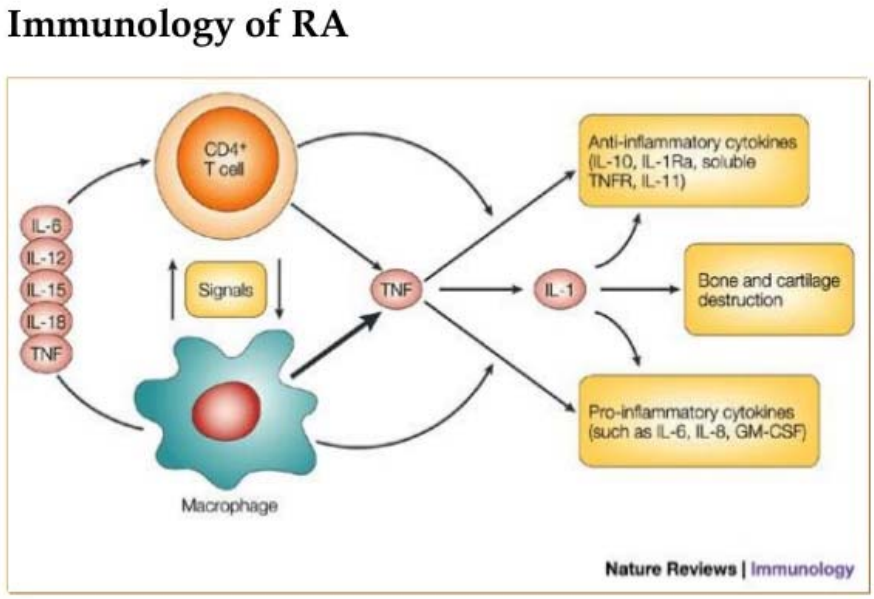
It initiate the destruction of articular cartilage.The existence of an infectious agents such as mycoplasma,Epstein –Barr virus(EBV),cytomegalo virus(CMV).

The possible role of HLA-DR4 and HLA-DR1 in initiation of immunologic damage.CD4+T –Lymphocytes are activated.These cells elaborate cytokienes ,the important being Tumour necrosis factor(TNF)- ,Interferon(IF) ,interleukin (IL-1,IL-6).

Activation of B –cells releases IgM antibody against IgG-Rheumatoid factor.IgG and IgM immune complexes damage to the synovium,small blood vessels,and collagen.

Activation of macrophages release more cytokienes which cause damage to joint tissues and vascularisation of cartilage termed **PANNUS** formation.And eventually destruction of bone and cartilage are followed by **fibrosis** and **ankylosis** producing joint deformities.

CHART NO. 3.1 : IMMUNOLOGY OF RA



Genetic predisposure:

The condition have high associated with class II major histocompatibility complex allele HLA-DR4,HLA-DR1 and familial aggregation.

Abnormal immune response:

Immune mediated response to infections caused by mycoplasma ,Epstein –Barr virus ,cytomegalo virus ,parvo virus in a genetically predisposed individual.

Morphological features:

The predominant pathologic lesions are found in the joints, and tendons,and less often extra articular lesions are encountered.

Effects of pregnancy on RA:

Pregnancy alters the immune state ,possibly contributing to a change in the course of RA.For decades, the ameliorating effects of pregnancy on the disease activity in women with RA have been observed.

Pathogenesis:

Rheumatoid disease is considered to be an auto immune response to an unknown antigen and the antibody formed is the rheumatoid factor which is identified as immunoglobulin M antibody directed against the Fc portion of IgG antibodies present in about 80% patients and important prognostic factor.Also present in the following,

Sjogren's syndrome

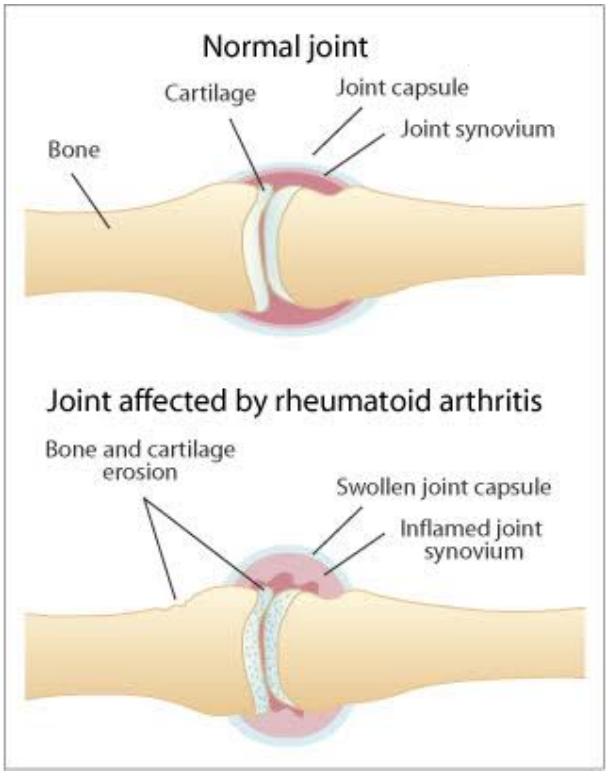
Systemic lupus erythematosus

Sarcoidosis

Tuberculosis

Other autoantibodies also present in rheumatoid arthritis-Antifilaggrin and Anti citrullinated proteins

CHART NO. 3.2 : JOINT AFFECTED BY RA



PATHOGENESIS OF RA:

Inflammatory reactions

Collagen bundles are disturbed

↓

Hyperaemia devolps

↓

Aggregation of leucocytes into joint space

↓

Leucocytes organised in to granulation tissue

↓

Granulation tissues matures and to form granular pannus

↓

Granular pannus produce one enzymes called lysozymes

↓

Lysozyme enzymes destroy the articular &peri-articular cartilage

↓

The process is end with Ankylosis.

Stages of rheumatoid arthritis:

The diseases follows three stages ,

1.Synovitis

2.Destruction

3.Deformities

1.First stage-Synovitis:

Rheumatoid arthritis is an inflammation of the synovial membrane,which become oedematous, and thickened with inflammatory exudates.The joint inflammation of RA causes swelling ,pain,stiffness,and redness in the joints. Chronic persistent synovitis is a characteristics feature of RA. Initial lesion occurs in the synovium ,leading on to vascular stasis , infilteration of the subsynovial layers with inflammatory cells.

2.Secondary stages:Destruction:

In the later stage ,the synovium become more vascular and throws a fibrinous exudates which get organised into a granular tissue and spreads over the articular cartilage as the pannus.

Histologically, the characteristics features is diffuse proliferative synovitis with the formation of pannus.The microscopic changes are as under;

1.Numerous folds of large villi of synovium.

2.Marked thickening of the synovial membrane due to oedema ,congestion,and multi layering of synoviocytes.

3.Intense inflammatory cells infilterate in the synovial membrane with predominance of lymphocytes,Plasma cells and some macrophages at places forming lymphoid follicles forming nodules with scattered cells.

4.Foci of fibrinoid necrosis and fibrin deposition.

The pannus which encroaches the articular cartilage from its periphery.It progressively destroys the underlying articular cartilage and subchondral bone.The invasion of pannus results in demineralisation and cystic resorption of underlying bone.

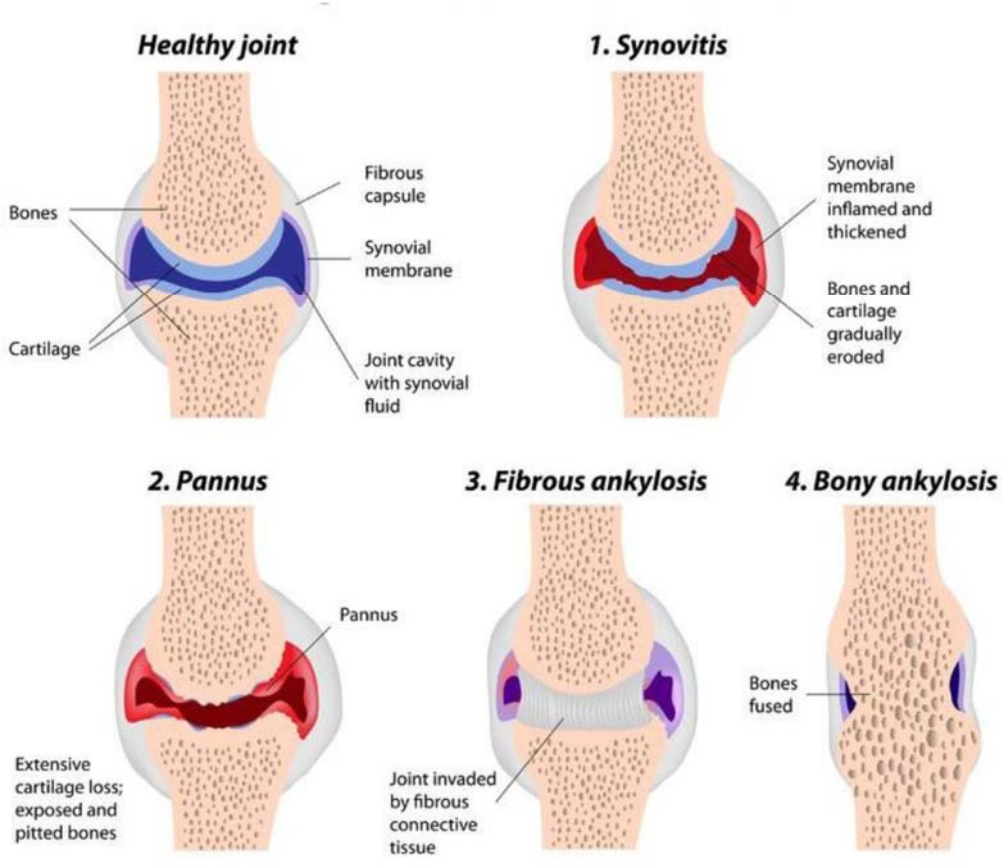
3.Third stage-Deformity:

During the healing process ,the extending granular pannus becomes fibrous uniting the two opposing joint surfaces and causing a fibrous ankylosis and later on bony ankylosis.The muscles and soft tissues around the joint also undergo inflammatory changes in the collagen tissues and get atrophied.In addition, persistent inflammation causes weakening and even rupture of tendons.

Ligaments are involved leading to joint subluxation or dislocation.Juxta –articular osteoporosis occurs.

Not all patients progress through all three stages.Some patients may have mild disease and recover,while others may suffer from chronic disease with crippling deformities.

CHART NO. 3.3 : STAGES OF RA



Clinical features:

- Morning stiffness is very characteristics sign of rheumatoid arthritis.
- It usually involves small joints of the hands and feet and then symmetrically affects the joints of wrists,elbows,ankles and knees.
- The proximal interphalangeal and metacarpo phalangeal joints are affected most severely.
- It is a chronic disease with periodic acute exacerbations and remissions.
- Bilateral symmetric polyarthritis is also a characteristic feature.
- There is joint line tenderness and the movements are painful and limited.

HISTOPATHOLOGY:

SYNOVIUM:

The synovium serves as an important source of nutrients for cartilage .Since cartilage itself is avascular.

Synovial cells synthesise joint lubricates such as ,

Hyaluronic acid

Collagens

Fibronectin

1.Synovial lining or intimal layer-greatly hypertrophied

2.Sub intimal area of synovium-the sub intimal area is heavily infiltered with inflammatory cells,including T and B lymphocytes,macrophages,mast cells, and mononuclear cells that differentiate into multinucleated osteoclasts.

3.Cartilage:-In RA , type II collagen ,proteoglycans its integrity,resilience and water content all are impaired .

4.Bone: Composed ,primarily of type I collagen ,bony destruction is a characteristics of RA

Hand and wrist deformity:

Rheumatoid nodules are particularly found in the subcutaneous tissue over the pressure points such as elbow hand ,occiput,sacrum .The centre of these nodules consists of an area of fibrinoid necrosis and cellular debris surrounded by radially dispersed palisade of local histiocytes.

- Ulnar drift
- Intrinsic plus deformity
- Boutonniere or button hole deformity
- Swan neck deformity
- Elbow flexion deformity
- Z deformity or hitch
- Morrants bakers cyst
- Trigger finger

CHART NO. 3.4 : DEFORMITIES OF RA

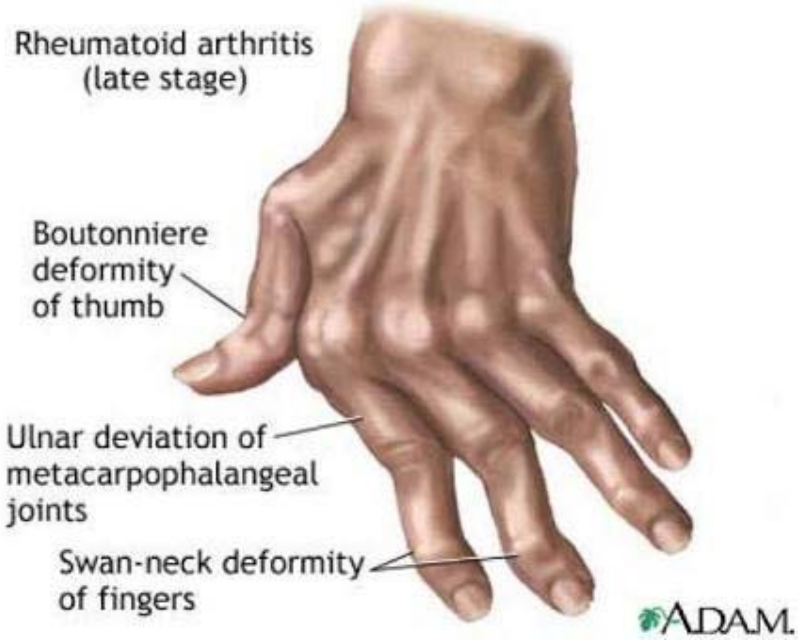
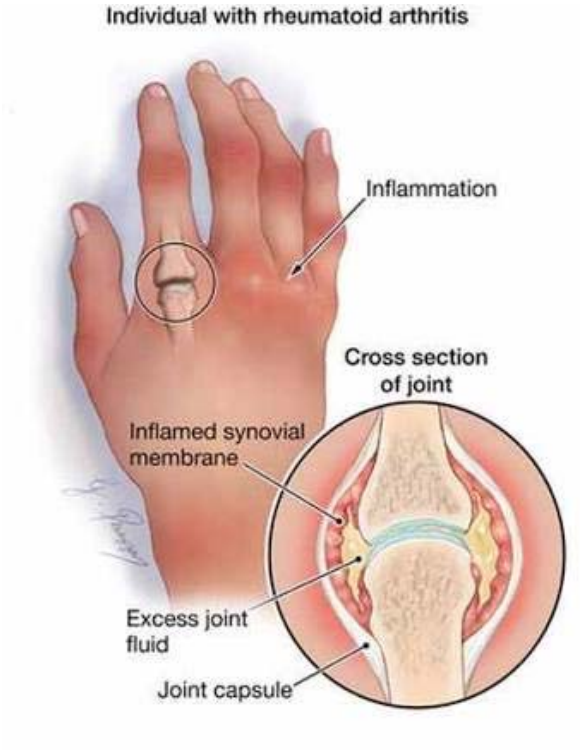


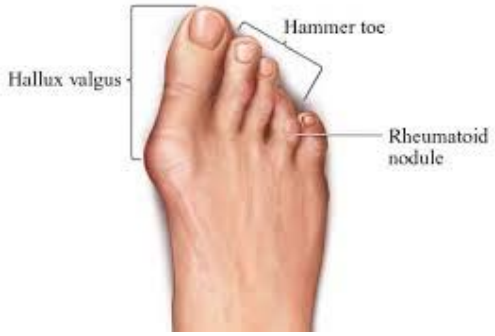
CHART NO. 3.5 : PAIN AND SWELLING IN MCP JOINTS



Ankle and toe's deformity:

- Atrophy of plantar metatarsal fat pad
- Achilles tendinitis
- Claw toes
- Calcaneal erosions
- Callosity under pressure
- Bunion
- Hallus valgus
- Hammer toes
- Plantar callosity
- Excessive plantar tilt of meta tarsals
- Flattening of longitudinal arch
- Prominent meta tarsal head
- Over riding of 2 and3 toes

CHART NO. 3.6 : DEFORMITIES OF RA

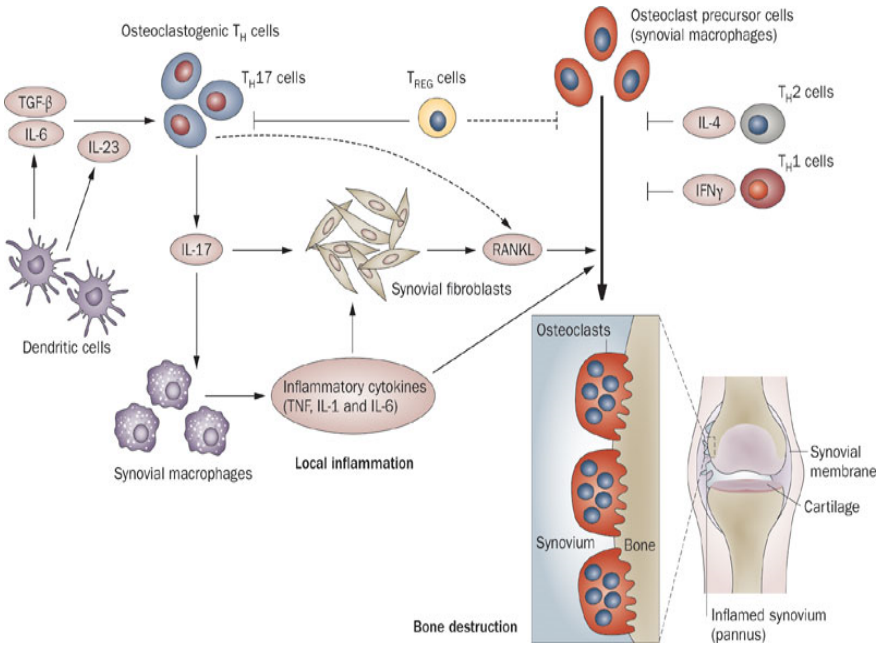


Non specific inflammatory changes are seen in the blood vessels (acute vasculitis),lungs pleura ,pericardium ,myocardium, lymph nodes,peripheral nerves and eyes.

The combination of bone deformity and swallon inflammatory tissue can prees on the spinal cord ,leading to ischeamia and widespread neurological consequences affecting all four limbs,bowel ,bladder function , or the respiratory muscles and centres in the brain stem that control respiration ,potentially resulting in death.

IMMUNOPATHOGENESIS:

CHART NO. 3.7 : IMMUNOPATHOGENESIS OF RA



ONSET:

Insidious-70%,Oligoarticular-44%,polyarticular-35%,Palindromic-5%

Insidious:

RA devolps insidiously over weeks or months with gradually increasing joint involvement.

Polyarticular onset:

The number of joints involved is highly variable but almost always the process is eventually polyarticular,involving five or more joints.Occasionally ,patients experience an explosive polyarticular onset occurring over 24-48 hours.

Palindromic onset:

Patients with RA persistant joint diseases, in which patients describe swelling in one or two joints that may last a few days to weeks then completely go away,later to return in the same or other joints ,with a pattern increasing over time.

Joints which are affected are as follows :

- Proximal interphalangeal joints -85%
- Meta carpo phalangeal joints -70%
- Wrists -70%
- Elbow -70%
- Knees -80%
- Ankles -65%
- Meta tarso phalangeal joints -30%

Non articular manifestations:

- Pulmonary interstitial fibrosis -3%
- Episcleritis -1%
- Sjogren’s syndrome-2%
- Pleural effusion -1%

Extra articular manifestations:

Skin:

- Palmar erythema
- Pyoderma gangrenosum
- Hyperhidrosis in extremities
- Raynaud's phenomenon
- Painless non-tender sub cutaneous nodules
- Non healing ulcers in the fingers
- Vasculitis of nail beds and tip of the finger

Eyes:

- Scleritis due to the granuloma formation
- Scleromalacia perforans
- Aneamia
- Cornea band keratopathy

Ineffective production of erythropoiesis and the RBC is reduced due to the production of hemosiderin in the reticulo endothelial system.

Respiratory system:

- Recurrent pleural effusion
- Intersitial fibrosis
- Caplan's syndrome
- Crico arytenoid arthritis is seen –dyspnoea,stridor.
- Pneumonia
- Pneumothorax
- Intersitial fibrosis

Cardio vascular system:

- Pericarditis
- Aortic regurgitation and conduction defect.
- Myocardial infarction (due to coronary vasculitis)
- Endocarditis

Nervous system:

- Symmetrical poly neuropathy
- Carpel tunnel syndrome
- Tarsal tunnel syndrome
- Wrist drop
- Foot drop

Orthopaedics:

- Juxta articular osteoporosis is seen
- Osteomalacia

Sjogren's syndrome:

- Xerostomia
- Kerato conjunctivitis in association with connective tissue disorder.

Felty 's syndrome:

- Rheumatoid arthritis
- Spleenomegaly
- Leucopenia

Gastrointestinal system:

- Dysphagia
- Parotid enlargement

Muscles:

- Myopathy(steroid,chloroquine)
- Tenosynovitis
- Weakness and atrophy

Rheumatoid vasculitis:

- Mono neuritis multiplex
- Cutaneous ulceration
- Visceral infarction

Still's disease:

RA is occuring in children it is characterised by mono or polyarthritis,fever,maculopapular rash,hepatosplenomegaly,lymphadenopathy,leucocytosis.The joint deformity is rare but growth retardation is present.

Diagnosis:

The essential criteria laid down by the American Rheumatism Association(ARA) for the diagnosis of RA are as follows;

1.Morning stiffness more than 1 hour

2.Arthritis of three or more joints areas observed by physician simultaneously ,have soft tissue swelling or joint effusion not just bony overgrowth.

3.Arthritis of hand joints: Wrists, metacarpo phalangeal joints, proximal interphalangeal joints.

4.Symmetric arthritis

5.**Rheumatoid nodules:** Subcutaneous nodules over bony promimences,extensor surfaces,or juxta articular surfaces observed by physician.

6.Serum rheumatoid factor demonstration by any method for which the result has been positive in less than 5% of normal control subjects.

7.**Radiographic changes :** Typical changes of RA on posteroanterior band and wrist radiographs which will show erosions or unequivocal bony decalcification localised in or most marked adjacent to the involved joints.

Differential Diagnosis:

- Ankylosing spondylitis
- Systemic lupus erythematosus
- Reiter's disease
- Osteoarthritis
- Gout and pseudo- gout
- Tuberculous arthritis
- Pyogenic arthritis
- Psoriatic arthritis
- Gonorrheal arthritis
- Haemophilic arthritis

Laboratory investigations:

1.Complete blood count:

- Aneamia
- Thrombocytosis
- Increased ESR

2.Increased acute phase proteins(CRP)

3.Increased plasma visciosity

4.Serum protreins

- Decreased albumin
- Increased gammaglobulins
- Increased IgG ,IgM,IgA

5. **Serological tests:**

Rheumatoid factor-It is detected IgM by,

A**.Rose Waaler test**- It is more specific and is said to be positive when more than 1:32

B**.Latex test:**It is sensitive and less specific and said to be positive when more than 1:20.

6.**Synovial fluid analysis:**

- Turbidity
- Reduced viscosity
- Increased proteins
- Normal or decrease glucose concentration
- Increased polymorph count

7.Synovial biopsy and histological examination

8.Arthroscopic examinations to evaluate damage to articular cartilage.

9.Antinuclear antibodies is positive in 20 to 50%

10.Antibodies to CCP(cyclic citrullinated polypeptide).This test has similar sensitivity and better specificity for RA.

11.Radiological features of RA

Early:

- Soft tissue swelling
- Periarticular osteopenia
- Periosteitis
- Erosions-periarticular and articular

Later:

- Narrowed joint spaces is caused by loss of cartilage
- Juxta –articular erosion
- Articular surface irregularity
- Subluxation
- Large cystic erosions of bone
- Ankylosis

Ultrasound and MRI imaging has improved the sensitivity of detecting joint damage earlier in diseases.

Ultrasound may detect synovitis,effusions, and erosions, in addition to Doppler providing estimates of ongoing inflammation.

MRI may show inflammatory synovitis that enhances with Gadolinium and shows early erosions

Arthroscopy- Synovium oedematous ,diffusely erythematous,and friable and later the synovium becomes thickened.

Computerised tomography

Scintigraphy.

Renal biopsy-reduced tubular or glomerular filteration rate

Pulmonary biopsy-to distinguish rheumatoid nodules from carcinoma or to find out the diagnosis of fibrosing alveolitis.

Management:

The treatment of this chronic crippling condition needs the team work of rheumatologist,ortho-paedic surgeon,physiotherapist,occupational therapist and social worker to provide compre-hensive management.The patient and his relatives must

understand the condition fully and be well motivated to cooperate with the treatment which has to be prolonged.

The aim of the treatment is to

- Relieve pain
- Keep the inflammatory process down to a minimum,
- Preserve joint motion
- Maintain the tone of muscles,
- Prevent deformities and stiffness of joint,
- Correct deformities

General treatment

It is important to correct anaemia by haematinics and even blood transfusion may be neccessary.A nutritious diet with a high intake of vitamin c is very essential for these patients.

Conservative Treatment

The inflamed joint is kept at absolute rest by splinting the joint in the position of function.Physiotherapy is given during the acute phase. Active joint mobilisation and muscle strenthening exercise are also prescribed.

Drug Therapy

The drug used are as follows:

1.Non-steroidal anti-inflammatory drugs

2.Disease modifying anti rheumatoid drugs

3.Steroids

4.Cytotoxic drugs

5.Newer drugs

Sugical Treatment:

- The role of surgery is mainly reconstructive or rehabilitative.
- Synovectomy
- Osteotomy

Arthroplasty:

Excision arthroplasty

Replacement arthoplasty

Foods that may worsen RA symptoms:

Red meat – contain high level of saturated fat and omega -6 fatty acids which can exacerbate inflammation.

Sugar and refined flour:Sugary snacks and drinks,white flour bread and pasta,white rice.

Fried foods and gluten, a protein found in grains such as wheat,rye,and barley and alchohol.

REVIEW OF LITERATURE

DRUG REVIEW-INTERNAL

HYDRAGYRUM:

Mercury is a heavy ,silver metallic element that exists as a liquid at room temperature.

ATOMIC SYMBOL: Hg

ATOMIC NUMBER:80

ATOMIC WEIGHT:200.592g/mol

ODOR: Odorless

BOILING POINT 657◦F

MELTING POINT:- 8◦F

SOLUBILITY:Insoluble

DENSITY: 3.55 at 68◦F

BLOCK-d-block

- Mercury occurs in deposits throughout the world mostly as cinnabar(mercuric sulphide)
- The red pigment vermilion is obtained by grinding natural cinnabar or synthetic mercuric sulphide.
- Mercury does not react with most acids,such asdilute sulphuric acid,and it reacts with solid sulphur flakes,which are used in mercury spill kits to absorb mercury.

Amalgams:

- Mercury dissolves many other metals such as gold and silver to form amalgams.
- Mercury readilycombines with aluminium to form a mercury-aluminium amalgam.

- Mercury can be absorped through the skin and mucous membranes and mercury vapors can be inhaled,so containers of mercury are securely sealed to avoid spills and evaporation.
- The tobacco plant readily absorbs and accumulates heavy metals such as mercury from the surrounding soil into its leaves.

Effects of mercury poisoning:

Symptoms typically include sensory impairment,disturbed sensation and a lack of coordination

இரசம்

வேறுபெயர்:

- சூரியவிரோதி
- பக்கிரம்
- பதினெண்பந்தி
- ஈசன்
- விண்மருந்து
- பாரதம்
- சிந்தூரம்

செய்கை:

- வீக்கமுருக்கி
- உடல்தேற்றி
- உடல்உரமாக்கி
- மலம்போக்கி

பொதுகுணம்:

விழிநோய் கிரந்தி குன்மம் மெய்ச்சூலை புண்குட்

டழிகாலில் விந்துவினால் அத்தை-வழியாய்

புரியு விதியாது புரியினோ யெல்லாம்

இரியு விதியாது மில்லை."

SULPHUR:

- Sulphur is a chemical element with symbol of "S" and atomic number 16.
- It is an abundant multivalent non –metal
- Sulphur is the third most abundant mineral in the body about half concentrated in our muscles, skin, and bones and is essential for life.
- It is widely distributed in close proximity to hot springs and volcanoes.
- It is an essential nutrient and therefore cannot be synthesized by the human body and instead must be obtained from the diet.
- Sulphur is not present as an isolated element in the body, the primary placement of sulphur in the human body is in the sulphur containing amino acids.(SSA)
- Methionine , cysteine, and taurine are the sulphur containing amino acids.
- The human body composed of 0.2-0.3%sulphur
- Sulphur is the sixth most abundant macro-mineral in human breast milk.
- Generally, proteins contain about 1%sulphur by weigh.

Physical properties:

Color: Pale yello ,non metallic

Phase : Solid

Crystalline structure &forms: Rhombic, Amorphous and prismatic

Odour: Odourless

Taste: Tasteless

Solubility: Insoluble in water

Boiling point: 444.6

Conductivity: A poor conductor of heat and electricity.

Viscosity:Upon melting, sulphur is converted into a mobileYellow liquid

Chemical properties

Chemical formula: S

Compounds: Hydrogen sulphide,sodium sulphide

Oxidation : Sulphur dioxide,sulphur trioxide

Reactivity:It is a chemically reactive especially upon heating,sulphur reacts with meals.

Bio chemical functions:

- Cellular energy production&metabolism.
- Maintainingblood glucose levels.
- Protects nerve tissue-Synthesis neurotransmitters,improves memory
- Antioxidant protection-scavenges or neutralizes free radicals and recycles oxidized Anti oxidants.

Blood flow: Produces both blood clotting factors as well as anti coagulants.

Joint health:

- Production of glycosamineglycan’s (GAGS)
- Chondroitin sulphate and hyaluronic acid

Detoxification: By means of conjugation and chelation.

Digestion: Production of hydrochloric acid

Regulation of DNA replication and transcription

Formation of skin hair and nails.

Proper immune response:

Enhancing proliferation of lymphocytes,cytotoxic T cell and NK Cells.

Supports healthy lipoprotein balance: Cholesterol,HDL,LDL

Lungs: Protects against mucous formation in lungs.

Eyes: Decrease cataract development.

Dietary requirements and sources:

There is no specific dietary requirements for sulphur.Adequate intake of sulphur containing essential amino acid methioninewill meets the body needs. Food proteins rich in methionine and cystiene are the sources of sulphur.

Metabolism of sulphur:

- Sulphur is metabolised by all organisms,from bacteria plants and animals.
- Sulphur is reduced or oxidized by organisms in a variety forms.
- The elements is present in proteins, nucleic acid, sulfates, esters of polysacchrides, steroids, phenols,sulphur containing co- enzymes.

Role of sulphur in Rheumatoid arthritis:

- Sulfasalazine is a drug used in the treatment of rheumatoid arthritis and some other auto immune conditions.
- It helps with pain and swelling and also slow the progression of arthritis over time.
- Sulfasalazine is also known as a disease modifying anti rheumatic drug(DMARDs), because it not only decrease the pain and swelling of arthritis,but also prevent damage to joints.
- It may reduce the risk of long term loss of function.

கந்தகம்:

- 64 பாடாணங்களில் ஒன்று.

வேறுபெயர்:

- காரிழையின் நாதம்
- பரைவீரியம்
- செல்விவிந்து
- தேவியுரம்
- செந்தூரதாதி
- சக்திபீஜம்
- இரசசுரோணிதம்
- பொன்வர்னி
- அதீதபிராகசம்
- பீஜம்

வகைகக்கள்:

- பிறப்பு கந்தகம்
- வைப்பு கந்தகம்
- வாணகெந்தி
- கோழிதலைகெந்தி

சுவை:

- கைப்பு
- துவர்ப்பு

செய்கை:

- உடல்தேற்றி
- வியர்வைபெருக்கி
- மலமிளக்கி
- கிருமிநசினி
- பித்தனீர்பெருக்கி

பேதம்:

- வெண்மை- எல்லா நோய்கலையும் தீர்க்கும்
- பொன்மை-குற்றமற்றது.சூதகத்துடன் உறவாகி நிற்பது
- கிளிமூக்குச்சிவப்பு-நவலோகத்தை ஏமம்மாக்கும்
- காகம்-நரைதிரை அற்றுபோம்.

பொதுகுணம்:

நெல்லிக்காய்க் கந்திக்கு நீள்பதினெண் குட்டமந்தம்

வல்லைகவிசை குன்மம்வாயு கண்ணோய்-பொல்லா

விடகடிவன் மேகநோய் வீறுசுரம் பேதி

திடக் கிரகணீகபம் போந்தேர்.

சிறப்பு:

"செந்தூரத் தனக்காதி சிலை கெந்தி தாளகமும்"

செந்தூரம் செய்வதற்குக் கந்தகம் உபயோகம் ஆகும்.

ZINC SULFATE(PAAL THUTHAM):

It is an inorganic compound and dietery supplement. As a supplement it is used to treat zinc deficiency and to prevent the condition in those at high risk.The total content of zinc in an adult body is about 2g.PROSTATE GLAND is very rich in Zn(100mg|g). Zin is an intracellular element.

IUPAC NAME: Zinc sulphate.

Other names: White vitriol ,Goslarite

Properties: Chemical formula: $ZnSo4$

Molar mass: 161.47g/mol(anhydrous)

179.47 g/mol(monohydrate)

287.53g/mol(hepatahydrate)

Appearance : White powder

Odour: Odourless

Density:3.54g/cm

Melting point: 680.c (1,256.F; 953 K) Decomposes

Boiling point: 740.c (1,360. F; 1,010 K) Decomposes.

Solubility in water: 57.7g/100ml,(anhydrous 20.c)

Solubility: Alcohols

Refractive index ( ]□):1.658

Dietary Requirements: Adult: 10-15mg/day.

It is increased in pregnancy and lactation.(by about 50%)

Sources:

Meat, Fish, eggs, milk, beans & nuts,.

Biochemical functions:

- Zinc sulphate is an essential component of several enzymes.(e.g)- carbonic anhydrase, alkaline phosphatise, alchohol dehydrogenase, carboxy peptidase, super oxide dis mutase (SOD)
- Zinc may be regarded as an antioxidant since the enzyme superoxide dismutase (Zn containing)protects the body against free radical damage.
- The storage and secretion of insulin from the beta cells of pancreas require Zn.
- Its plays a major role to maintain the normal levels of vitamin A in serum.
- It promotes the synthesis of retinol binding protein.
- It is required for wound healing.It enhances cell growth and division ,besides stabilizing bio membranes.
- GUSTEN, a Zinc containing protein of the saliva,it is important for taste sensation.

SERUM Zn:

- The concentration of Zn in serum is about 100mg/dl.
- Erythrocytes contain higher content (1.5mg/dl)which is found in association with the enzyme carbonic anhydrase.

Absorption:

It is mainly absorped in the proximal jejunum and distal duodenum.Zn from the animal sources is better absorbed than the vegetables sources.Zn absorption appears to be dependent on a transport protein.

Transport protein:

Metallothionein

Its absorption is hampered by the presence of Phytate, calcium, copper and iron interfere while small peptides and amino acids promotes Zn absorption.

PATHOLOGIC CONDITIONS:

- Zinc deficiency is associated with growth retardation ,poor wound healing, anaemia loss of taste sensation, etc…
- It may result in depression, dementia, and other psychiatric disorders

MEDICINAL USES:

- Zn is a divalent cation, is an essential micronutrient for humans and also plays an important role in maintaining immune status, and wound repair via regulation of DNA and RNA polymerases, thymidinekinase, and ribonuclease.
- It maintains macrophage and neutrophil functions ,Natural Killer cells activity and complement activity.
- It activates natural killer cells and phagocytic function of granulocytes and stabilize the plasma subcellular membranes especially the LYSOSOMES.
- It inhibits the expression of integrins by keratinocytes and modulates the production of inflammatory mediators like nitric oxide.
- While about half of the total body Zn is in the bones,the skin contains nearly 6%of total body Zn .As a movement of zinc across various tissues is limited and there is no storage depot ,the continuous external supply of zinc is important for metabolic needs, growth,and connective tissue repairing.
- It also has anti inflammatory, immunomodulatory ,immunostimulatory activities.
- It has also been demonstrated to decrease the serum levels of TNF α and inhibit the TNF α induced apoptosis of peripheral blood mononuclear cells that helps in controlling the disease activity and reactional states.

பால்துத்தம்

வேறுபெயர்:

- வெள்ளைத்துத்தம்,
- மடல்துத்தம்,
- நாகஉப்பு,
- வெள்ளீயஉப்பு

செய்கை:

- உடல்உரமாக்கி
- துவர்ப்பி
- இசிவகற்றி

பொதுகுணம்:

முற்றிய குறிப்புண் முறைவிரண சென்னிதனைப்

பற்றி னின்றவாதம் படர்கரப்பான்-சுத்தவிழிக்

காசங் கணம்பில்லங் கண்ணோய் குத்தந் தொலையும்

வாசமிகு துத்தத்தால் வாழ்த்து

MIRABILIS JALAPA:

BOTANICAL NAME: Mirabilis jalapa

FAMILY NAME: Nyctaginaceae

SYNONYMS: Four o’clock flower , marvel of peru’

MORPHOLOGY:

It grows bushy, tender, perennial that can be grown from either a tuber or seeds. Leaves are opposite, slightly pointed oval leaves and multi branching stems.

CHEMICAL CONSTITUENTS:

Eight betaxanthins, Rotenoids (mirabijalone A,B,C and D,9-0-methyl -4-hydroxyboeravinone B) can be isolated from the roots .Analysis of the methanolic extract of the aerial parts yields β-sitosterol, stigmasterol, ursolic acid ,oleanolic acid and brassicasterol

ACTIONS: Diuretic, Purgative, vulnerary (wound healing) purposes, anti arthritis

MEDICINAL USES:

- The leaves are used to reduce inflammation, pain and cures all types of joint diseases.
- The root is believed an aphrodiasiac as well as diuretic and purgative.
- A decoction of them (boiling and mashing) is used to treat abscess.
- Leaf juice may used to treat wounds.
- The plant has a potential for bioremediation of soils polluted with moderate concentrations of heavy metals such as cadmium, mercury, lead etc.....
- It is used in the treatment of anaemia and dropsy

DRUG REVIEW

2. EXTERNAL MEDICINE

எருக்கு:

BOTANICAL NAME: Calotrophisgigantea

FAMILY NAME: Asclepiadaceae.

SYNONYMS: அருக்கன்

MORPHOLOGY:

It is a large erect shrub grows upto 4m in height .Leaves are exstipulate, simple and opposite decussate. Horn like appendages towards the outside known as staminal corona.

CHEMICALCONSTITUENTS:

Calotropin, calotoxin, calactin, gigantin, giganteol & uscharin.

ACTIONS: Alterative, Analgesic, Laxative stimulant.

பொதுகுணம்:

எலிவிடங் குட்டமைய மேறு கிருமி

வலிசூலை வாயுவிட மந்தம் மலபந்தம்

எல்லாமகலு மெருக்கிலையைக் கண்டால்

வில்லார் நுதலே! விளம்பு.

MEDICINAL USES:

The leaves of C.gigantiaare used for the treatment of poisonous snake bites, periodic fever.

Latex of this plant is used to cure dental problems, rat bite swelling, gonococcal arthritis, and rheumatoid arthritis.

The latex is applied to soften the outer skin portion while removing thorns, it is commonly used on fresh cuts to stop bleeding and have been used as anti-inflammatory agent in folk medicine.

The siddha physician considers this plant as vegetable mercury. Flora buds or petals are medicinally used in asthma.

சதுரக்கள்ளிஇலை:

BOTANICAL NAME: Euphorbia antiquorom

FAMILY NAME: Euphorbiaceae

SYNONYMS: திருவாற்கள்ளி

MORPHOLOGY:

It is largest armed tree with cactus like in appearence 5-7cm thick,green glabrous branching from upper parts, The odour of its latex is pungent and irritating.

CHEMICAL CONSTITUENTS:

Glutinol, stigmasterol, taraxerol, tri-o-methlellagic acid, friedelanol, trimethoxylcoumarin, antiquarian,antiqual A and B, Sitosterol

ACTIONS: Antiarthritic, Anti inflammatory, Anodyne, stomachic, purgative &emetic

பொதுகுணம்:

“வாத முடக்கலும்வங்கிரந்தி குட்டம்போஞ்
சீதமொழி யுங்கிருமி சேருமோ மாதே!
பருபக்க நோயுடனே_பாழ்ங்கரப்பான்றீருந்
திருகுக்கள்ளிப் பாலாற் ரேளி

MEDICINAL USES:

Euphorbia antiquorom traditionally used in inflammatory disorders such as Rheumatism, and Gout, to relieve pain in rheumatism and toothache, in nervine diseases. The juice is acrid, anti-inflammatory, deobstruent, purgative and useful in dropsy, neuropathy, deafness, cough and cutaneous disease. The milk of E. antiquorom reduced joint swelling. It also induce diarrhea.

பிரண்டை:

BOTANICAL NAME: Cissus quandrangularis

FAMILY NAME: Vitaceae

SYNONYMS: வஜ்ஜிரவல்லி, SETTER, devil, S backbone adament creeper

MORPHOLOGY:

It is perennial plant of the grape family.it reaches 1.5mheight and has quadrangular sectioned branches with internodes 8-10 cm long. It is low growing shrub four sided stem, climbing plant. numerous tendrils grow out of the plants nodes.

CHEMICAL CONSTITUENT:

Two isomeric ketosteroids, quercetin, resveratrol, friedelin β-sitosterol,

ACTIONS:

Alterative, stomachic, anti-rheumatism, anti oxidant, analgesic, Antiulcer and antihaemorrhoids

பொதுகுணம்:

பிரண்டையைய் யால்வறுத்துப் பின்னரைத் துமாதே
வெருண்டிடா தேற்றுவிழுங்கில்–அரண்டுவரும்.
மூலத் தினவடங்கும் மூலவி ரத்தமறும்
ஞாலத் தினுள்ளே நவில்.

MEDICINAL USES:

It is a traditional medicine for joint and bone health as well asvarious feminine disorders and bone growth rates.It increasing bone mass and accelerating fracture healing rates which gives it the traditional name BONESETTER.

Cissus may have muscle relaxing properties. It extracts standardized to2.5%ketosteroids has shown biological activity in humans.

Oral intake doses suggesting an enhancement of GABAa signaling.There appears to be a concentration dependent increase in the secretion of insulin-like growth factors in osteoblasts at aconcentration range feasible to occur following oral ingestion.

Collagen synthesis has been noted to be increased in osteoblasts. It can promote the proliferation and differentiation and may influence the promotion of mesenchymal stem cells into osteoblasts.

பற்படாகம்:

BOTANICAL NAME: Mollugocerviana

FAMILY NAME: Molluginaceae

SYNONYMS: சீதம் பற்பாடம், [illegible] carpetweed.

MORPHOLOGY:

It is an annual herb producing a thin, erect stem upto about 20cm tall with slender, cylindrical stems, branches umbellate the nodes are thickened. The seeds are numerous smooth,yellowish brown,without tubercular points. The narrow, waxy leaves are upto1.5cm long, linear in shape arranged in whorls around the stem.

CHEMICAL CONSTITUENTS: Flavone-c-gycoside, orientin, and vitexin

ACTIONS: Antiseptic,febrifuge,diaphoretic,anti-rheumatism,antiseptic,aperient.

பொதுகுணம்:

சீதவாதச் சுரமுந்தீராத தாகமும் போம்

போதவிரு கண்குளிரும் பொய்யலவே பூதலத்துள்

வற்பார் பயித்தியமுமாபித்த முந்தொலையும்

பற்பாடகத்தை யுன்னிப் பார்)

MEDICINAL USES:

It is an effective herb used in reduced fever (flowers and tender shoots) stimulating the gastric juices(plant)to cures gastritis, diarrhoea, excessive thrist etc.. gout and rheumatism(root).An infusion of the plant promoteslochial discharge and is considered a cure for gonorrhea.The root is mixed with gingely oil and it is boiled to apply over the affected area to reducing the pain and swelling,and very effective for all arthritic diseases.

மெருகன்கிழங்கு:

BOTANICAL NAME: Alocasiaindica

FAMILY NAME: Araceae

SYNONYMS: உலக்கை கந்தபுட்பி முசலம்

MORPHOLOGY:

Alocasia is a genus of broad —leaved rhizomatous or tuberous perennials from the family of araceae.The large cordate or sagittate leaves grow to length of 20-90cm on long petioles.The stem(a corm)is edible, but contains raphide crystals of calcium oxalate along with other irritants(possibly a protease)

CHEMICAL CONSTITUENTS:

A Mixture of triglochinin and isotriglochinin and hydrolyzing enzymes.The plant also contains a flavones and a saponin and petioles contain up to 0.018%of HCN.A Glycoprotein lectin, hemaagglutinin,is present in the rhizome. It also contains glucose,fructose, a phytosterol-like compound and an alkaloid.The tubers and roots have high contents of soluble oxalates in the form of acicular crystal.

ACTIONS: Anti-vadha, febrifuge and deobstruent

பொதுகுணம்:

மெருகன்கிழங் கதுதான் மேகத்தைப் போக்கும்

துருவுகுன்ம மூலந்துடைக்கும் –பெருமீனள

அத்திசுரம் ஐயறுக்கும் அங்கம் குளிர்விக்கும்

அத்திமுலைமாதே அறி.

MEDICINAL USES:

It is used in inflammation, and the rootstock is cooling, mild laxative and diuretic, useful in piles, habitual constipation, inflammation, rheumatism, leprosy, anasarca, jaundice, diseases of spleen.

The ash of the rootstocks mixed with honey is used in cases of aphthae.The leaf juice is astringent. Merugulli oil is intake of daily morning before to known the stamina and take internally it will effective for RHEUMATOID ARTHRITIS, osteoarthritis, gonococcal arthritis and swelling and chronic ulcers are cured.

நேர்வாளம்:

BOTANICAL NAME: Croton tiglium

FAMILY NAME: Euphorbiaceae

SYNONYMS: வாளம் சோபி நாகணம்

MORPHOLOGY:

It is evergreen tree having a height of 15-20 feet. Leaves are 2 to 4 inch in length, shiny and smooth to touch, ovate in shape and are dentates. It is monoceous. Seeds are ovate in shape bearing brown colour. These are 1/2 to 2/3 inch in length and are very similar to that of riccinus sativa seeds. Pulps of the seeds is reddish brown in color with sticky appearance.

CHEMICAL CONSTITUENTS: Crotonosides, croton oil glycosides and Toxoalbumin

ACTIONS: Purgative, rubefacient, cathartic anthelmintic and stimulant

பொதுகுணம்:

எந்தவியாதி யினங்களையும் சாடிமல

பந்தவினனயைப் பரிபரித்து –வந்தவெப்பை

பாபியென மாட்டுதலால் பாடாண வெம்மையினும்

சோபி மகசோபியென்று சொல்.

MEDICINAL USES:

It is very helpful in chronic constipation and indigestion related problems. It improves circulation in the body.It is also a good anti-inflammatory agent.It is uses in poisoning cases.It is also applied on the scalp as it is helpful in re-growth of hairs.Its oil is used in eyes related problems.

சேராங்கொட்டை:

BOTANICAL NAME: Semecarpusanacardium

FAMILY NAME : Anacardiaceae

SYNONYMS: வல்லாதி, ஏரிமுகி, நந்திவித்து, Marking nut ,ballataka

MORPHOLOGY:

Medium sized trees with rough dark, brown bark. Leaves are simple, obovate-oblong, cordate at base. Drupe globose,black

CHEMICAL CONSTITUENTS:

semecarpel, catechol, cardol, anacardal, anacardic acid, Nuts contains biflavonesbinaringenin, tetrahydrobutafavone, nut shell contain biflavonone semecarpuflavanone, semecapetin, kernel contains semidrying oil & glycosides

ACTIONS:

Alterative, anti-vadha, caustic, Anti inflammatory, Anti -carcinogenic

பொதுகுணம்:

குட்டங்கயரோகங்கொல்லும்விடபாகந்
துட்டந்தருகிருமிசூலையும்போம்மட்டலருங்
கூந்தன்மயிலேகிரந்திக்கூட்டம்போசெங்கையில்
ஏந்துசேங்கொட்டைதனனயே.

MEDICINAL USES:

Fruit used in ascitis, rheumatism, asthma, neuralgia,epilepsy and psoriasis and also warts and tumors .It has antiatherogenic activity. It shows such antioxidant property and it has capacity to scavenge the superoxide and hydroxyl radicals at low conc.The nuts extracts showing significant anti inflammatory activity for both immunological and non immunological origin and inhibit the proinflammatorycytokienes production.

ஏள்:

BOTANICAL NAME: SESSAMUM INDICUM

FAMILY NAME: Pedaliaceae

SYNONYMS: திலம்

MORPHOLOGY:

It is an annual plant growing 50-100cm tall with opposite leaves 4-14cm.Typically the seeds are about 3-4mmlong by 2mm wide and 1mm thick.The seeds are ovate,slightly flattened.

CHEMICAL CONSTITUENTS:

It contains lignanssesamolin, sesamin, pinoresinol and lariciresinol Oleic acid and palmitic acid

ACTIONS: Demulcent,emollient , Nutritive and Tonic .

பொதுகுணம்:

எள்ளுமருந்தைக்கெடுக்கும்எறனலாந்திண்மைதரும்
உள்ளிலையைச்சேர்க்கும்உதிரத்தைத் –தள்ளுமிரு
கண்ணுக்கொளிகொடுக்குங்காசமுண்டாம்பித்தமுமாம்
பண்ணுக்கிடர்புரியும்பார்.

MEDICINAL USES:

Sesame oil has been used in various disorders for anxiety, nerve and bone disorders, poor circulation, lowered immunity and bowel and skin problems.

Sesame seeds may improve the condition of patients with rheumatoid arthritis

MATERIALS AND METHODS

SELECTION OF DRUGS:

I have selected the trial drug **"RASA CHENDHURAM"**(Int)for this study from classical siddha literature **"Sigicharathnadeepam**" and **Roga sanjeevi thylam**(Ext) from, " **Therayar thylavarga surukkam"**

The raw drugs were purchased from the raw drug shop R.N. Rajan&co paris.After proper authentication by the pharmacognist,siddha central research was made.

4.1 Before Purification

4.2 Brick with turmeric powder

Grinding and purification

4.3 squeezing method

4.4 After purification

Purification of Mercury:

Mercury is grinded along with brick powder and turmeric powder each for about one hour and is washed with pure water and mixed with the juice of Acalyphaindica and ignited well until it detoxify

4.5 Before purification

4.6 Melting sulphur

4.7 Gandhagam poured into milk

4.8 After Purification

Purification of sulphur:

Sulphur is placed in an iron spoon(the iron spoon is lined with cow's butter and the spoon is heated till the sulphur melts,thismixure is immersed in inclined position in cow's milk.This procedure is repeated for 30 times to get purified sulphur.Each time ,fresh milk is to be used

4.9 Before purification

4.10 After purification

Purification of sulphate of zinc:

70 gm of sulphate of zinc is dissolved in 70ml of viniger(old rice fermented water)for 3days and isolated .

4.11 Mirabilis jalapa-yellow variety juice

4.12 Ignited chendhuram

4.13 Grinding chendhuram

4.14 Grinding chendhuram

4.15 End product of Chendhuram

PREPARATION OF THE INTERNAL DRUG RASA CHENDHURAM

INGREDIENTS:

P.Rasam (Mercury) - 70gm

P.Gandhagam (Sulphur) -70gm

P.Paalthutham (Sulphate of zinc) - 70gm

Mirabilis jalapa-Q.S

- The flower juice of the yellow variety of *Mirabilis jalapa* is to be grinded well with the above mentioned raw drugs in the stone mortar for 6 hours(2 saamam) till the juice and the drugs gets spreaded well in the mortar on all sides.Then it is to be collected using the spatula without any wastage. Next the collected medicine is to be placed in a mud jar and is closed with a proper lid and sealed up tightly with 7 layers of mud pasted cloth.After the sealing is dried, the mud jar is placed in the vaalugaendiram.Then it is to be ignited with kamalakini for 6 hours (2 saamam) then for kaadakini for next 6 hours. Then it is to be left aside for the whole night to allow it to cool. Then the settled medicine is to be collected safely and placed in the mortar for grinding to get a fine chendhuram. Then it is to be collected and placed in a air tight container.

DOSAGE : 122-244 mg (twice daily)

ADJUVENT : Honey

INDICATION : All types of fever, 80 types of vadham**.**

DURATION: 48 days(1 mandalam)

EXTERNAL MEDICINE:

ROGA SANJEEVI THYLAM:

Earukkuilai(*Calotropisgigantea)* :175gm

Kattusathurakalli (*Euphorpiaantiquorum*) :175gm

Pirandai(*Cissusquadrangularis)* :175gm

Parpadagam (*Mollungacerviana)* :175gm

Merugankizhangu(*Alocasiaindica*) :175gm

Serangkottai(*Semecarpusanacardium)* :175gm

Purified valaparupu(*Croton tiglium*) :17.5gm

Goat milk :1575gm

Gingellyoil(*sesamumindicum*) :350gm

4.16 CALOTROPHIS GIGANTEA

4.17 EUPHORPIA ANTIQUORUM

4.18 CISSUS QUADRANGULARIS

4.19 MOLLUNGA CERVIANA

4.20 ALOCASIA INDICA

4.21 SEMECARPUS ANACARDIUM

4.22 CROTON TIGLIUM

4.23 RAW DRUGS DECOCTION

4.24 DECOCTION MIX WITH OIL

4.25 THEN MIX THE JUICE

4.26 And mix the goat milk

4.27 Roga Sanjeevi Thylam

PREPARATION:

- ✓ The juice and latex of ***calotropisgigantea*** and ***euphorbia antiquorum*** and the juice of ***cissusquadrangularis ,Hedyotiscorymbosa***decoction,and the decoction ***Alocasiaindica***each are collected in the equal ratio palam 5(175gm).Then gingelly oil of palam 10(350gm) and goats milk palam45(1575gm) are mixed together with the above mentioned juices .And the cut pieces of ***semecarpusanacardium*** and the purified ***croton tiglium*** are mixed together with the above oil .And heated to deepakini until it attains its consistency then the end product is filtered and to be collected.

INDICATIONS:

Vadharogam, Swasarogam, Magaavadharogam

EXTERNAL THERAPHY

External theraphies in siddha system are broadly classified under 32 categories.External theraphies are assuming great importance ,since they are safe and efficient though being drugless.Theraphies are aimed at maintain a healthy balance of the three humours, and nourishment of the sapta thathus

OTTRADAM -FOMENTATION

Fomentation is a type of heat external theraphy is applied to the skin to release swelling or pain so as to alleviate the deranged vadha disease by bringing in fresh energy by improving cutaneous circulation and neural conductivity.

Ottradam or fomentation:

The substances like lime powder,bran,brick powder,egg-shell,leaves of medicinal plants like nochi(vitex negundo),erukku(calotrophis gigantea),amanakku(Riccinus communis) etc are tied in a cloth as a bundle.This medicated bundle is heated and applied over the affected area.

Ottradam is given to the patients with the complaints of contusion and other swelling it is also used in certain dermatological conditions.

Ottradam is the application of hot or cold packs of substances like medicinal leaves,pulses,cereals,rice and **wheat husk,** etc…,on or around the affected part,this warm application induces fomentation ,or sweating which helps to disperse aggrevated doshams in the affected area and dilating all body channels for cleansing.

This type of treatment is very effective for vatham ailments(Arthritis) and painful conditions like muscle cramps ,bone disorders etc…

PROCEDURE:

Roga sanjeevi thylam is to be applied first over the affected area.

Then the husk of the wheat is to be tied as a bundle,i.e(kizhi).

The kizhi is heated by placing on the heated pan.

Then the heated kizhi is used to give ottradam.

Repeat the same for 7 more times.

While giving Ottradam theraphy to my patients I observed that,there is remarkable reduction of pain ,swelling, and morning stiffness since my medicated oil (Roga sanjeevi thylam), contain anti-vatha property herbs.Comparing group I and group II subjects the patients who are all comes under group II had good improvement than group I

STANDARDIZATION PARAMETERS:

Traditional way of testing chendhuram:

Colour:

Dark red in colour without any shiny appearance

Taste and odour:

Tasteless and odourless

Luster:

Did not regain luster on heating again at same temperature

Floating on water:

Sample floats on water. Did not immediately immersed in water

Finger furrows test:

Impinged in the papillary ridges when the sample rubbed in between index finger and thumb

PHYSICOCHEMICAL ANALYSIS

Determination of Moisture Content (Loss on drying)

Procedure set forth here determines the amount of volatile matter (i.e. Water drying off from the drug). For substances appearing to contain water as the only volatile constituent, the procedure given below, is appropriately used.

Place about 10 g of drug (without preliminary drying) after accurately weighing (accurately weighed to within 0.01 g) it in a tarred evaporating dish. For example, for underground or unpowered drug, prepare about 10 g of the sample by cutting shredding so that parts are about 3 mm in thickness.

Seeds and fruits, smaller than 3mm should be cracked. Avoid the use of high speed mills in preparing samples, and exercise care that no appreciable amount of moisture is

lost during preparation and that the portion taken is representative of the official sample. After placing the above said amount of the drug in the tarred evaporating dish dry at 105o for 5 hours, and weigh. Continue the drying and weighing at one hour interval until difference between two successive weighing corresponds to not more than 0.25 %. Constant weight is reached when two consecutive weighing after drying for 30 minutes desiccator, show not more than 0.01 g difference.

Determination of Total Ash

Incinerate about 2 to 3 g accurately weighed, of the ground drug in a tarred platinum or silica dish at a temperature not exceeding 450o until free from carbon, cool and weigh. If a carbon free ash cannot be obtained in this way, exhaust the charred mass with hot water, collect the residue on an ash less filter paper, incinerate the residue and filter paper, add the filtrate, evaporate to dryness, and ignite at a temperature not exceeding 450o. Calculate the percentage of ash with reference to the air-dried drug.

Determination of Water Soluble Ash

Boil the ash for 5 minutes with 25 ml of water, collect insoluble matter in a Gooch crucible or on an ash less filter paper, wash with hot water, and ignite for 15 minutes at a temperature not exceeding 450o. Subtract the weight of the insoluble matter from the weight of the ash; the difference in weight represents the water-soluble ash. Calculate the percentage of water-soluble ash with reference to the air-dried drug.

Determination of Acid Insoluble Ash

Boil the ash obtained in total ash for 5 minutes with 25 ml of dilute hydrochloric acid, collect the insoluble matter in a Gooch crucible or on an ash less filter paper, wash with hot water and ignite to constant weight. Calculate the percentage of acid-insoluble ash with reference to the air dried drug.

Determination of pH Values

The pH value of an aqueous liquid may be defined as the common logarithm of the reciprocal of the hydrogen ion concentration expressed in g, per liter. Although this definition provides a useful practical means for the quantitative indication of the acidity or alkalinity of a solution, it is less satisfactory from a strictly theoretical point of view.

No definition of pH as a measurable quantity can have a simple meaning, which is also fundamental and exact.

The pH value of liquid is determined potentiometric ally by means of the glass, electrode and a suitable pH meter.

METHOD

Operate the PH meter and electrode system to the manufacturer's instruction. Standardize the meter and electrodes with 0.05 M potassium hydrogen phthalate (pH 4.00) when measuring an acid solution, or with 0.05 M sodium borate when measuring an alkaline solution. At the end of a set of measurement, take a reading of the solution used to standardize the meter and electrodes. The reading should not differ by more than 0.02 from the original value at which the apparatus was standardized. If the difference is greater than 0.05, the set of measurements must be repeated. The pH/ e.m.f. relationship of the particular glass electrode in use must be checked. The PH/follows; standardize with 0.05 M sodium borate. When the reading is higher by 0.02 or more, or over by 0.05 or more then the appropriate value in the Table, correct the PH values of all solutions measured on that day, assuming the e.m.fog the glass electrode cell to be linearly related to the PH value of the solution which it contains. Unless otherwise stated all solution must be brought to laboratory temperature prior to measurement. Whilst the PH/temperature coefficient of 0.5 M potassium hydrogen phthalate may be neglected that of 0.05 M sodium borate must be taken into account in accordance with the value given in the table. When measuring PH values above 10.0 make sure that the glass electrode is suitable for use at the alkaline and of the PH scale and apply any correction that is necessary

Solutions from PH 4.0 to 6.2 are prepared by mixing 50 ml of 0.2 M boric acid-potassium chloride with the quantities of 0.2 N sodium hydroxide, specified in the following table, and diluting with freshly boiled and cooled water to produce 200 ml;

S.NO	pH	ml of 0.2 N sodium hydroxide
1	4.0	0.40
2	4.2	3.70
3	4.4	7.50
4	4.6	12.15
5	4.7	17.70
6	4.9	20.35
7	5.0	23.85
8	5.1	29.95
9	5.2	26.95
10	5.3	35.45
11	5.4	26.45
12	5.6	39.95
13	5.8	43.00
14	6.0	45.45
15	6.2	47.00

Physico chemical analysis of RASA CHENDHURAM:

Table-1- Physico chemical analysis of RCM:

Name of the Experiment	Value
Loss on Drying (at 105◦ C)	0 %
Total ash	100 %
Water Soluble Ash	24.5 %
Acid Insoluble Ash	55.11 %
pH Value (10%)	3.07 %

HEAVY METAL ANALYSIS :

Table - 2-Heavy metal analysis of RCM

Heavy metal	Procedure	Observations
Mercury	1. Add 5ml of hydrochloric acid to little substance, precipitate appears 2. Then boil the precipitate with water. It does not dissolves add sodium hydroxide solution . heat it and filter	No Black precipitaion appears.
Lead	1.add 2ml of potassium chormate to salt solution.	No yellow precipitate appears.
Arsenic	To 10 drops of solution. Add 6ml NH_3 untilneutral.make the solution acidic b adding one or more drops of 6 M HCL. Add 1 ml of thioacetamide and stir well. Heat the test tube in the boiling water bath for 5 minutes	No red orange precipitate Or No Yellow or brown precipitates appears.
Cadmium	Add 2ml of solution, add 1 ml NaOH, add 1ml of distal water and add 1 ml of Hcl	No Yellow precipitates appears.
Chromium	To 10 drops of solution, add 1ml of 3% H_2O_2 then add 6M NaOH dropwise untill the solution is basic. Heat in a boiling water bath for a few minutes	No yellow solution of CrO_4^2 form.

TOXICOLOGICAL STUDY:

ACUTE ORAL TOXICITY STUDY OF *RASA CHENDHURAM*

(OECD GUIDELINE – 423)

Introduction:

- The acute toxic class method is a stepwise procedure with the use of 3 animals of a single sex per step.
- Depending on the mortality and/or the moribund status of the animals, on average 2-4 steps may be necessary to allow judgement on the acute toxicity of the test substance.
- This procedure is reproducible, uses very few animals and is able to rank substances in a similar manner to the other acute toxicity testing methods.
- The acute toxic class method is based on biometric evaluations with fixed doses, adequately separated to enable a substance to be ranked for classification purposes and hazard assessment.
- In principle, the method is not intended to allow the calculation of a precise LD50, but does allow for the determination of defined exposure ranges where lethality is expected since death of a proportion of the animals is still the major endpoint of this test.
- The method allows for the determination of an LD50 value only when at least two doses result in mortality higher than 0% and lower than 100%.
- The use of a selection of pre-defined doses, regardless of test substance, with classification explicitly tied to number of animals observed in different states improves the opportunity for laboratory to laboratory reporting consistency and repeatability.

Principle of the Test:

It is the principle of the test that based on a stepwise procedure with the use of a minimum number of animals per step, sufficient information is obtained on the acute toxicity of the test substance to enable its classification. The substance is administered orally to a group of experimental animals at one of the defined doses. The substance is tested using a stepwise procedure, each step using three animals of a single sex. Absence or presence of compound-related mortality of the animals dosed at one step will determine the next step, i.e.

− no further testing is needed

− dosing of three additional animals, with the same dose

− dosing of three additional animals at the next higher or the next lower dose level. The method will enable a judgment with respect to classifying the test substance to one of a series of toxicity classes.

Methodology:

Selection of Animal Species

The preferred rodent species is thewistar albino rat, although other rodent species may be used. Healthy young adult animals are commonly used laboratory strains should be employed. Females should be nulliparous and non-pregnant. Each animal, at the commencement of its dosing, should be between 6 to 8 weeks old and the weight (150-200gm) should fall in an interval within±20 % of the mean weight of any previously dosed animals.

Housing and Feeding Conditions

The temperature in the experimental animal room should be 22ºC + 3ºC. Although the relative humidity should be at least 30% and preferably not exceed 70% other than during room cleaning the aim should be 50-60%. Lighting should be artificial, the sequence being 12 hours light, 12 hours dark. For feeding, conventional laboratory diets may be used with an unlimited supply of drinking water. Animals may be group-caged by dose, but the number of animals per cage must not interfere with clear observations of each animals.

Preparation of animals:

The animals are randomly selected, marked to permit individual identification, and kept in their cages for at least 7 days prior to dosing to allow for acclimatization to the laboratory conditions

Test Animals and Test Conditions:

Sexually mature Female Wistar albino rats (150-200gm) were obtained fromTANUVAS,Madhavaram, Chennai.All the animals were kept under standard environmental condition (22±3°C). The animals had free access to water and standard pellet diet (Sai meera foods, Bangalore).

Preparation of animals:

The animals are randomly selected, marked to permit individual identification, and kept in their cages for at least 7 days prior to dosing to allow for acclimatization to the laboratory conditions

Preparation for Acute Toxicity Studies

Rats were deprived of food overnight (but not water 16-18 h) prior to administration of the, ***RASA CHENDHURAM***.

The principles of laboratory animal care were followed and the Institutional Animal Ethical Committee approved the use of the animals and the study design

IAEC approved number –IAEC/XL VIII 29/CLBMCP/2016

Test Substance	: **RASA CHENDHURAM**
Animal Source	: TANUVAS,Madhavaram, Chennai.
Animals	: Wister Albino Rats (Female-3+3)
Age	**:** 6-8 weeks
Body Weight on Day 0	**:** 150-200gm.
Acclimatization	**:** Seven days prior to dosing.
Veterinary examination	**:** Prior and at the end of the acclimatization period.
Identification of animals	**:** By cage number, animal number and individual marking by using Picric acid.
Numberofanimals	: 3 Female/group,
Route of administration	: Oral
Diet	**:** Pellet feed supplied by Sai meera foods Pvt Ltd, Bangalore
Water	**:** Aqua guard portable water in polypropylene bottles.
Housing & Environment	**:** The animals were housed in Polypropylene cages provided with bedding of husk.
Housing temperature	**:** between 22ºC $\pm$3ºC.
Relative humidity	**:** between 30% and 70%,
Air changes	**:** 10 to 15 per hour and
Dark and light cycle	**:** 12**:**12 hours.
Duration of the study	**:** 14 Days

Administration of Doses:

RASA CHENDHURAM was suspended in prescribed medium and administered to the groups of wister albino rats in a single oral dose by gavage using a feeding needle. The control group received an equal volume of the vehicle. Animals were fasted 12 hours prior to dosing. Following the period of fasting, the animals were weighed and then the test substance was administered. Three Female animals are used for each group. The dose level of 5 mg/kg body weight was administered stepwise. After the substance has been administered, food was withheld for a further 3-4 hours. The principle of laboratory animal care was followed. Observations were made and recorded systematically and continuously as per the guideline after substance administration. The visual observations included skin changes, mobility, aggressively, sensitivity to sound and pain, as well as respiratory movements. Finally, the number of survivors was noted after 24 hrs and these animals were then monitored for a further 14 days and observations made daily. The toxicological effect was assessed on the basis of mortality.

Observations:

Animals are observed individually after dosing at least once during the first 30 minutes, periodically during the first 24 hours, with special attention given during the first 4 hours, and daily thereafter, for a total of 14 days, except where they need to be removed from the study and humanely killed for animal welfare reasons or are found dead. It should be determined by the toxic reactions, time of onset and length of recovery period, and may thus be extended when considered necessary. The times at which signs of toxicity appear and disappear are important, especially if there is a tendency for toxic signs to be delayed. All observations are systematically recorded with individual records being maintained for each animal.

Observations include changes in skin and fur, eyes and mucous membranes, and also respiratory, circulatory, autonomic and central nervous systems, and somatomotor activity and behavior pattern. Attention was directed to observations of tremors, convulsions, salivation, diarrhoea, lethargy, sleep and coma. The principles and criteria summarized in the Humane Endpoints Guidance Document taken into consideration. Animals found in a moribund condition and animals showing severe pain or enduring signs of severe distress was humanly killed. When animals are killed for human reasons or found dead, the time of death was recorded.

REPEATED DOSE 28-DAY ORAL TOXICITY (407) STUDY OF *RASA CHENDHURAM*

Test Substance	: **RASA CHENDHURAM**
Animal Source	: TANUVAS,Madhavaram, Chennai.
Animals	: Wister Albino Rats (Male -24, and Female-24)
Age	**:** 6-8 weeks
Body Weight	**:** 150-300gm.
Acclimatization	**:** Seven days prior to dose.
Veterinary examination	**:** Prior and at the end of the acclimatization period.
Identification of animals	**:** By cage number, animal number and individual marking by using Picric acid
Diet	**:** Pellet feed supplied by Sai meera foods Pvt Ltd, Bangalore
Water	**:** Aqua guard portable water in polypropylene bottles.
Housing & Environment	**:** The animals were housed in Polypropylene cages provided with bedding of husk.
Housing temperature	**:** between 22ºC $\pm$ 3ºC.
Relative humidity	**:** between 30% and 70%,
Air changes	**:** 10 to 15 per hour
Dark and light cycle	**:** 12**:**12 hours.
Duration of the study	**: 28 Days.**

Methodology

Randomization, Numbering and Grouping of Animals:

48 Wistar Albino Rats (24M + 24F) were selected and divided into 4 groups. Each group consist of 12 animals (Male -6, and Female-6). First group treated as a control and other three group were treated with test drug (low, mid, high) for 28 days. Animals were allowed acclimatization period of 7 days to laboratory conditions prior to the initiation of treatment. Each animal was marked with picric acid. The females were nulliparous and non-pregnant.

Justification for Dose Selection:

As per OECD guideline three dose levels were selected for the study. They are low dose (X), mid dose dose (5X), high dose (10X). X is calculated by multiplying the therapeutic dose (195 mg) and the body surface area of the rat (0.018). i.e X dose is (5mg), 5X dose is 25mg/animal, 10X dose is 50mg/animal.

Preparation and Administration of Dose:

RASA CHENDHURAM suspended , It was administered to animals at the dose levels of X, 5X, 10X. The test substance suspensions were freshly prepared every two days once for 28 days. The control animals were administered vehicle only. The drug was administered orally by using oral gavage once daily for 28 consecutive days.

Observations:

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

Body Weight:

Weight of each rat was recorded on day 0, at weekly intervals throughout the course of study.

Food and water Consumption:

Food and water consumed per animal was calculated for control and the treated dose groups.

Clinical signs:

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

Mortality:

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

Necropsy:

All the animals were sacrificed by excessive anaesthesia on day 29. Necropsy of all animals

was carried out.

Laboratory Investigations:

Following laboratory investigations were carried out on day 29 in animals fasted over-night. Blood samples were collected from orbital sinus using sodium heparin (200IU/ml) for Bio chemistry and potassium EDTA (1.5 mg/ml) for Hematology as anticoagulant. Blood samples were centrifuged at 3000 r.p.m. for 10 minutes.

Haematological Investigations:

Haematological parameters were determined using Haematology analyzer.

Biochemical Investigations:

Biochemical parameters were determined using auto-analyzer.

Histopathology:

Control and highest dose group animals will be initially subjected to histopathological investigations. If any abnormality found in the highest dose group than the low, then the mid dose group will also be examined. Organs will be collected from all animals and preserved in 10% buffered neutral formalin for 24 h and washed in running water for 24 h. The organ sliced 5 or 6µm sections and were dehydrated in an auto technicon and then cleared in benzene to remove absolute alcohol. Embedding was done by passing the cleared samples through three cups containing molten paraffin at 50°C and then in a cubical block of paraffin made by the "L" moulds. It was followed by microtome and the slides were stained with Haematoxylin-eosin red.

Statistical analysis:

Findings such as body weight changes, water and food consumption, hematology and blood chemistry were subjected to One-way ANOVA followed by dunnet t test using a computer software programme – Graph pad version 7.All data were summarized in tabular form, (Table-6 to 12)

PHARMACOLOGICAL STUDY

IMMUNOMODULATOR ACTIVITY-CELL LINE STUDY

The evaluation of the immunomodulatory activity of Rasa chendhuram was carried out in cultured raw cell line in Biogenix Research Center.

DETERMINATION OF IN VITRO IMMUNOMODULATORY EFFECT OF EXTRACTS ON CULTURED RAW CELL LINES

RAW 264.7 cells will be grown to 60% confluence followed by activation with 1 µL lipopolysaccharide (LPS) (1µg/mL). LPS stimulated RAW cells were exposed with different concentration (25, 50, 100 µg/mL) of sample and incubated for 24 hours. After 24 hours of incubation the cells were digested and centrifugation was done at 6000 rpm for 10 minutes. Supernatant was discarded and cells were then resuspented in 200µl of cell lysis buffer (0.1M TrisHCl, 0.25M EDTA, 2M Nacl, 0.5 % Triton x-100). The samples were then kept at 4^0C for 20 minutes. After incubation, the immuno modulatory response was performed by estimating nitrite levels in the cell lysate.

Estimation of Cellular Nitrite Levels

The level of nitrite level was estimated by the method of Lepoivre et al. (Lepoivre et. al. 1990) To 0.5 mL of cell lysate, 0.1 mL of sulphosalicylic acid was added and vortexed well for 30 minutes. The samples were then centrifuged at 5,000 rpm for 15 minutes. The protein-free supernatant was used for the estimation of nitrite levels. To 200 µL of the supernatant, 30 µL of 10% NaOHwas added, followed by 300 µL of Tris-HCl buffer and mixed well. To this, 530 µL of Griess reagent was added and incubated in the dark for 10–15 minutes, and the absorbance was read at 540 nm against a Griess reagent blank. Sodium nitrite solution was used as the standard. The amount of nitrite present in the samples was estimated from the standard curves obtained.

ANTI INFLAMMATORY ACTIVITY:

The evaluation of the anti inflammatory activity of Rasa chendhuram was carried out in carrageenan induced paw edema models in wister albino rats.

Anti-inflammatory studies using RASA Chendhuram (RCM)

For the experiment, the animals were divided into 5 groups with 6 animals in each group.

- Group-I (control) received 3% gum acacia 10 ml/kg p.o.
- Group-II (Carageenan) received 0.1ml of 1% w/v suspension of carrageenan S.C
- Group-III (standard) received Indomethacin 40 mg/kg p.o.
- Group-1V(Test-1) received RCM20mg/kg p.o.
- Group-V(Test-2) received RCM 40mg/kg p.o.

All the drugs were administered orally and the volume of medicaments kept constant at 10 ml/kg body weight of the animals it was administered orally to rats 1 hrbefore subcutaneous injection of carrageenan. After 1 hr 0.1ml of 1% w/v suspension of carrageenan was injected into sub-plantar region of the left hind paw to all the groups. The paw volume was measured at 1, 2, 3, 4, and 5 hr using Plethysmometer (Model 7150 UGO Basile, Italy) Edema was expressed as the mean increase in paw volume relative to control animals

CLINICAL STUDY:

This study was conducted after getting approval from IEC(Institutional Ethical Committee, GSMC Chennai**.IEC No:GSMC-CH-ME-4/2015/013**. This study was also registered in Clinical Trail Registry of India **CTRI,Ref No/2017/04/014067** , this was done in post graduate department SirappuMaruthuvam,Government Siddha Medical College and Hospital,Arignar Anna Hospital Campus ,Arumbakkam ,Chennai -106.under the observation and guidance of Head of the department.

In this clinical study totally 40 cases was enrolled out of which 20 cases were treated with Internal and External drugs ,20 cases were treated with Internal and External drugs &Ottradam theraphy .

STUDY CENTER:

OPD of Arignar anna Government Hospital of Indian Medicine and Homeopathy Arumbakkam Chennai-106.

TRAIL DRUG:

Internal drug: Rasa chendhuram

External drug: Roga sanjeevi thylam

External theraphy: Ottradam

Study period: 48 days

Sample Size: 40 cases

20 cases treated with Internal and External drugs

20 cases treated with Internal and External drugs & Ottradam theraphy

SUBJECT SELECTION:

There is considerable number of patients reporting of Room no. 4, PG Sirappu Maruthuvaum OPD, Arignaranna govt. hospital, GSMC, with the symptom of inclusion criteria will be subjected to screening test and documented using screening proforma.40 patients who fulfilled the inclusion criteria were included for the study .

Patients criteria, clinical assessment, siddha assessment laboratory investigations, diagnosis and treatment aspect. In patients after the degree of palliation is achieved they were advised to visit OPD for further follow up selection were strictly subjected to protocol comprising selection .

INCLUSION CRITERIA:

- Age: 18-60 Years
- Sex: Both female & male (Female dominant disease)
- Anti CCP +ve
- RA factor +ve/ -ve

- Morning stiffness
- Low grade fever
- Pain and swelling in distal interphalangeal joints .
- Arthritis of more than 3 joints
- Spindle shape swelling

EXCLUSION CRITERIA:

KNOWN CASES OF

- Rheumatic fever
- Psoriatic arthropathica
- Gouty arthritis
- Systemic lupus erythematus
- Progressive systemic sclerosis (PSS)
- History of long term intake of steroids
- Any other serious illness
- Carries spine
- HIV
- Pregnant women and lactating mother
- Tumour
- Osteomyelitis
- Ankylosing spondylitis

WITHDRAWAL CRITERIA:

Intolerance to the drug and development of any serious adverse effect during drug trial. Patient turned unwilling to continue in the course of Clinical trial any other systemic illness.

ADR REPORTING:

If ADR is reported patients will be referred to SCRI (Peripheral Pharmacovigilance centre)

MODERN INVESTIGATION:

Blood:

- Hb,
- TC,
- DC,
- ESR,
- BloodSugar, (F)(PP).

Renal Function Tests:

- Urea,
- Creatinine.

Liver Function Tests:

- Serum total bilirubin,
- Direct bilirubin,
- Indirectbilirubin,
- Alkaline phosphatase,
- SGOT,
- SGPT.

Urine :

- Albumin,
- Sugar,
- Deposits.

X-Ray :

- Affected joints-AP and Lateral View.

Specific Investigation: Anti ccp

STUDY ENROLMENT:

Patient reporting at the OPD with symptoms of Anti CCP +ve , RA factor +ve/ -ve , Arthritis of more than 3 joints, Pain and swelling in interphalangeal joints, Spindle shape swelling , rheumatoid nodules are chosen for enrolment based on this inclusion criteria. The patient who are enrolled are informed about the trial drug, possible outcomes and objective of the study in the language and terms understandable to them and the informed consent would be obtained in the consent form.

CONDUCT OF THE STUDY:

Patients satisfying the inclusion and exclusion criteria will be included in the trial. Modern investigations will be carried out before treatment and at the end of the treatment. At the end of the study the trial patients are advised to report when there is recurrence.

DATA COLLECTION FORMS:

Required information will be collected from each patient by using following forms.

Form I : Screening and selection proforma

Form II : History taking proforma

Form III : Clinical assessment proforma

Form IV : Clinical assessment during and after trial

Form V : Laboratory investigation proforma

Form VI : Informed consent form

Form VII : Withdrawal form

Form VIII : Patients information sheet

DATA ANALYSIS:

After enrolling the patients in the study, a separate file for each patient will be maintained and all forms will be kept in the file. Whenever the patients visits OPD during the study period necessary entries will be made in the assessment forms. The data entries and adverse events if any will be monitored by the head of the department.

OUTCOME OF TREATMENT:

Primary Outcome:

- Primary outcome is mainly assessed by reduction in pain and inflammation of two joints,
- Reduction of Morning stiffness,
- Pain is assessed by visual pain analogue scale,
- By comparing the any two parameters before and after treatment ESR, Hb, Anti-CCP, RA factor

Secondary Outcome:

Secondary outcome is assessed by comparing the safety parameters before and after treatment

ETHICAL ISSUES:

- Informed consent will be obtained from the patients after explaining about the clinical trial in regional tongue.
- After the consent of the patient (through consent form) if they are in the inclusion criteria they will be enrolled in the study.
- Treatment will be provided free of cost.

- Concomitant medications will be given when required.
- Rescue medications will be given when needed.
- The patients who are excluded (as per exclusion criteria) are given proper treatment with full care at OPD.

RESULTS AND OBSERVATIONS

ORGANOLEPTIC CHARACTER:

Table of–1- Organoleptic characters of RCM

S.NO	CHARACTERS	RESULTS
1.	Color	Dark Red
2.	Odour	Odourless
3.	Taste	Tasteless
4.	Appearance	Fine Powder
5.	Solubility	Sparingly Soluble In Both Water And Alcohol

COLOUR OF THE INGREDIENTS BEFORE AND AFTER PURIFICATION

Table of-2-color of the ingredients in RCM before and after purification.

S.NO	RAW DRUGS	BEFORE PURIFICATION	AFTER PURIFICATION
1	**Rasam**	**Colourless,dust float over it**	**Colourless**
2	**Gandhagam**	**Yellow solid**	**Yellow granules**
3	**Paalthutham**	**Dirty white**	**White powder**

TRADITIONAL TESTING METHODS FOR CHENDHURAM

Table-3- Traditional testing method for Rasa chendhuram

S.NO	TESTS	INFERENCE
1.	Floating on water	+
2.	Finger furrows test	+
3.	Lusterless	+
4.	Tasteless	+
5.	Colour	Dark Red

INFERENCE:

Hence it provides the traditional way of testing the trail drug.

PHYSICO- CHEMICAL ANALYSIS OF RASA CHENDHURAM

Table –4- Physico chemical analysis of RCM

Name of the Experiment	Value
Loss on Drying (at 105◦ C)	0 %
Total ash	100 %
Water Soluble Ash	24.5 %
Acid Insoluble Ash	55.11 %
pH Value (10%)	3.07 %

INFERENCE:

LOD of RCM is 0% this shows that less value of moister content

Less water soluble ash 24.5% indicator of contamination and adulteration

Here the physico -chemical analysis well within the standard range this shows this drug is safe.

QUALITATIVE ANALYSIS OF HEAVY METALS

Table no- 5 - Qualitative Analysis of Heavy Metals

S.NO	HEAVY METAL	RESULT
1	LEAD	ND
2	MERCURY	ND
3	ARSENIC	ND
4	CADMIUM	ND

Acute oral toxicity study of RASA CHENDHURAM

Table 6: Dose finding experiment and its behavioral Signs of acute oral Toxicity

Observation done:

S NO	GroupCONTROL	Observation	S NO	GroupTEST GROUP	Observation
1	Body weight	Normal	1	Body weight	Normally increased
2	Assessments of posture	Normal	2	Assessments of posture	Normal
3	Signs of Convulsion Limb paralysis	Normal	3	Signs of Convulsion Limb paralysis	Absence of sign (-)
4	Body tone	Normal	4	Body tone	Normal
5	Lacrimation	Normal	5	Lacrimation	Absence
6	Salivation	Normal	6	Salivation	Absence
7	Change in skin color	No significant	7	Change in skin color	No significant color change
8	Piloerection	Normal	8	Piloerection	Normal
9	Defecation	Normal	9	Defecation	Normal
10	Sensitivity response	Normal	10	Sensitivity response	Normal
11	Locomotion	Normal	11	Locomotion	Normal
12	Muscle gripness	Normal	12	Muscle gripness	Normal
13	Rearing	Mild	13	Rearing	Mild
14	Urination	Normal	14	Urination	Normal

Behaviour:

The animals will be observed closely for behavior in the first four hours which includes abnormal gait, aggressiveness, exophthalmos, ptosis, akinesia, catalepsy, convulsion, excitation, head twitches, lacrimation, loss of corneal reflex, loss of traction, piloerection reactivity of touch, salivation, scratching, sedation, chewing, head movements, sniffing, straub, tremor and writhes, diarrhea, leathery, sleep and coma.

Body Weight:

Individual weight of animals was determined before the test substance was administered and weights will be recorded at day 1, 7, and 14 of the study. Weight changes were calculated and recorded.

At the end of the test, surviving animals were weighed and humanly killed.

Food and water Consumption:

Food and water consumed per animal was calculated for control and the treated dose groups.

Mortality:

Animals were observed for mortality throughout the entire period.

Results:

All data were summarized in tabular form, (Table-1-4) showing for each test group the number of animals used, the number of animals displaying signs of toxicity, the number of animals found dead during the test ,description of toxic symptoms,, weight changes, food and water intake

No of animals in each group:3

Table 7 (Observational study Results)

No	Dose mg/kg	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
1.	Control	+	-	-	+	-	+	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2.	5mg	+	-	-	+	-	+	-	-	-	-	-	-	-	-	-	-	-	-	-	-

1..Alertness 2. Aggressiveness 3. Pile erection 4. Grooming 5. Gripping 6. Touch Response 7. Decreased Motor Activity 8. Tremors 9. Convulsions 10. Muscle Spasm 11. Catatonia 12. Muscle relaxant 13. Hypnosis 14. Analgesia 15.Lacrimation 16. Exophthalmos 17. Diarrhea 18. Writhing 19. Respiration 20. Mortality.

(+ Present, - Absent)

RESULTS-SUB ACUTE TOXICITY

Repeated Dose 28- day oral toxic study of RASA CHENDHURAM

Table 8: Body weight of wistar albino rats group exposed to RASA CHENDHURAM

DOSE	DAYS				
	1	7	14	21	28
CONTROL	290.2±24.22	291.4 ± 14.24	291.5 ± 25.40	292.5± 35.46	292.4 ± 45.15
LOW DOSE	265.2 ± 46.14	265.4 ± 27.20	267.6± 66.74	268 ± 62.18	268.8± 54.34
MID DOSE	270.4± 04.24	270.3 ± 46.54	271.2± 68.16	271.4 ± 54.26	272.4 ± 64.70
HIGH DOSE	250.6± 64.94	250.6 ± 50.53	251.4 ± 52.44	251 ± 24.68	252 ± 74.60
P value (p)*	NS	NS	NS	NS	NS

NS- Not Significant, **(p > 0.01),*(p >0.05), n = 10 values are mean ± S.D (One way ANOVA followed by Dunnett's test)

Table 9: Water intake (ml/day) of Wistar albino rats group exposed to *RASA CHENDHURAM*

DOSE	DAYS				
	1	6	14	21	28
CONTROL	60.2 ± 1.21	60.6±6.12	62.2±4.10	62±4.12	64.6±1.32
LOW DOSE	62.1±1.10	62.6±2.42	62.9±1.72	63.2±6.86	64.4±1.54
MID DOSE	58.1±1.26	58.3±3.21	59.1±6.41	59.4±1.72	59.4±1.82
HIGH DOSE	54.1±1.41	54.2±1.42	54.4±1.44	54.6±1.52	55.8±2.82
P value (p)*	NS	NS	NS	NS	NS

N.S- Not Significant, **(p > 0.01), *(p >0.05), n = 10 values are mean ± S.D (One way ANOVA followed by Dunnett's test)

Table 10:Food intake (gm/day) of Wistar albino rats group exposed to *RASA* CHENDHURAM

DOSE	DAYS				
	2	7	23	22	28
CONTROL	36±4.12	36.2±3.12	37.3±2.84	37.2±1.41	38±2.43
LOW DOSE	38.2±1.41	38.3±1.13	38.1±1.21	39.5±1.23	39.5±1.26
MID DOSE	35.1±3.32	35.2±3.04	35.2±2.42	36.2±2.61	37.2±1.42
HIGH DOSE	37.1±1.32	37.1±1.41	37.6±2.62	38.2±1.10	39.6±3.42
P value (p)*	NS	NS	NS	NS	NS

N.S- Not Significant, **(p > 0.01), *(p >0.05), n = 10 values are mean ± S.D (One way ANOVA followed by Dunnett's test

Table 11: Haematological parameters of Wistar albino rats group exposed to *RASA* CHENDHURAM

Category	Control	Low dose	Mid dose	High dose	P value (p)*
Haemoglobin(g/dl)	15.8±0.68	15.60±0.84	15.8±0.26	15.92±0.65	N.S
Total WBC ($\times 10^3$ l)	8.71±0.32	8.75±0.26	8.68±0.27	8.60±1.22	N.S
Neutrophils (%)	29.22±0.01	30.02±0.10	31.11±1.12	32.02±1.02	N.S
lymphocyte (%)	58.12±1.32	58.12±1.12	58.10±2.33	58.20±2.62	N.S
Monocyte (%)	.06±0.02	.06±0.04	.06±0.01	.06±0.06	N.S
Eosinophil (%)	0.2±0.04	0.2±0.02	0.2±0.01	0.2±0.06	N.S
Platelets cells10^3/µl	543.14±3.43	543.41±4.12	544.13±4.0	545.12±2.54	N.S
Total RBC 10^6/µl	7.68±0.12	7.76±0.43	7.69±0.48	7.75±0.26	N.S
PCV%	49.42±0.2	49.42±1.12	49±1.22	49.60±2.21	N.S
MCHC g/dL	31.8±1.32	31.24±1.20	32.18±1.10	32.33±1.12	N.S
MCV fL(µm^3)	57.3±3.20	57.2±1.20	57.9±1.24	57.8±1.22	N.S

N.S- Not Significant, **(p > 0.01), *(p >0.05), n = 10 values are mean ± S.D (One way ANOVA followed by Dunnett's test.

Table 12 :Biochemical Parameters ofofWistar albino rats group exposed to *RASA* CHENDHURAM

BIOCHEMICAL PARAMETERS	CONTROL	LOW DOSE	MID DOSE	HIGH DOSE	P Value (p)*
GLUCOSE (R) (mg/dl)	105.14±8.2	105.16±4.10	106.02±11.10	106.12±6.2	N.S
T.CHOLESTEROL(mg/dl)	108.16±1.42	108.25±1.20	109.62±1.18	109.24±1.63	N.S
TRIGLY(mg/dl)	64.16±1.42	64.12±1.22	66.16±1.22	66.16±1.22*	N.S
LDL	69.6±2.13	69.12±2.34	69±1.32	69.24±12.12	NS
VLDL	13.4±1.32	13.42±4.24	13.24±2.84	13.54±14.16	NS
HDL	22.16±6.12	22.42±2.20	23.18±2.26	24.18±22.12	NS
Ratio 1(T.CHO/HDL)	4.61±1.12	4.62±1.24	4.64±1.14	4.64±2.30	NS
Ratio 2(LDL/HDL)	2.40±1.14	2.41±1.12	2.41±2.20	2.46±10.02	NS
Albumin(g/dL)	4.43±0.16	4.53±0.32	4.44±10.32	4.42±10.48	NS

NS- Not Significant,**(p > 0.01), * (p >0.05), n = 10 values are mean ± S.D (One way ANOVA followed by Dunnett's test)

Table 13: Renal function test of ofWistar albino rats group exposed to *RASA* CHENDHURAM

PARAMETERS	CONTROL	LOW DOSE	MID DOSE	HIGH DOSE	P Value (p)*
UREA (mg/dl)	21.30±0.99	21.20±0.36	21.16±1.18	21.48±1.21	N.S
CREATININE(mg/dl)	0.42±0.02	0.41±0.04	0.42±0.06	0.44±0.08	N.S
BUN(mg/dL)	14.1±0.11	14.10±0.60	14±0.32	14.46±1.12	NS
URIC ACID(mg/dl)	5.00±0.34	5.06±0.21	5.7±0.14*	5.62±0.26	N.S

NS- Not Significant, **(p > 0.01), * (p >0.05) , n = 10 values are mean ± S.D (One way ANOVA followed by Dunnett's test)

Table 14: Liver Function Test of ofWistar albino rats group exposed to RASA CHENDHURAM

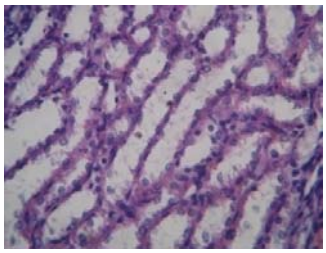
PARAMETERS	CONTROL	LOW DOSE	MID DOSE	HIGH DOSE	P Value (p)*
T BILIRUBIN(mg/dl).	0.03±0.03	0.03±0.02	0.04±0.02	0.04±0.04	N.S
SGOT/AST(U/L)	139.15±1.33	139.34±0.32	140.01±1.62	140.75±1.02	N.S
SGPT/ALT(U/L)	72.12±1.18	72.22±1.34	72.14±1.28	72.46±0.61	N.S
ALP(U/L)	129.22±3.16	129±12.14	130±14.04*	130.23±11.15*	N.S
T.PROTEIN(g/dL)	8.12±0.34	8.18±0.12	8.16±0.14	8.54±0.49	N.S

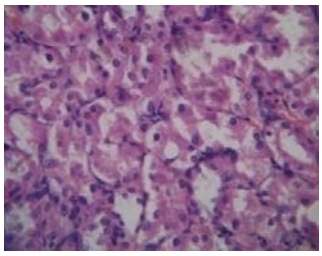
NS- Not Significant, **(p > 0.01), * (p >0.05), n = 10 values are mean ± S.D (One way ANOVA followed by Dunnett's test)

HISTO PATHOLOGY

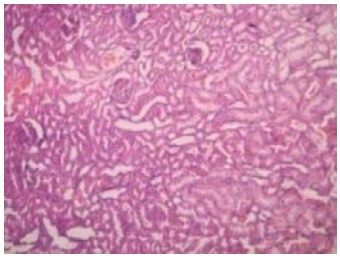
CONTROL GROUP **HIGH DOSE**

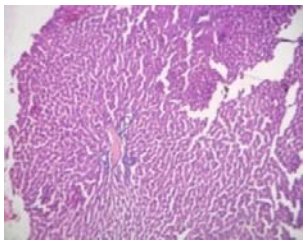
Kidney



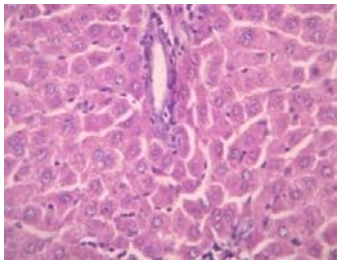


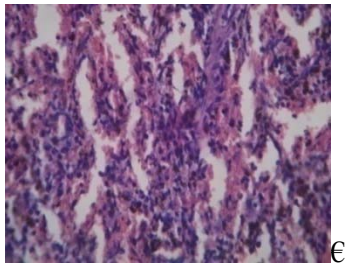
Liver





Spleen





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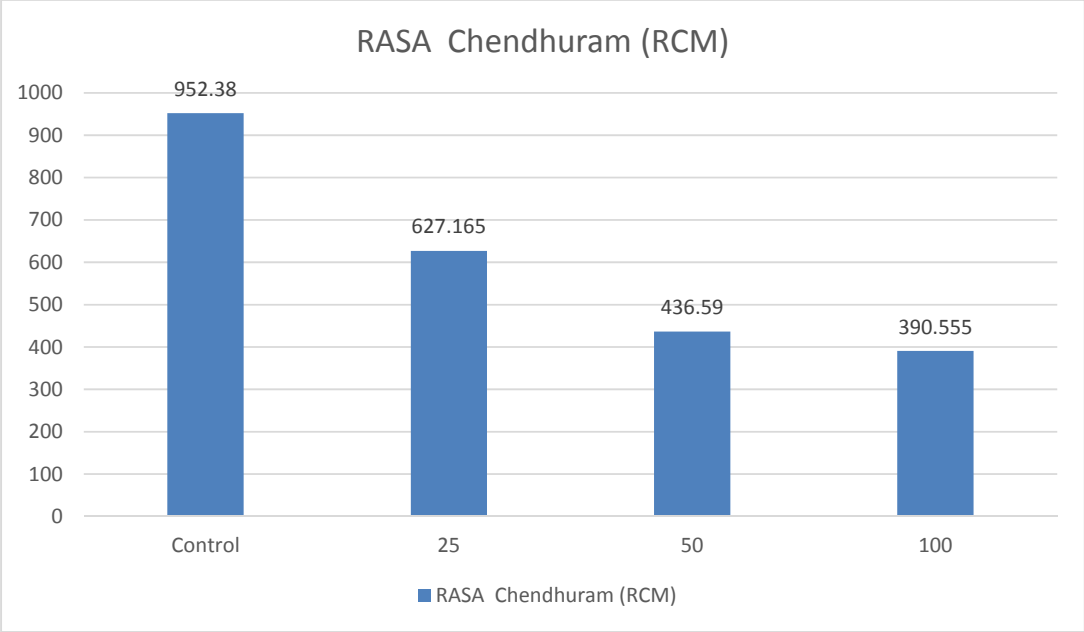
PHARMACOLOGICAL STUDY OF RCM:

SAMPLE : RASA CHENDHURAM(sikicharathnaDheepam)

Table-15 immunomodulator activity in RCM

Sample Concentration (µg/ml)	OD at 540nm	Concentration (µg)
Control	0.1924	952.38
25	0.1267	627.165
50	0.0882	436.59
100	0.0789	390.555

Chart I –immunomodulatory result of RCM



Standard – nitrite level

Table-- 16 standard nitrate level for immunomodulatory activity

Concentration (µg)	OD (540 nm)
100	0.021
200	0.42
300	0.06
400	0.08
500	0.17

INFERENCE:

While the concentration level is decreased, nitrate level increased. Hence 25µg/ml of RCM has rich level of nitrate and thus proven to be an Immumomodulator.

Anti-inflammatory studies using RASA Chendhuram (RCM)

For the experiment, the animals were divided into 5 groups with 6 animals in each group.

- Group-I (control) received 3% gum acacia 10 ml/kg p.o.
- Group-II (Carageenan) received 0.1ml of 1% w/v suspension of carrageenan S.C
- Group-III (standard) received Indomethacin 40 mg/kg p.o.
- Group-1V(Test-1) received RCM20mg/kg p.o.
- Group-V(Test-2) received RCM 40mg/kg p.o.

All the drugs were administered orally and the volume of medicaments kept constant at 10 ml/kg body weight of the animals it was administered orally to rats 1 hrbefore subcutaneous injection of carrageenan. After 1 hr 0.1ml of 1% w/v suspension of carrageenan was injected into sub-plantar region of the left hind paw to all the groups. The paw volume was measured at 1, 2, 3, 4, and 5 hr using Plethysmometer (Model 7150 UGO Basile, Italy) Edema was expressed as the mean increase in paw volume relative to control animals.

PAW EDEMA VOLUME-Table 17 Anti inflammatory in RCM

Group	Dose	Initial paw volume	Change in paw edema mm at different time intervals				
		0hr	1 hr	2hr	3hr	4hr	5hr
I	Control	1.20 ± 0.14	1.20±0.14	1.20±0.14	1.20±0.14	1.20±.14	1.20±0.14
II	Carrageenan	1.21± 0.17	1.91 ± 0.21	2.27 ± 0.02	2.37 ± 0.14	2.48 ± 0.18	2.62 ± 0.17
III	Indomethacin	1.01± 0.06	2.10 ± 0.26	1.56 ± 0.15	1.47 ± 0.05	1.34 ± 0.18	1.15 ± 0.16
IV	Low dose	1.34 ± 0.13	1.64 ± 0.32	1.74 ± 0.36	1.62 ± 0.64	1.54 ± 0.22	1.49 ± 0.32
V	High dose	1.32 ±0.44	1.92 ± 0.42	1.86 ± 0.54	1.66 ± 0.64	1.60 ± 0.28	1.40 ± 0.12

The paw volume up to the tribiotural articulation was measured at 0, 1, 2, 3, 4, 5 hrs

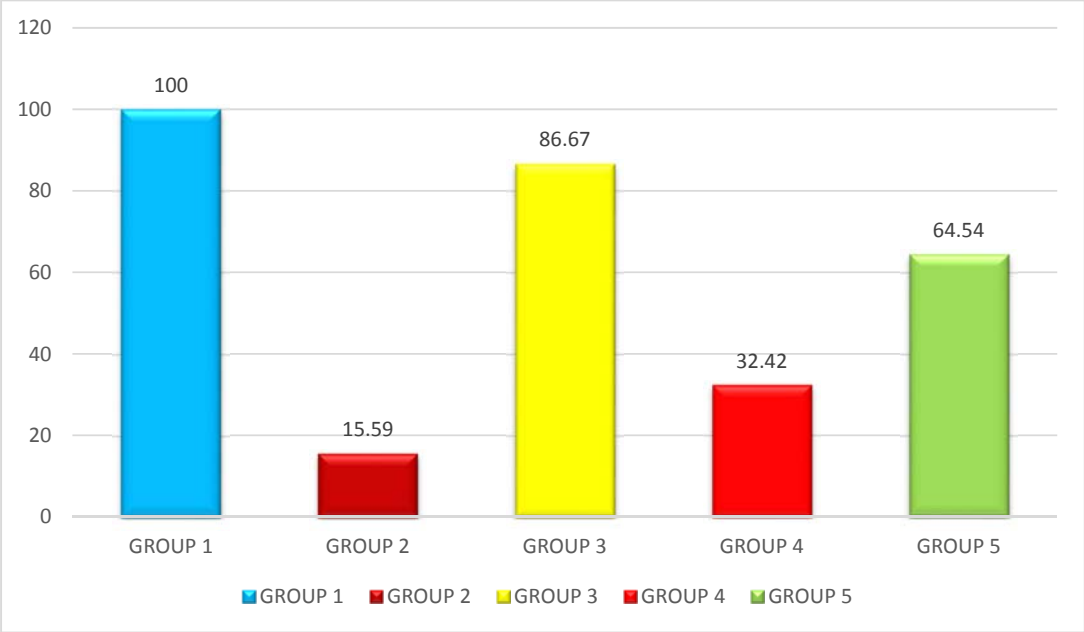
Group	**Initial paw volume**	**5 hr in mm**	**Difference in paw volume**	**Percentage protection**
I	1.20 ± 0.14	1.20±0.14	0.00	100
II	1.21± 0.17	2.62 ± 0.17	1.41	15.59
III	1.01± 0.06	1.15 ± 0.16	0.24	86.67
IV	1.34 ± 0.13	1.49 ± 0.32	0.15	32.42
V	1.32 ±0.44	1.40 ± 0.12	0.08	64.54

Percentage protection is calculated by the formulae: $(T_2---T_1/T_2)x\ 100$

T_1----normal control

T_2----drug treated test

CHART -2 Anti inflammatory results of RCM

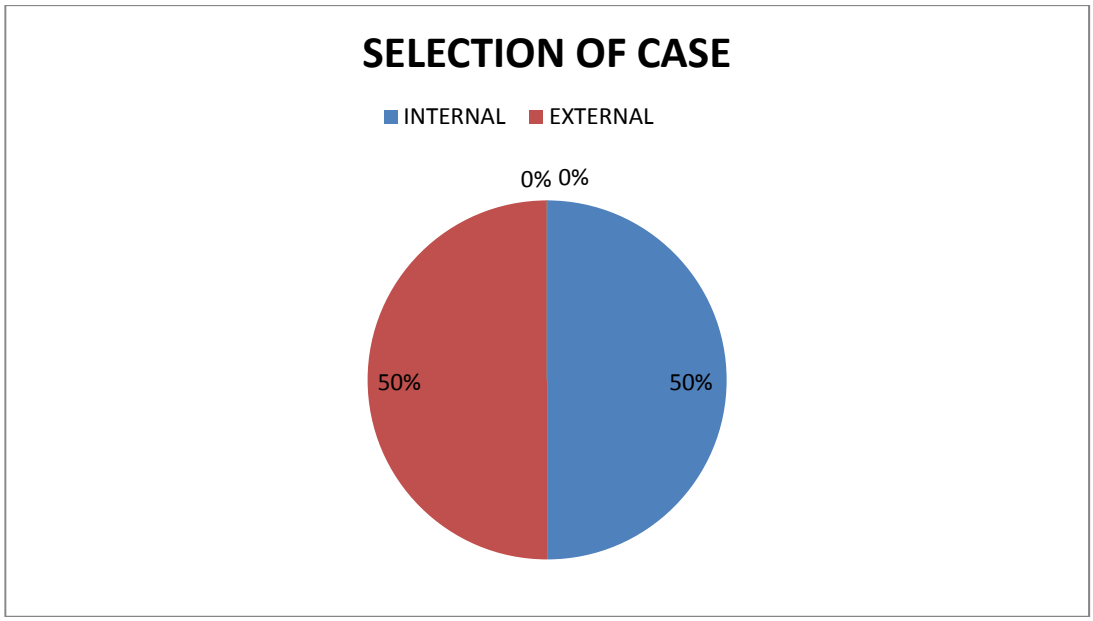


SELECTION OF CASE :

Table- 18 Selection of cases

S NO	SELECTION OF CASES	NO OF PATIENTS	PERCENTAGE %
1	INTERNAL AND EXTERNAL	20	50%
2	INTERNAL AND EXTERNAL & OTTRADAM THERAPHY	20	50%

Chart –3Selection of case



INFERENCE:

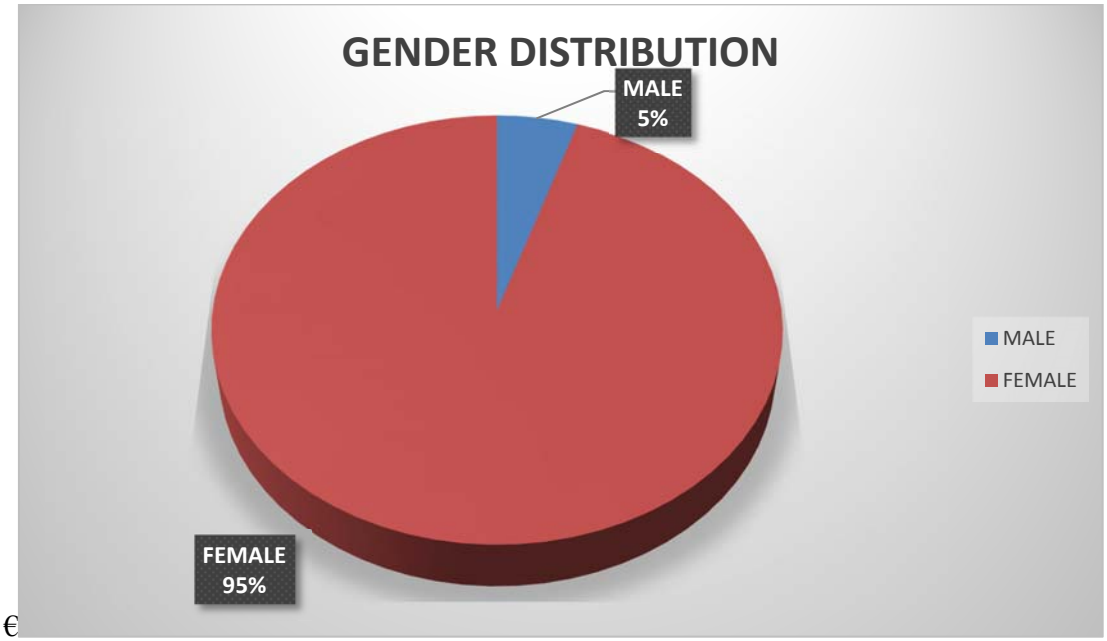
Among 40 cases 20 cases (50%) were treated with internal and externaland 20 cases (50%) were treated with both internal and external and ottradamtheraphy.

.**GENDER DISTRIBUTION:**

Table-19 Gender distribution

S.NO	GENDER DISTRIBUTION	NO.OF PATIENTS	PERCENTAGE %
1.	MALE	2	5%
2.	FEMALE	38	95%

Chart –4 -Gender distribution



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INFERENCE:

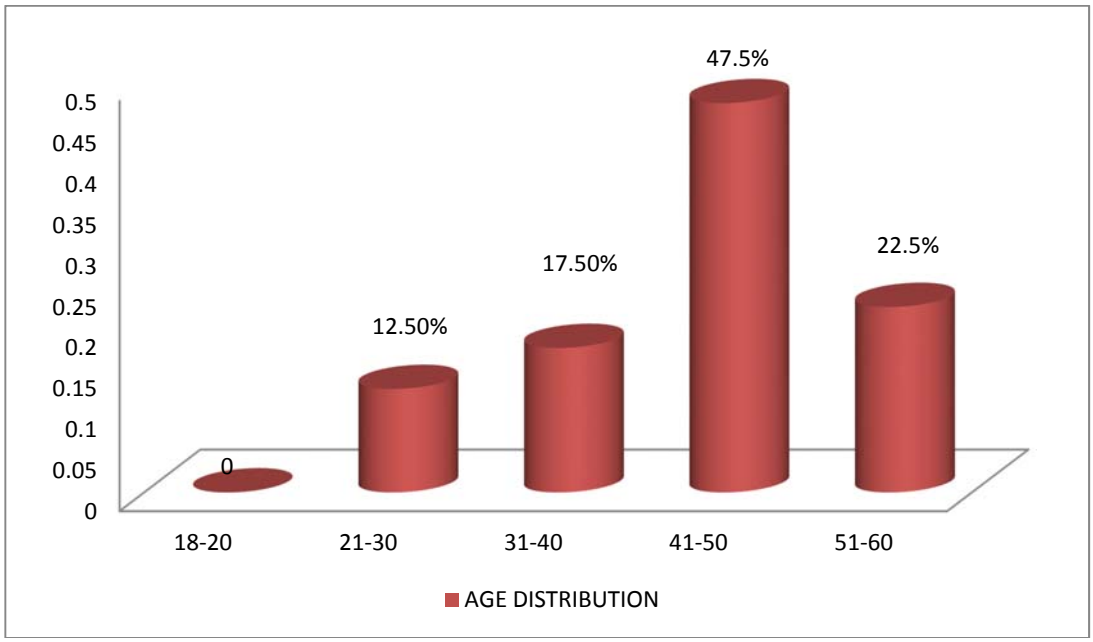
Among 40 cases 2cases(5%)were male and 38 cases (95%) were female.

AGE DISRTIBUTION:

Table – 20 Age distribution

S.NO	AGE DISTRIBUTION	NO OF CASES	PERCENTAGE%
1.	18 – 20	0	0%
2.	21 – 30	5	12.5%
3.	31 – 40	7	17.5%
4.	41 – 50	19	47.5%
5.	51 – 60	9	22.5%

Chart -5 Age distribution



INFERENCE:

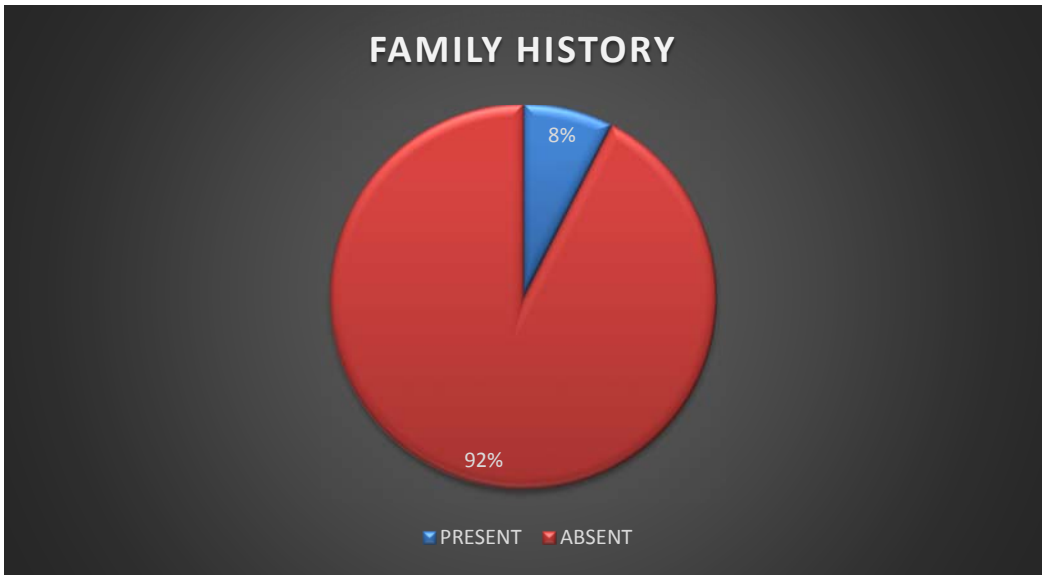
Among 40 cases high age incidence is between 41-50(47.5%)and 51-60(22.5%)

FAMILY HISTORY:

Table –21- Family History

S.NO	FAMILY HISTORY	NO OF CASES	PERCENTAGE %
1.	PRESENT	3	8%
2.	ABSENT	37	92%

Chart-6 -Family history



INFERENCE:

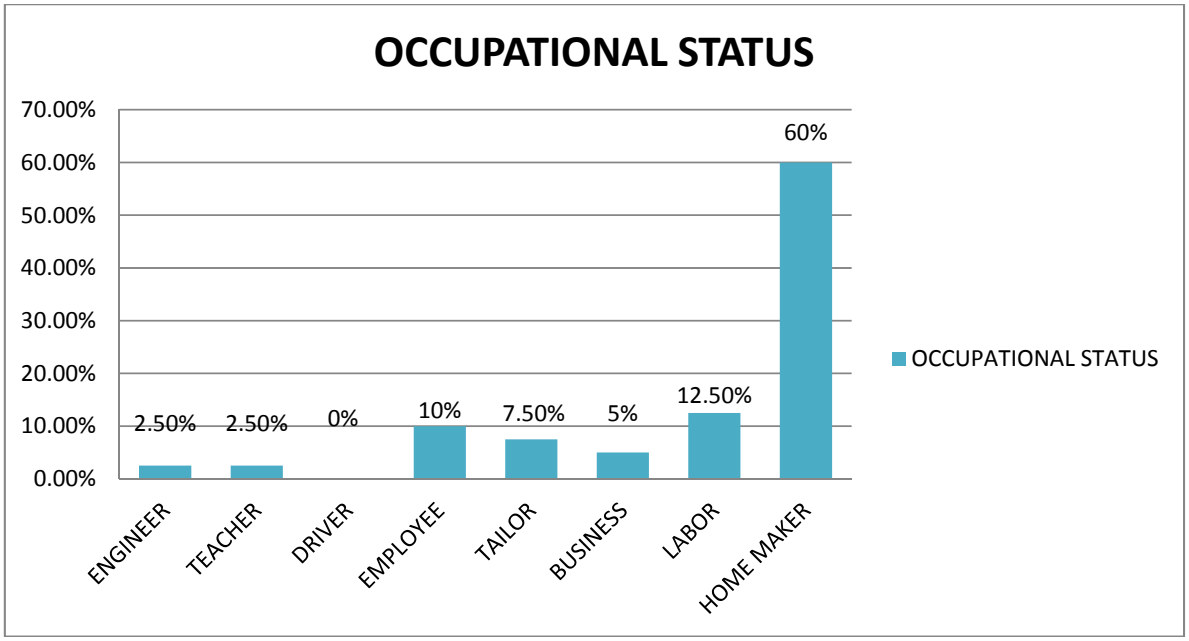
Among 40 cases only 3 cases(8%)had positive family history of Rheumatoid arthritis

OCCUPATIONAL STATUS:

Table- 22 -Occupational status

S.NO	OCCUPATIONAL STATUS	NO OF CASES	PERCENTAGE%
1.	ENGINEER	1	2.5%
2.	TEACHER	1	2.5%
3.	DRIVER	0	0%
4.	EMPLOYEE	4	10%
5.	TAILOR	3	7.5%
6.	BUSINESS	2	5%
7.	LABOR	5	12.5%
8.	HOME MAKER	24	60%

Chart –7 Occupational status



INFERENCE:

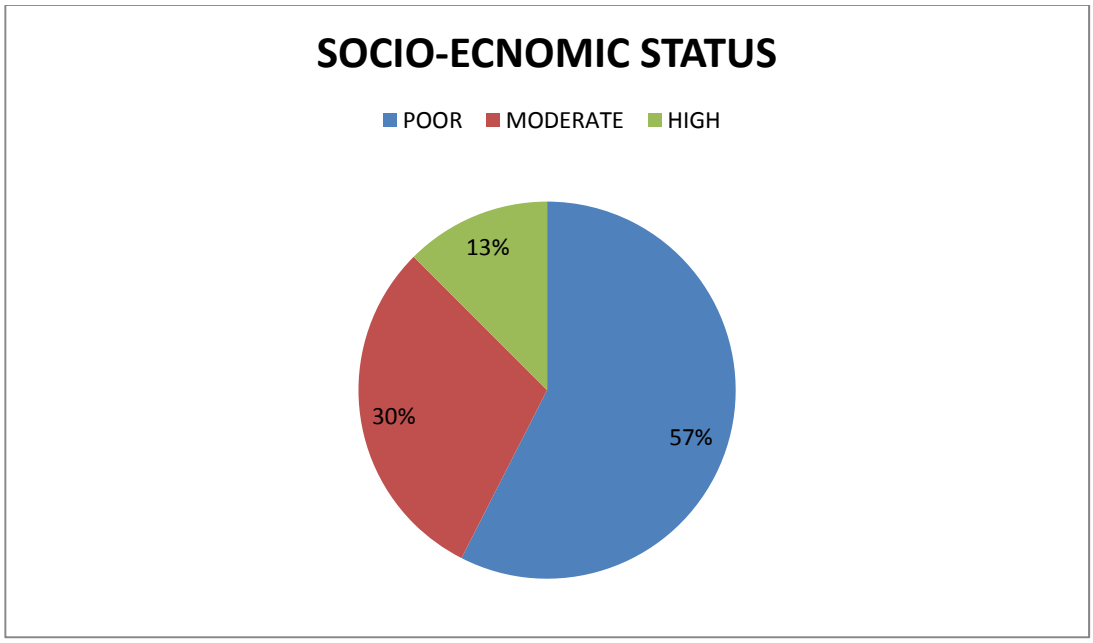
Among 40 cases 24 cases (60%)are home maker and 5cases(12.5%)are labor

SOCIO – ECONOMIC STATUS:

Table –23- Socio-Economic status

S.NO	SOCIO – ECNOMIC STATUS	NO OF CASES	PERCENTAGE%
1.	POOR	23	57.5%
2.	MODERATE	12	30%
3.	HIGH	5	12.5%

Chart –8 Socia-Economic status



INFERENCE:

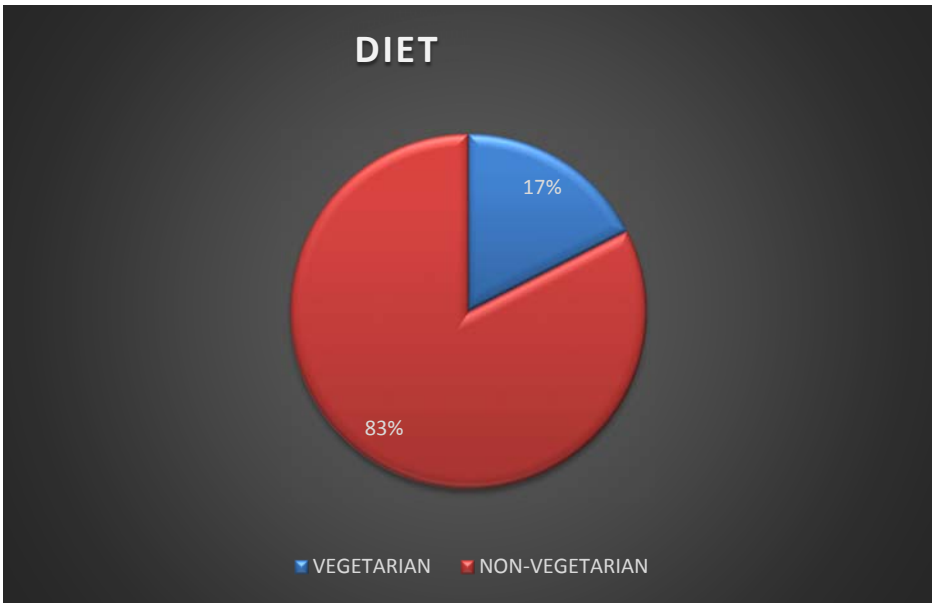
Among 40 cases 23cases(57.5%)were poor,12 cases (30%)were from middle class and 5 cases (12.5%)were from high class

DIET:

Table-24- Diet Habit

S.NO	DIET	NO OF PATIENTS	PERCENTAGE %
1.	VEGETARIAN	7	17.5%
2.	NON-VEGETARIAN	33	82.5%

Chart –9-Diet habit



INFERENCE:

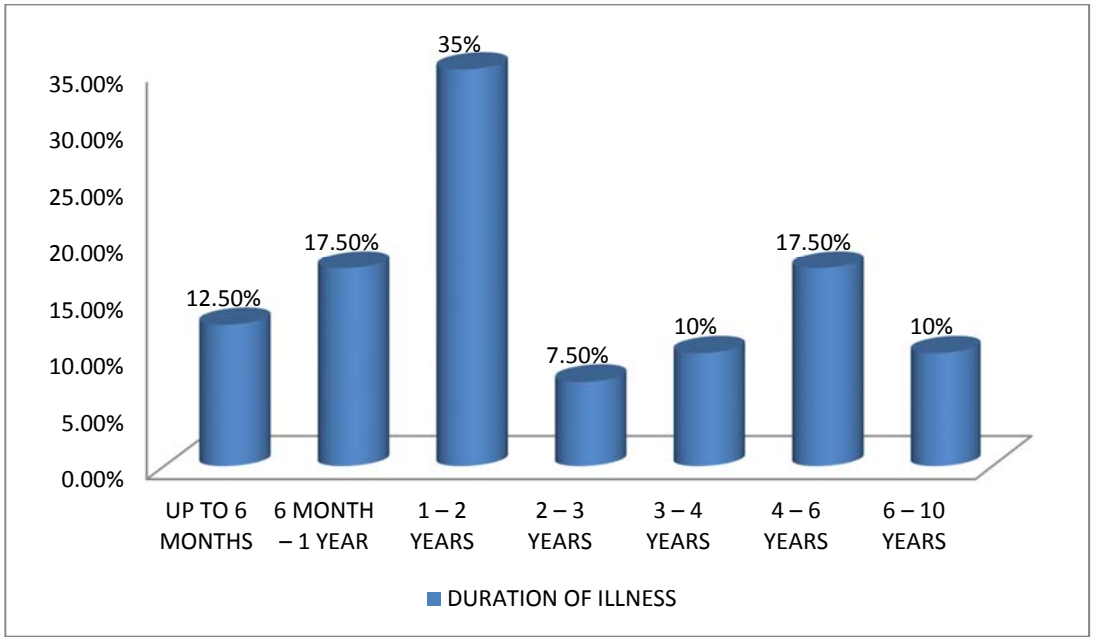
Among 40 cases 33(82.5%)cases were non-vegetarian and only 7 (17.5%) cases were vegetarian

DURATION OF ILLNESS:

Table –25- Duration of illness

S.NO	DURATION OF ILLNESS	NO OF CASES	PERCENTAGE %
1.	UP TO 6 MONTHS	5	12.5%
2.	6 MONTH – 1 YEAR	7	20%
3.	1 – 2 YEARS	14	37.5%
4.	2 – 3 YEARS	3	7.5%
5.	3 – 4 YEARS	4	10%
6.	4 – 6 YEARS	3	17.5%
7.	6 – 10 YEARS	4	10%

Chart- 10-Duration of illness



INFERENCE:

Among 40 cases 14 cases(37.5%)had 2 years of illness and 7 cases (20%) had 6-1 year of illness 4 cases(10%)had chronic illness of 6-10 years.

MODE OF ONSET:

Acute onset :up to 6 months

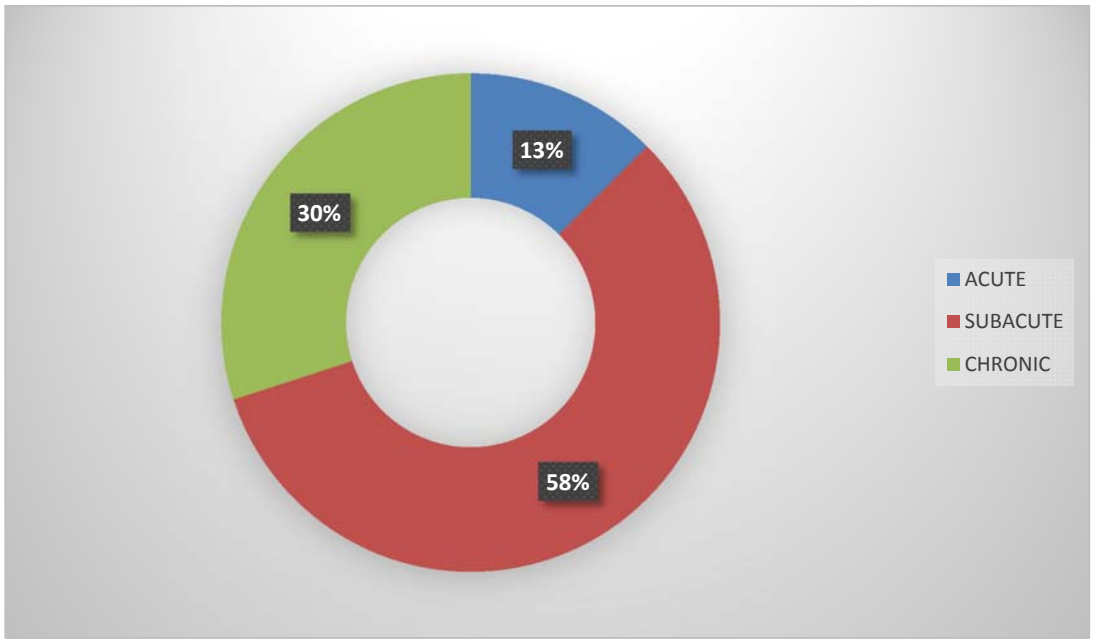
Sub-acute :6 months – 3 years

Chronic :4-10 years

Table : 26-Mode of Onset

S.NO	MODE OF ONSET	NO OF CASES	PERCENTAGE %
1.	ACUTE	5	12.5%
2.	SUBACUTE	23	57.5%
3.	CHRONIC	12	30%

Chart –11-Mode of onset



INFERENCE:

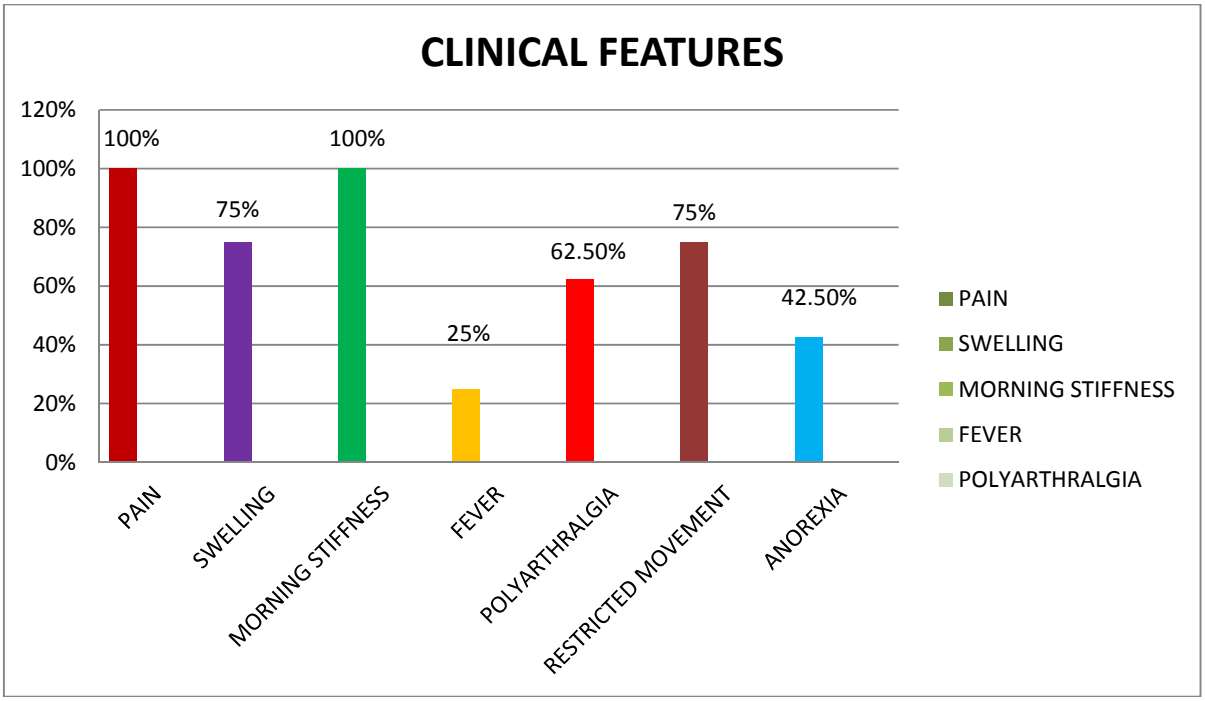
Among 40 cases 5cases(12.5%) were suffering from acute illness , 23cases(57.5%) were suffering from sub –acute illness and 12 cases(30%)were suffering from chronic illness.

CLINICAL FEATURES:

Table – 27-Clinical features

S.NO	CLINICAL FEATURE	NO OF PATIENTS	PERCETNAGE %
1.	PAIN	40	100%
2.	SWELLING	30	75%
3.	MORNING STIFFNESS	40	100%
4.	FEVER	10	25%
5.	POLYARTHRALGIA	25	62.5%
6.	RESTRICTED MOVEMENT	30	75%
7.	ANOREXIA	17	42.5%

Chart-12-Clinical features



INFERENCE:

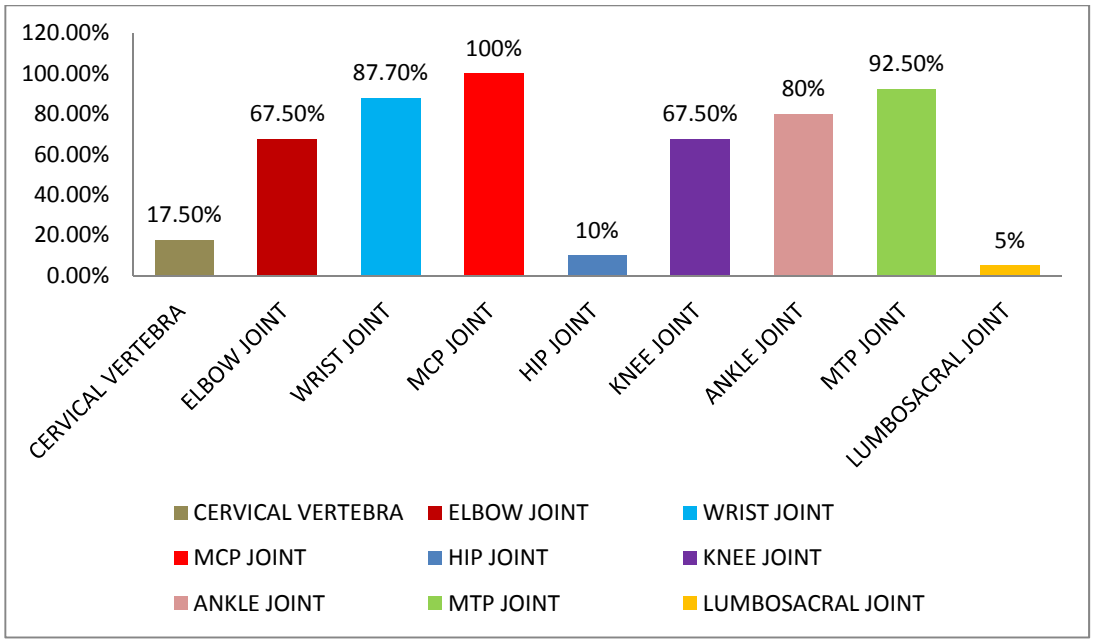
Among 40 cases all the 40(100%)cases had pain and morning stiffness ,30(75%)cases had swelling and restricted movements,25(62.5%)had polyarthralgia ,17(42.5%)had anorexia and 10(25%)had fever.

INVOLVEMENT OF JOINTS:

Table -28-Involvement of joints in RA

S.NO	INVOLVEMENT OF JOINTS	NO OF CASES	PERCENTAGE%
1.	CERVICAL VERTEBRA	7	17.5%
2.	ELBOW JOINT	27	67.5%
3.	WRIST JOINT	36	87.7%
4.	MCP JOINT	40	100%
5.	HIP JOINT	4	10%
6.	KNEE JOINT	27	67.5%
7.	ANKLE JOINT	32	80%
8.	MTP JOINT	37	92.5%
9.	LUMBOSACRAL JOINT	2	5%

Chart – 13-Involvements of joints



INFERENCE:

Among 40 cases high involvement of joints were MCP and MTP,40(100%)cases and 37(92.5%)cases respectively.

RESULTS AFTER TREATMENT

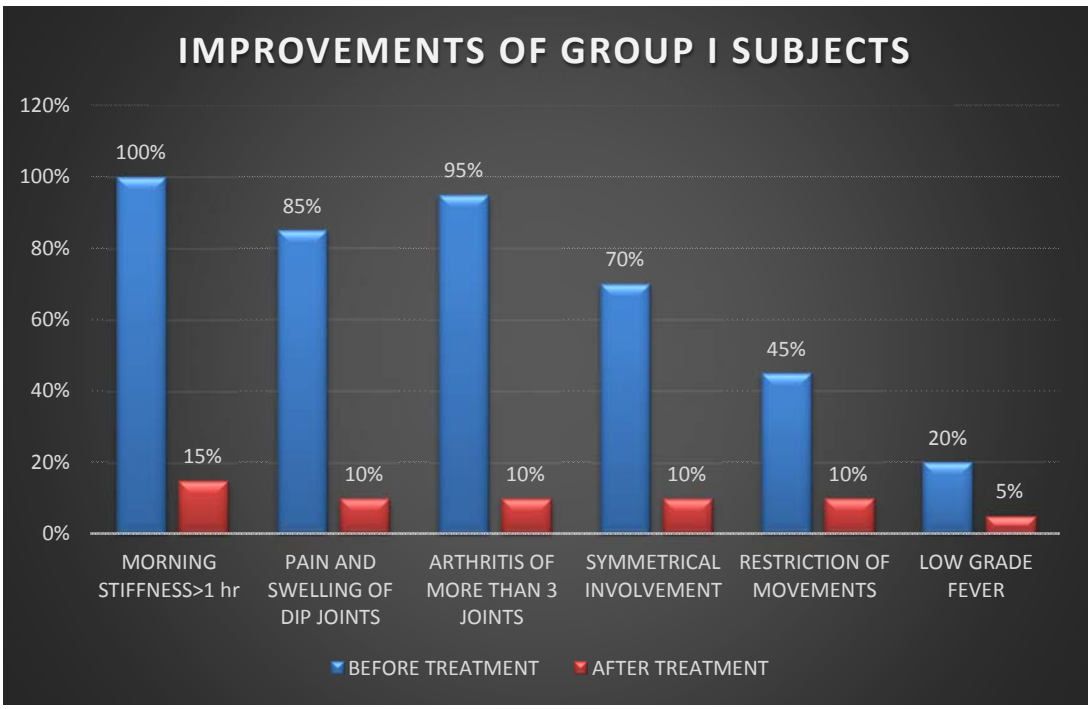
IMPROVEMENT IN SUBJECTS TREATED WITH INTERNAL TRIAL DRUG "RASA CHENDHURAM "AND EXTERNAL "ROGA SANJEEVI THYLAM" IN GROUP I SUBJECTS.

IMPROVE MENT OF GROUP I SUBJECTS:

Table-29-Improvement of group I subjects

S NO	CLINICAL FEATURE	BEFORE TREATMENT		AFTER TREATMENT	
		Subject	Percentage	Subject	Percentage
1.	MORNING STIFFNESS>1 hr	20	100%	3	15%
2.	PAIN AND SWELLING OF DIP JOINTS	17	85%	2	10%
3.	ARTHRITIS OF MORE THAN 3 JOINTS	19	95%	2	10%
4.	SYMMETRICAL INVOLVEMENT	14	70%	2	10%
5.	RESTRICTION OF MOVEMENTS	9	45%	2	10%
6.	LOW GRADE FEVER	4	20%	1	5%

Chart – 14-Improvement of group I Subjects



INFERENCE:

Among 20 cases, 20(100%) cases had morning stiffness, 19(95%) cases had arthritis of more than three joints, 17(85%) cases had pain and swelling ,14(70%) cases had symmetrical joint involvement , 9 (45%) cases had restriction of movement, and 4(20%) cases had fever before treatment. But after treatment only 3 (15%) cases had morning stiffness, 2(10%) cases had arthritis of more than three joints , pain and swelling , symmetrical joint involvement , restriction of movement, and 1(5%) cases had fever.

RESULTS:

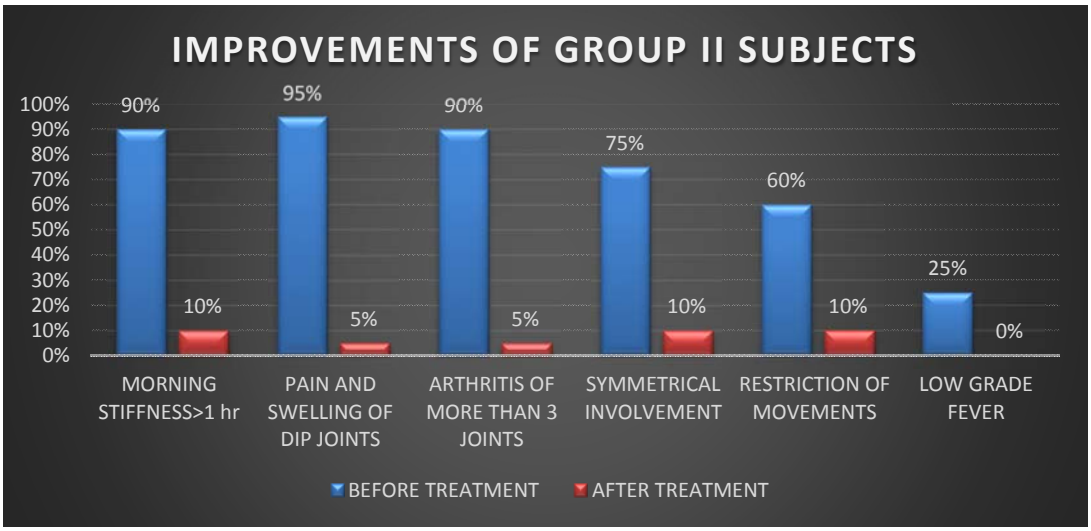
IMPROVEMENT IN SUBJECTS TREATED WITH INTERNAL DRUG RASA CHENDHURAM AND EXTERNAL ROGA SANJEEVI THYLAM&OTTRADAM THERAPHY IN GROUP II SUBJECTS.

IMPROVEMENTS OF GROUP II SUBJECTS:

Table of –30-improvements of group II subjects.

S NO	CLINICAL FEATURE	BEFORE TREATMENT		AFTER TREATMENT	
		Subject	Percentage	Subject	Percentage
1.	MORNING STIFFNESS>1 hr	18	90%	2	10%
2.	PAIN AND SWELLING OF DIP JOINTS	19	95%	1	5%
3.	ARTHRITIS OF MORE THAN 3 JOINTS	18	90%	1	5%
4.	SYMMETRICAL INVOLVEMENT	15	75%	2	10%
5.	RESTRICTION OF MOVEMENTS	12	60%	2	10%
6.	LOW GRADE FEVER	5	25%	0	0%

Chart – 15-Improvements of group II Subjects



INFERENCE:

Among 20 cases, 18(90%) cases had morning stiffness, 18(90%) cases had arthritis of more than three joints, 19(95%) cases had pain and swelling ,15(75%) cases had symmetrical joint involvement , 12 (60%) cases had restriction of movement, and 5(25%) cases had fever before treatment. But after treatment only 2 (10%) cases had morning stiffness, symmetrical joint involvement , restriction of movement 1(5%) cases had arthritis of more than three joints , pain and swelling , and no patients had fever.

REDUCTION OF PAIN:

Severe pain : pain score 7-10

Moderate pain : pain score 4-6

Mild pain : pain score 1-3

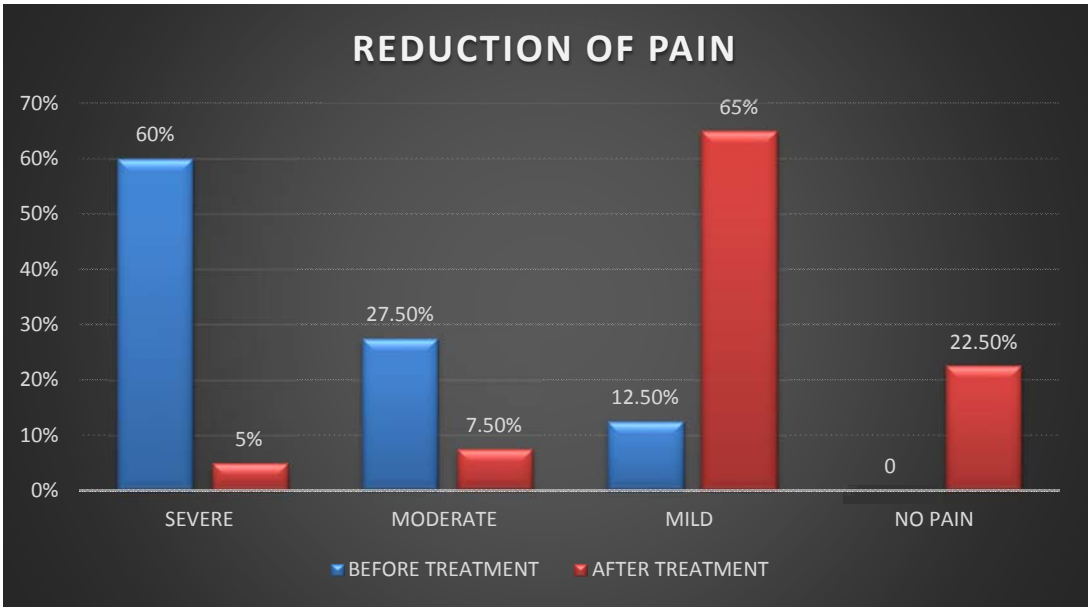
No pain : pain score 0

Reduction of pain

Table of – 31-Reduction of pain

S.NO	REDUCTION OF PAIN	BEFORE TREATMENT		AFTER TREATMENT	
		Subjects	Percentage	Subjects	Percentage
1.	SEVERE	24	60%	2	5%
2.	MODERATE	11	27.5%	3	7.5%
3.	MILD	5	12.5%	26	65%
4.	NO PAIN	0	0	9	22.5%

Chart – 16-Reduction of pain



INFERENCE:

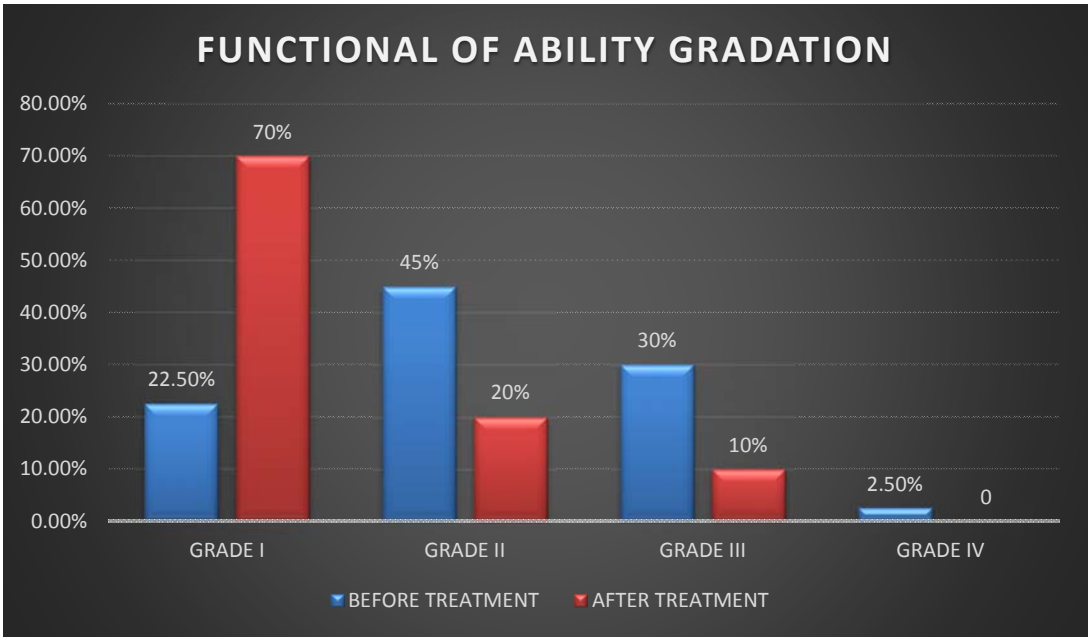
Among 40 cases 24 (60%) cases had severe pain, 11 (27.5%) cases had moderate pain and 5 (12.5%) cases had mild pain before treatment. But after treatment only 2 (5%) Patients had severe pain, 3 (7.5%) Patients had moderate pain 26(65%) cases had mild pain and 9 (22.5%) cases had no pain.

FUNCTIONAL ABILITY GRADATION:

Table of -32Functional ability gradation

S.NO	GRADE	BEFORE TREATMENT		AFTER TREATMENT	
		Subjects	Percentage	Subjects	Percentage
1.	GRADE I	9	22.5%	28	70%
2.	GRADE II	18	45%	8	20%
3.	GRADE III	12	30%	4	10%
4.	GRADE IV	1	2.5%	-	-

Chart – 17-Functional ability gradation



GRADE I : Fit for all activities

GRADE II : Mild restriction

GRADE III : Moderate restriction

GRADE IV : Confined to chair or bed ridden

INFERENCE:

Among 40 cases 9 (22.5%) cases was fit for all activities, 18(45%) cases had mild restriction in movements 12 (30%) cases had moderate restriction in movement and 1 (2.5%) case was bed ridden before treatment.

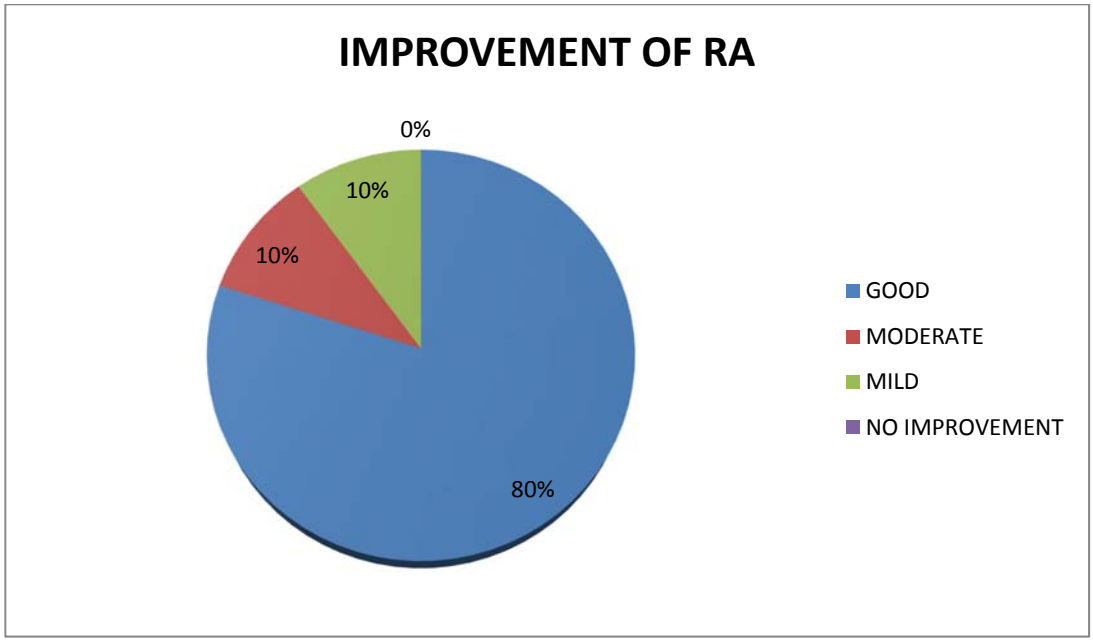
But after treatment 28 (70%) cases became fit for all activities 8 (20%) cases had mild restriction in movement, 4 (10%) had moderate restriction and no one was bed ridden.

OVER ALL RESULT:

Table of - 33Improvement of RA

S.NO	IMPROVEMENT	NO OF PATIENTS	PERCENTAGE
1.	GOOD	32	80%
2.	MODERATE	4	10%
3.	MILD	4	10%
4.	NO IMPROVEMENT	NIL	NIL

Chart- 18-Improvement of RA



INFERENCE:

Among 40 cases 32(80%)cases were good improvement, 4(10%)cases were moderate improvement,4(10%) cases were mild improveme

GROUP I SUBJECTS: BLOOD INVESTIGATION

SI. No	OP. NO	AGE/SEX	Hb (gm)		TC (cu.mm)		DC						ESR				Bl sugar	
							N		L		E		½ hr	1/2hr	1hr	1hr	R	
			BT	AT	BT	AT	BT	AT	BT	AT	BT	AT	BT	AT	BT	AT	BT	AT
1	5044	50/F	12.5	12.7	8200	8600	60	62	34	34	6	4	6	4	20	16	89	92
2	4680	50/F	9.6	10.4	9200	9800	65	61	29	31	4	4	35	27	60	53	79	92
3	115	58/F	11.1	12.7	8000	8870	65	60	26	29	6	5	29	22	46	21	95	102
4	3345	28/F	11.1	11.6	4480	6200	53	50	31	34	6	7	40	32	81	72	92	112
5	102	55/F	11.4	11.4	9100	9700	63	58	23	29	4	3	13	9	30	26	100	113
6	9385	45/F	10.8	11.2	8900	9600	76	62	21	24	3	3	21	17	65	48	92	96
7	7506	33/F	13.2	13.6	8700	7800	65	65	29	28	6	7	3	5	10	11	119	120
8	2413	44/F	12.1	13.5	9100	9100	58	52	28	34	2	3	37	28	61	40	112	138
9	8022	39/F	11.9	12.3	9000	8900	60	59	36	37	4	4	4	5	10	13	118	105
10	4453	34/M	14.3	14.5	5100	6700	69	63	26	33	5	4	15	7	25	15	120	117
11	2056	47/F	12.3	12	8300	8100	56	60	37	34	7	6	5	3	15	12	90	110
12	1834	51/F	12.4	12.4	7800	8000	54	51	37	32	3	2	12	7	22	14	97	111
13	3497	50/M	11.4	12.1	8600	8900	55	60	15	46	5	4	15	10	26	22	99	98
14	4640	27/F	12.2	12.2	7000	6800	68	68	26	27	6	5	17	13	110	80	100	98
15	8701	27/F	14.3	14.5	5100	6700	69	63	26	33	5	4	15	7	25	15	120	117
16	2685	48/F	10.4	10.2	9200	9400	54	56	40	41	6	3	22	18	39	30	85	83
17	8987	48/F	12.8	12.8	11400	11300	64	64	32	32	4	4	4	5	10	13	99	98
18	4902	43/F	12	12	7600	7600	53	54	43	44	4	2	5	3	15	12	98	99
19	4782	32/F	12.2	12.2	7000	6800	68	68	26	27	6	5	17	13	110	80	100	98
20	4457	35/F	10.4	10.2	9200	9400	54	56	40	41	6	3	22	18	39	30	85	83

GROUP II SUBJECTS: BLOOD INVESTIGATION

SI. No	OP. NO	AGE/SEX	Hb (gm)		TC (cu.mm)		DC						ESR				Bl sugar	
							N		L		E		½ hr	1/2hr	1hr	1hr	R	
			BT	AT	BT	AT	BT	AT	BT	AT	BT	AT	BT	AT	BT	AT	BT	AT
1	1537	46/F	11.0	13.6	7000	9500	55	43	42	48	4	5	10	3	13	10	130	125
2	5682	60/F	10.2	12.6	8000	10400	76	52	19	24	5	5	21	16	38	29	84	116
3	1833	42/F	11.2	11.7	7600	10800	66	63	20	25	9	7	22	19	45	38	90	120
4	5605	40/F	10.6	13.0	8000	8000	67	64	29	31	8	5	27	22	55	48	85	124
5	6757	41/F	11.2	13.7	9000	9500	51	49	40	43	8	6	12	8	20	17	94	120
6	6158	30/F	11.6	12.4	9500	12000	76	65	18	20	6	4	24	20	55	50	96	111
7	5637	50/F	12.1	13.2	6400	8000	64	60	30	34	6	6	10	5	17	12	102	117
8	5638	46/F	11.2	12.4	7000	6800	64	60	27	29	7	7	13	6	15	9	117	127
9	4425	42/F	11.8	12.1	7300	7500	54	52	29	31	7	5	8	5	12	9	112	121
10	5530	46/F	10.4	11.9	6300	7000	55	52	38	40	5	5	15	10	26	22	96	125
11	9385	47/F	10.6	11.6	8600	8900	55	60	15	46	5	4	44	38	96	84	99	96
12	2511	54/F	10.2	11.6	8600	9700	72	64	26	32	2	2	40	32	85	76	102	110
13	2809	39/F	11.8	12.3	6300	7400	60	58	32	36	5	4	13	10	30	22	70	94
14	1613	56/F	11.8	12.4	7200	7800	55	51	34	37	3	2	12	7	22	11	97	116
15	1036	46/F	11.0	12.7	8600	9000	58	52	30	34	4	2	25	21	42	36	90	95
16	6672	45/F	9.4	11.4	8100	8700	55	50	45	47	5	3	2	2	5	4	85	96
17	8795	47/F	8.2	10.1	9200	9400	54	56	40	41	6	3	22	18	39	30	85	83
18	7468	44/F	9.7	11.3	6800	7200	68	63	26	27	6	5	70	30	110	80	94	110
19	5216	28/F	10.4	10.8	9200	9400	54	56	40	41	6	3	22	18	39	30	85	83
20	9477	50/F	11.6	11.3	8200	8100	57	61	39	37	4	2	42	38	69	50	118	108

GROUP I SUBJECTS: URINE ANALYSIS

S.NO	OP.NO	AGE/SEX	URINE ANALYSIS							
			ALBUMIN		SUGAR		DEPOSIT			
			BT	AT	BT	AT	BT		AT	
							pus	Epi	Pus	Epi
1	5044	50/F	NIL	NIL	NIL	NIL	1-3	NIL	1-2	3-4
2	4680	50/F	NIL	NIL	NIL	NIL	1-4	2-3	1-3	2-4
3	115	58/F	NIL	NIL	NIL	NIL	3-6	NIL	2-3	1-2
4	3345	28/F	NIL	NIL	NIL	NIL	1-2	NIL	NIL	1-3
5	102	55/F	NIL	NIL	NIL	NIL	1-3	NIL	NIL	NIL
6	9385	45/F	NIL	NIL	NIL	NIL	3-5	1-3	2-3	NIL
7	7506	33/F	NIL	NIL	NIL	NIL	4-5	2-3	NIL	NIL
8	2413	44/F	NIL	NIL	NIL	NIL	3-5	3-5	3-4	1-2
9	8022	39/F	NIL	NIL	NIL	NIL	1-4	NIL	2-3	NIL
10	4453	34/M	NIL	NIL	NIL	NIL	NIL	1-3	2-4	NIL
11	2056	47/F	NIL	NIL	NIL	NIL	NIL	NIL	1-4	NIL
12	1834	51/F	NIL	NIL	NIL	NIL	4-6	1-2	NIL	NIL
13	3497	50/M	NIL	NIL	NIL	NIL	3-4	2-4	NIL	3-4
14	4640	27/F	NIL	NIL	NIL	NIL	NIL	3-5	NIL	3-5
15	8701	27/F	NIL	NIL	NIL	NIL	1-4	2-3	NIL	2-3
16	2685	48/F	NIL	NIL	NIL	NIL	2-4	NIL	1-3	1-3
17	8987	48/F	NIL	NIL	NIL	NIL	NIL	1-4	2-4	NIL
18	4902	43/F	NIL	NIL	NIL	NIL	NIL	2-3	3-4	NIL
19	4782	32/F	NIL	NIL	NIL	NIL	1-2	NIL	NIL	NIL
20	4457	35/F	NIL	NIL	NIL	NIL	NIL	1-3	NIL	NIL

GROUP II SUBJECT: URINE ANALYSIS

S.NO	OP.NO	AGE/SEX	URINE ANALYSIS							
			ALBUMIN		SUGAR		DEPOSIT			
			BT	AT	BT	AT	BT		AT	
							pus	Epi	Pus	Epi
1	1537	46/F	NIL	NIL	NIL	NIL	1-3	NIL	1-2	3-4
2	5682	60/F	NIL	NIL	NIL	NIL	2-3	NIL	1-3	2-4
3	1833	42/F	NIL	NIL	NIL	NIL	3-6	NIL	2-3	1-2
4	5605	40/F	NIL	NIL	NIL	NIL	1-2	NIL	NIL	1-3
5	6757	41/F	NIL	NIL	NIL	NIL	2-3	NIL	NIL	NIL
6	6158	30/F	NIL	NIL	NIL	NIL	3-5	1-3	NIL	NIL
7	5637	50/F	NIL	NIL	NIL	NIL	4-5	2-3	NIL	NIL
8	5638	46/F	NIL	NIL	NIL	NIL	3-5	3-5	3-4	NIL
9	4425	42/F	NIL	NIL	NIL	NIL	1-4	NIL	2-3	NIL
10	5530	46/F	NIL	NIL	NIL	NIL	NIL	NIL	2-4	NIL
11	9385	47/F	NIL	NIL	NIL	NIL	NIL	NIL	1-4	NIL
12	2511	54/F	NIL	NIL	NIL	NIL	4-6	1-2	NIL	NIL
13	2809	39/F	NIL	NIL	NIL	NIL	3-4	2-4	NIL	3-4
14	1613	56/F	NIL	NIL	NIL	NIL	NIL	3-5	NIL	3-5
15	1036	46/F	NIL	NIL	NIL	NIL	1-4	2-3	NIL	2-3
16	6672	45/F	NIL	NIL	NIL	NIL	2-4	NIL	1-3	1-3
17	8795	47/F	NIL	NIL	NIL	NIL	NIL	1-4	2-4	NIL
18	7468	44/F	NIL	NIL	NIL	NIL	NIL	2-3	3-4	NIL
19	5216	28/F	NIL	NIL	NIL	NIL	1-2	NIL	NIL	NIL
20	9477	50/F	NIL	NIL	NIL	NIL	NIL	1-3	NIL	NIL

GROUP I SUBJECTS: LIVER FUNCTION TEST

S.NO	OP.NO	AGE/SEX	LIVER FUNCTION TEST					
			BEFORE TREATMENT			AFTER TREATMENT		
			Serum Alkaline phosphatase	SGOT	SGPT	Serum Alkaline phosphatase	SGOT	SGPT
1	5044	50/F	81	40	39	80	41	39
2	4680	50/F	120	40	42	122	40	42
3	115	58/F	117	38	43	118	38	43
4	3345	28/F	128	39	48	124	48	39
5	102	55/F	91.0	14.7	9.3	90	9.3	14.7
6	9385	45/F	135	35	46	134	46	35
7	7506	33/F	118	34	41	115	41	34
8	2413	44/F	97	29	33	99	33	39
9	8022	39/F	139	42	39	140	39	42
10	4453	34/M	100.7	39	41	100	41	43
11	2056	47/F	123	37	40	120	40	41
12	1834	51/F	82	23	20	90	39	22
13	3497	50/M	40	28	14.9	53	45	17
14	4640	27/F	52	29	33	67	42	32
15	8701	27/F	72	32	42	72	32	42
16	2685	48/F	56	39	40	56	36	42
17	8987	48/F	81	37	47	81	37	45
18	4902	43/F	111	31	31	111	31	39
19	4782	32/F	132	36	38	132	35	36
20	4457	35/F	119	38	33	119	37	31

GROUP II SUBJECTS: LIVER FUNCTION TEST

S.NO	OP.NO	AGE/SEX	LIVER FUNCTION TEST					
			BEFORE TREATMENT			AFTER TREATMENT		
			Serum Alkaline phosphatase	SGOT	SGPT	Serum Alkaline phosphatase	SGOT	SGPT
1	1537	46/F	160	32	37	141	35	28
2	5682	60/F	132	38	39	132	38	39
3	1833	42/F	98	17.2	10.1	94	32	34
4	5605	40/F	90	30	34	92	35	31
5	6757	41/F	89	33	31	91	37	30
6	6158	30/F	91	35	31.2	94	36	34
7	5637	50/F	56	38	39	58	40	39
8	5638	46/F	78	39.7	45	78	39	43
9	4425	42/F	72	38	42	71	40	41
10	5530	46/F	81	40	39	80	41	39
11	9385	47/F	120	40	42	122	40	42
12	2511	54/F	117	38	43	118	38	43
13	2809	39/F	128	39	48	124	48	39
14	1613	56/F	91.0	14.7	9.3	90	9.3	14.7
15	1036	46/F	135	35	46	134	46	35
16	6672	45/F	118	34	41	115	41	34
17	8795	47/F	97	29	33	99	33	39
18	7468	44/F	139	42	39	140	39	42
19	5216	28/F	100.7	39	41	100	41	43
20	9477	50/F	123	37	40	120	40	41

GROUP I SUBJECTS: RFT

S.NO	OP.NO	AGE/SEX	RENAL FUNCTION TEST			
			BEFORE TREATMANT		AFTER TREATMANT	
			UREA	CREATININE	UREA	CREATININE
1	1537	46/F	22	0.6	21	0.6
2	5682	60/F	24	0.8	22	0.8
3	1833	42/F	28	0.8	28	0.7
4	5605	40/F	22	0.7	22	0.9
5	6757	41/F	24	0.62	23	0.67
6	6158	30/F	24	0.8	24	0.7
7	5637	50/F	28	0.66	26	0.72
8	5638	46/F	26	0.72	22	0.67
9	4425	42/F	34	0.9	29	0.8
10	5530	46/F	20	0.7	18	0.9
11	9385	47/F	27	0.65	24	0.77
12	2511	54/F	26	0.9	25	0.9
13	2809	39/F	18	0.67	16	0.8
14	1613	56/F	28	0.8	28	0.8
15	1036	46/F	18.8	0.8	15	1.2
16	6672	45/F	18.6	0.9	20	0.8
17	8795	47/F	20.7	1.1	21.5	0.9
18	7468	44/F	16	0.7	16	0.67
19	5216	28/F	15	0.9	16	0.92
20	9477	50/F	22	0.81	20.7	0.81

GROUP II SUBJECTS: RFT

S.NO	OP.NO	AGE/SEX	RENAL FUNCTION TEST			
			BEFORE TREATMANT		AFTER TREATMANT	
			UREA	CREATININE	UREA	CREATININE
1	5044	50/F	24	0.8	24	0.7
2	4680	50/F	28	0.66	26	0.72
3	115	58/F	26	0.72	22	0.67
4	3345	28/F	34	0.9	29	0.8
5	102	55/F	20	0.7	18	0.9
6	9385	45/F	27	0.65	24	0.77
7	7506	33/F	26	0.9	25	0.9
8	2413	44/F	18	0.67	16	0.8
9	8022	39/F	28	0.8	28	0.8
10	4453	34/M	18.8	0.8	15	1.2
11	2056	47/F	20	0.72	20	0.72
12	1834	51/F	18	0.66	19	0.66
13	3497	50/M	24	1.2	24	1.2
14	4640	27/F	15	0.7	15	0.7
15	8701	27/F	22	0.6	22	1.2
16	2685	48/F	18.6	1.1	18.3	1.5
17	8987	48/F	21	0.74	21	0.8
18	4902	43/F	15.6	0.9	16	0.9
19	4782	32/F	24	0.8	22	0.8
20	4457	35/F	28	0.6	24	0.6

IMPROVEMENT IN GROUP I SUBJECT: INTERNAL &EXTERNAL MEDICINE

S.NO	OP.NO	AGE/SEX	SPECIFIC INVESTIGATIONS FOR RA			
			RA FACTOR		ANTI CCP	
			BT	AT	BT	AT
1	1537	46/F	42.3	36.2	71.0	62.0
2	5682	60/F	19.88	15	7.50	5.60
3	1833	42/F	17.20	12	17.50	13.0
4	5605	40/F	20.1	17	40.10	38.20
5	6757	41/F	19.6	10.5	5.0	3.9
6	6158	30/F	22.4	17.1	14.5	12.9
7	5637	50/F	43.8	34.72	2.50	2.50
8	5638	46/F	21.10	21.10	84.9	73.3
9	4425	42/F	128.1	115.0	4.0	4.0
10	5530	46/F	38	29.0	2.7	2.7
11	9385	47/F	43.3	36.2	4.2	4.2
12	2511	54/F	10.200	10.200	72.2	61.1
13	2809	39/F	15.1	15.1	340.00	329.00
14	1613	56/F	14.0	14.0	16.66	14.1
15	1036	46/F	23.3	23.5	419	407
16	6672	45/F	43.8	31.1	12.0	9.10
17	8795	47/F	43.3	34.2	4.0	4.0
18	7468	44/F	19.2	13.0	5.0	5.0
19	5216	46/F	34.4	26.3	3.0	3.0
20	2685	48/F	95.4	86.3	218.20	202.6

IMPROVEMENT IN GROUP II SUBJECT: INTERNAL &EXTERNAL MEDICINE AND OTTRADAM THERAPHY

S.NO	OP.NO	AGE/SEX	SPECIFIC INVESTIGATIONS FOR RA			
			RA FACTOR		ANTI CCP	
			BT	AT	BT	AT
1	5044	47/F	37.6	28.1	264	211
2	4680	50/F	121.8	111	92.17	86.10
3	115	58/F	52.5	47.5	65.0	52.0
4	3345	28/F	41.1	37.0	5.0	4.1
5	102	55/F	31.2	26.0	4.0	4.0
6	9385	45/F	12.0	12.0	26	19.3
7	7506	33/F	19.0	16.7	16.0	11.0
8	2413	44/F	29.1	21.1	62.0	54.1
9	8022	39/F	16.0	16.3	30.0	26.0
10	4453	34/M	17.7	16.1	5.0	5.0
11	2056	47/F	15.00	15.00	12.3	9.90
12	1834	51/F	23.3	19.7	323	311
13	3497	50/M	41.3	31.0	3.0	3.0
14	4640	27/F	43.6	33.0	9.80	8.10
15	8701	27/F	31.3	27.5	57.5	47.0
16	2685	48/F	95.4	87.5	218.20	190
17	8987	48/F	42.1	36.2	127.25	110.20
18	4902	43/F	67.0	39.79	4.0	4.0
19	4782	32/F	18.9	18.00	5.98	4.1
20	4457	35/F	43.3	28.19	0.63	0.63

CLINICAL PROGNOSIS

IMPROVE MENT OF GROUP I SUBJECTS:

The most popular non parametric statistical tool, namely, McNemar Test analysis has been employed to analyses the effectiveness with the help of a hypothesis.

IMPROVE MENT OF GROUP I SUBJECTS:

S. No	Clinical features	Before Treatment	After Treatment
		n%	n%
1.	Morning stiffness>1 hr	20(100)	3(15)**
2.	Pain and swelling of dip joints	17(85)	2(10)**
3.	Arthritis of more than 3 joints	19(95)	2(10)**
4.	Symmetrical involvement	14(70)	2(10)**
5.	Restriction of movements	9(45)	2(10)**
6.	Low grade fever	4(20)	1(5) *

McNemat test, C.I: 95%, *P<0.05; **P<0.01

Software: spss17 version

Number of cases: 20

Inference:

Since the p value is significant in all clinical features. So there is significant reducing of clinical features among the patients for the treatment of Uthiravadha Suronitham (Rheumatoid Arthritis). Hence it is concluded that the treatment was effective and **significant.**

IMPROVEMENT IN GROUP II SUBJECTS:

The most popular non parametric statistical tool, namely, McNemar Test analysis has been employed to analyses the effectiveness with the help of a hypothesis.

IMPROVE MENT OF GROUP II SUBJECTS:

S. No	Clinical features	Before Treatment	After Treatment
		n%	n%
1.	Morning stiffness>1 hr	18(100)	2(10)**
2.	Pain and swelling of dip joints	19(95)	1(5)**
3.	Arthritis of more than 3 joints	18(90)	1(5)**
4.	Symmetrical involvement	15(75)	2(10)**
5.	Restriction of movements	12(60)	2(10)**
6.	Low grade fever	5(25)	0(0) **

McNemat test, C.I: 95%, *P<0.05; **P<0.01

Software: spss17 version

Number of cases: 20

Inference:

Since the p value is significant in all clinical features. So there is significant reducing of clinical features among the patients for the treatment of Uthiravadha Suronitham (Rheumatoid Arthritis). Hence it is concluded that the treatment was effective and **significant.**

Group I Subjects :Liver Function Test

S.No.	Investigations	Before Treatment Mean±SD n= 20	After Treatment Mean±SD n= 20	P value
2	SGPT	36.01±10.40	35.88±8.70	**0.172**
3	SGOT	34.03±6.72	37.51±7.98	**<0.05**
4	Alkaline Phosphatase	99.73±29.32	101.15±26.38	**<0.05**

C.I: 95%; Paired samples t test. Where p<0.001, p<0.05 represents statistically significant.

Group II Subjects :Liver Function Test

S.No.	Investigations	Before Treatment Mean±SD n= 20	After Treatment Mean±SD n= 20	P value
2	SGPT	36.48±10.23	36.53±6.88	**0.973**
3	SGOT	34.43±7.22	37.41±7.64	**<0.05**
4	Alkaline Phosphatase	105.78±26.14	104.65±23.89	**0.294**

C.I: 95%; Paired samples t test. Where p<0.001, p<0.05 represents statistically significant.

GROUP I SUBJECTS :RFT

S.No.	Investigations	Before Treatment Mean±SD n= 20	After Treatment Mean±SD n= 20	P value
1	Urea	23.10±4.72	21.86±4.19	**<0.05**
2	Creatinine	0.77±0.12	0.80±0.13	**0.419**

C.I: 95%; Paired samples t test. Where p<0.001, p<0.05 represents statistically significant.

GROUP II SUBJECTS :RFT

S.No.	Investigations	Before Treatment Mean±SD n= 20	After Treatment Mean±SD n= 20	P value
1	Urea	22.80±4.92	21.41±4.18	**<0.05**
2	Creatinine	0.78±0.15	0.86±0.23	**<0.05**

C.I: 95%; Paired samples t test. Where $p<0.001$, $p<0.05$ represents statistically significant.

GROUP I SUBJECTS:BLOOD INVESTIGATION

S.No.	Investigations	Before Treatment Mean±SD n= 20	After Treatment Mean±SD n= 20	P value
1	Hb	11.92±1.20	12.22±1.22	**<0.05**
2	ESR1hr	40.95±31.10	31.15±23.32	**<0.001**

C.I: 95%; Paired samples t test. Where $p<0.001$, $p<0.05$ represents statistically significant.

GROUP II SUBJECTS:BLOOD INVESTIGATION

S.No.	Investigations	Before Treatment Mean±SD n= 20	After Treatment Mean±SD n= 20	P value
1	Hb	10.75±0.96	12.14±0.91	**<0.001**
2	ESR1 hr	40.21±29.30	32.47±24.92	**<0.001**

C.I: 95%; Paired samples t test. Where $p<0.001$, $p<0.05$ represents statistically significant.

IMPROVEMENT IN GROUP I SUBJECT:INTERNAL &EXTERNAL MEDICINE

S.No.	Investigations	Before Treatment Mean±SD n= 20	After Treatment Mean±SD n= 20	P value
1	RA Factor	35.72±28.88	29.87±26.23	**<0.001**
2	Anti CCP	67.19±118.90	62.86±114.95	**<0.001**

C.I: 95%; Paired samples t test. Where $p<0.001$, $p<0.05$ represents statistically significant.

IMPROVEMENT IN GROUP II SUBJECT:INTERNAL &EXTERNAL MEDICINE AND OTTRADAM THERAPHY

S.No.	Investigations	Before Treatment Mean±SD n= 20	After Treatment Mean±SD n= 20	P value
1	RA Factor	39.07±29.12	32.88±25.86	**<0.001**
2	Anti CCP	70.01±96.25	61.04±86.71	**<0.05**

C.I: 95%; Paired samples t test. Where $p<0.001$, $p<0.05$ represents statistically significant.

DISCUSSION

Rheumatoid arthritis is an autoimmune and inflammatory diseases, which means that your immune system attacks healthy cells in your body by mistake, causing inflammation (Painful, swelling) in the affected parts of the body in symmetrical distribution. RA mainly attacks the joints, usually multiple joints at once. It commonly affect the joints in the hands, wrists and knees . In a joint with RA, the lining of the joint becomes inflamed, and the collagen bundles are disturbed, causing damage to joint tissue.

In **uthiravatha suronitham** is mentioned in siddha literatures begins from the correlation of it signs and symptoms of the diseases Rheumatoid arthritis.

The drugs which possesses anti-vatha actions as indicated in siddha literature were selected and the siddha trial drugs were by the author in the gunapadam practical laborartory of government siddha medical college,after getting proper authentication of raw drugs from the medicinal botany department under the supervision of the members of the teaching faculty and guided by the Head of the Department of Sirappu maruthuvam of the government siddha medical college, Chennai-106

The internal medicine **"RASA CHENDHURAM"** was analysed and Biochemical analysis was done.40 Patients were admitted for the trial in the outpatient ward. Of which 20 patients was treated only with internal and external medicine, and 20 patients were treated internal and external & ottradam theraphy by the oil **"ROGA SANJEEVI THYLAM"**

Progress of the patients was followed by and documented regularly. Various criteria like distribution of gender, age, occupational status and diet were assessed. Clinical manifestations and assessment of the enhancement in the prognosis of the diseases with the trial drugs and with **"OTTRADAM"** were taken into account for evaluating the efficacy of trial drugs.

AGE:

12.5% of Patients were in the age group of 20-30

17.5% of patients were in the age group of 31-40

47.5% of patients were in the age group of 41-50

22.5%of patients were in the age group of 51-60

GENDER:

5% of patients were in the gender of male

95% of patients were in the gender of female.

OCCUPATIONAL STATUS:

60% of patients were in the home makers are affected

12.5% of patients were in the labors are affected.

Mostly home makers and labors are affected.

SOCIO-ECONOMIC STATUS:

Mostly 57.5% were affected in the socio-economic status of lower income group because of the low nutrition and poor hygiene and poor immunity.

DURATION OF ILLNESS:

37.5% of the patients have sub- acute stage of the diseases-(1-2 years)

CLINICAL FEATURES:

Mostly 80% of the patients merely have all the above said clinical features of the presenting illness.

CLINICAL PROGRESS WITH INTERNAL AND EXTERNAL MEDICINE:

Mostly 80% of the patients got relief from the morning stiffness, restricted movements.

About 65-70% of the patients had the progress in their clinical features when treated with providing internal and external medicine.

CLINICAL PROGRESS WITH INTERNAL AND EXTERNAL MEDICINE AND OTTRADAM THERAPHY:

Mostly 80% of the patients got relief from the morning stiffness, restricted movements.

About 70-75% of the patients had the progress in their clinical features are relieved when treated with providing internal and external medicine and ottradam theraphy.

RESULTS:

(INTERNAL AND EXTERNAL MEDICINE)-GROUP I SUBJECTS:

Among 20 cases, 20(100%) cases had morning stiffness, 19(95%) cases had arthritis of more than three joints, 17(85%) cases had pain and swelling , 14(70%) cases had symmetrical joint involvement, 9 (45%) cases had restriction of movement, and 4(20%) cases had fever before treatment. But after treatment only 3 (15%) cases had morning stiffness, 2(10%) cases had arthritis of more than three joints, pain and swelling, symmetrical joint involvement, restriction of movement, and 1(5%) cases had fever.

RESULTS:

(INTERNAL AND EXTERNAL MEDICINE AND OTTRADAM THERAPHY)-GROUP II SUBJECTS:

Among 20 cases, 18(90%) cases had morning stiffness, 18(90%) cases had arthritis of more than three joints, 19(95%) cases had pain and swelling, 15(75%) cases had symmetrical joint involvement , 12 (60%) cases had restriction of movement, and 5(25%) cases had fever before treatment. But after treatment only 2 (10%) cases had morning stiffness, symmetrical joint involvement , restriction of movement 1(5%) cases had arthritis of more than three joints, pain and swelling, and no patients had fever.

OVERALL RESULTS:

Among 40 cases 32(80%)cases were good improvement, 4(10%)cases were moderate improvement, 4(10%) cases were mild improvement.

GRADING OF RESULTS:

There is certainly marked improvement noted in the grading of the result before and after treatment.

STATISTICAL REPORT:

Inference:

Since the p value is significant in all clinical features. So there is significant reducing of clinical features among the patients for the treatment of Uthiravadha Suronitham (Rheumatoid Arthritis). Hence it is concluded that the treatment was effective and **significant.**

SUMMARY

Clinical study on safety and efficacy of **RASA CHENDHURAM** internally and **ROGA SANJEEVI THYLAM** externally with OTTRADAM theraphy in **UTHIRAVADHA SURONIDHAM** has been chosen for my dissertation work.

Various literatures dealing with Rheumatoid arthritis had been collected from siddha and modern text book as well as drug review was mentioned in my dissertation .

Standardization of drug **RASA CHENDHURAM** through both traditional and modern techniques.

Quantitative and qualitatitive analysis of trial drug Rasa chendhuram was carried out ,along with heavy metal analysis and physic-chemical analysis.

Acute and sub-acute toxicity of trial drug **RASA CHENDHURAM** was carried out in Wister albino rats after obtaining proper permission from institutional animal ethical committee.

Pharmacological activity, *in vitro* immune-modulatory activity for the trail drug **RASA CHENDHURAM** was using cell line RAW 264.7.

Anti inflammatory activity for the trial drug **RASA CHENDHURAM** was carried out left hind paw oedema volume.

The clinical trial was conducted to evaluate the efficacy of the trial drugs **RASA CHENDHURAM (INT)**, and **ROGA SANJEEVI THYLAM THYLAM (EXT)** WITH **"OTTRADAM THERAPY** in Rheumatoid arthritis patients, after getting proper approval from institutional ethical committee.

The sample size was 40 patients, the duration was 24 days. 20 patients were treated with internal and external medicine. (group I), 20 patients were treated with internal and external & ottradam theraphy (group II).

The internal drug **RASA CHENDHURAM** was administered at the dose of **65mg** twice daily, with honey.

In my clinical trial some patients had Anti-CCP negative while before treatment, even though their clinical symptoms matched with my inclusion criteria, I also added them to my clinical trial.

All the details about the study and the drugs were informed to the patients in their vernacular language and consent forms duly signed by them were obtained from them. Separate proforma was maintained for each and every patient.

The clinical improvement was assed using pain score

Safety of the trial drug **RASA CHENDHURAM** was assessed by comparing the safety parameters LFT & RFT before and after treatment.
Finally the statistical analysis was performing to assess the significance of the clinical trial.

CONCLUSION

This study was conducted with the siddha medicines **"RASA CHENDHURAM"** (Internal) and **ROGA SANJEEVI THYLAM** (External).These medicines are indicated for vatha diseases in siddha texts.

Heavy metal analysis of RCM reveal that the drug does not contain any metals like lead,cadmium,arsenic,mercury.

The acute and sub acute toxicity study reveals that the trial drugs RCM is safe, sub – acute toxicity studies two doses were administrated orally for 28 days Animals were observed for physiological and behavioural changes food and water, intake body weight, mortality. All the animals were sacrifices, the changes in organ weight and histology were examined no mortality were observed and no treatment related changes seen.Hence the siddha trial drugs RCM is safe in animal models

While the concentration level is decreased,nitrate level is increased. Hence 25µg/ml of **Rasa Chendhuram** has rich level of nitrate and thus proven to be an ***IMMUNOMODULATOR*** .

Anti inflammatory activity using in RCM . The paw volume was measured at 1, 2, 3, 4 and 5hr using Plethysmometer (Model 7150 UGO Basile, Italy) Edema was expressed as the mean increase in paw volume relative to control animals.

Among the study sample 80%had good improvement, 10% had moderate improvement,and 10% had mild improvement.The results of the study reveal the fact that these medicines are efficacious in reducing morning stiffness, pain and swelling, restricted movement, in uthira vatha suronitham with assessing all the safety parameters of blood before and after treatment.

OTTRADAM theraphy along with siddha trial drugs was very effective as the overall improvement was good and to certain extent earlier in the subjects who were given ottradam theraphy. Many of these subjects had reduction or relief from morning stiffness, pain and restricted movements for about four to five hours manipulating the ottradam theraphy.

The LFT &RFT before and after treatment does not show any significant change in rheumatoid cases hence it is safe in human trial. In my clinical trial during the course

of the trial there were no adverse effect or unwanted drug reactions in GIT, RS, CVS and excretory system.

Hence the siddha trial drug **"RASA CHENDHURAM"** Internal medicine is proved to be a potential **Anti-Rheumatoid** and **"ROGA SANJEEVI THYLAM" with Ottradam theraphy** externally are effective in reducing morning stiffness, pain and swelling of the joints, restricted movements in **uthira vatha suronidham**. (Rheumatoid arthritis)

BIBLIOGRAPHY

SIDDHA BOOKS:

1. Noi Nadal Noi Mudhal Nadal Thirattu Part I , author Dr.M.Shanmugavelu, 2009 ,published by directorate of Indian medicine and homeopathy department,Chennai.
2. Gunapadam Mooligai Vaguppu –Part -II,author -Dr. Murugesa Mudhaliyar , 2002 published by directorate of Indian medicine and homeopathy department, Chennai.
3. Gunapadam thathu Jeeva vaguppu Part-I -Dr.R.Thiyagarajan, published by directorate of Indian medicine and homeopathy department,Chennai.
4. Padhartha Guna Chinthamani-R.C.Mohan
5. Sigicha Rathna Deepam ennum vaithiya nool-Thamarai pathipagam
6. Pararasa Sekaram,part IV,vatha roga sigichai(8), author – I.Ponnaiyapillai,published by siddha and Ayurveda books &printers,Agasthiyar siddha vaithiya saalai ,yaazhpanam ,srilanka.
7. Kaaviya naadi nool.
8. Agathiyar Gunavagadam
9. Agathiyar Kanma Kandam,published by Thamarai pathipagam.
10. Agathiyar 2000, published by Thamarai pathipagam.
11. Siddha Maruthuvanga Surukkam- Dr.K.S.Uthamarayan, published by directorate of Indian medicine and homeopathy department, Chennai.
12. Konganavar vatha kaviyam part-II, published by Thamarai pathipagam.
13. Siddha Maruthuvam(Podhu),author -Dr.N.K .Kuppusamy Mudhaliyar,2007 published by directorate of Indian medicine and homeopathy department,Chennai.
14. Aaviyalikkum amutha murai surukkam, published by Thamarai pathipagam.
15. Siddha Maruthuvam(Sirappu)-Dr.R.Thiyagarajan
16. SarakkuSuthiSeiMuraigal-Siddha MaruthuvaVeliettupirivu

17. Siddha Medicine Volume IV Vatha related diseases part-I,Author – Dr.v.Subramanian, Tamil Valarchi kazhagam madras university, Chennai, 2006.
18. Siddha Principles of Social and Preventive medicine-Dr.G.Durairasan
19. Siddha Vaithiya Padhartha Guna Vilakkam - C.Kannusamy Pillai
20. TherayarVagadam, published by Thamarai pathipagam.
21. Thirukural
22. T.V.Sambhashiva PillaiDictionary,Volume 4, Part–I, published by directorate of Indian medicine and homeopathy department, Chennai.
23. Dhanvanthiri vaithiyam, Dr.Venkatraman, published by Thamarai pathipagam.
24. Agathiyar Aayul vedham, Thamarai pathipagam.
25. Vatha Noi Maruthuvam-Dr.S.Chidambarathaanu Pillai
26. Yugi Munivar Peru nool Kaaviyam
27. Yugi Vaithiya Chinthamani,Published by Thamarai pathipagam,2012
28. Siddhars Science of Longevity and Kalpa Medicines
29. History of Siddha Medicines
30. Medical Taxonomy of Angiosperms, vol –I medicinal uses and chemical constituents ,author –Dr.S.Somasundaram-Published by Elangovan pathipagam.
31. Sarabendhira vaithiya Muraigal ,vatha roga sigichai part IV ,author-sri.k. vasudeva saasthiri B.A.,published by Tanjur saraswathy Mahal ,1998.

MODERN BOOKS

1.MayilVahanan Natarajan-Textbook of Orthopaedics and Traumatology-7th Edition Published By -Wolters Kluwer(India) Pvt.Ltd, New Delhi.

2.P.C.Das and P.K.Das –Textbook of Medicine -5th Edition ,Published by Currents books international,Kolkatta.

3. R.Alagappan- Manual of Practical Medicine-5th Edition, Jaypee Brothers Medical Publishers.pvt.ltd.New Delhi.

4.Harsh Mohan-Textbook of Pathology-6 th Edition-Jaypee Brothers Medical Publishers.pvt.ltd.New Delhi.

5.Johns Hopkins Medicine –Arthritis Center-American College of Rheumatology.

6.ManjitSingh,Vijendhar Kumar,[…],and AjudhiaNathKaliaPharmacognosy Research –MedKnow Publications.

7.PubMed –Uses and Effects of Mercury in Medicine and Dentistry-

Ncbi.nlm.nih.gov/

8.Schott.to Medicinal Plants Homepage-AlocasiaIndica(Roxb)-Medicinal Plants Database of Bangladesh.

9.HerbPathy –MollungaCerviana.

10.Research Gate-Chemical Constituents of Euphorbia antiquorum –Article in Chinese journal of Natural Medicines -2005, PubChem-NCBI/NLM/NIH.

11.Mrinal Gupta,Vikram K,Mahajan,Karainder, S.Mehta and Pushpinder S. Chauhan-Dermatology Reseach and Practice.vol 2014-Zinc sulfatetheraphy –Published by 2014.

12.Pharmacology from NCIT-Mercury from MeSH Terms.

13.Healthline –Prevalence of RA Globally and US .

14.Medicine Net-Rheumatoid arthritis-Diagnosis,Complications.

15.Everyday Health-RA-Auto Immune Disorders of the Joints,Muscles,and Nerves-By Sara calabro-Medically Reviewed by Pat F.Bass,III.

16.Encyclopedia of Medicinal Plants-Herbs-Medicinal Plant Usage and Identification Data Base.

17.Mona Semalty,Ajay Semalty,[....], and M.S.M Rawat- Pharmacognosy Reviews–MedKnow Publications.-SemecarpusAnacardiumLinn..A Review – www.ncbi/nlm/nih/gov.in

18. Dr.U.Sathyanarayanan-Fundamentals of Bio-Chemistry for Medical Students.Elsewier publications.

19.Health24.com, Annies Remedy-Sessamum Indicum.

20.Davidson's principle and practice of medicine 28 th edition ,Elsewier publisher 2010.

21.www.arthritis.caza(causes of anaemia in RA)

22.Mark.J.Donohue, sulphur and sulphur compounds in the humans.

23.WHO guidelines.

24.A Review on Pharmacological and Biological properties of calotrophis gigantean, Indian journal of recent scientific research ,vol -5,2014.

25.Yathav prashant,Sharma kritika , A review on phytochemical medicinal and pharmacological profile of Euphorbia antiquorum,published by August 2015.

26.The Pharmacopoeia of siddha research medicines, author –Dr.M.Shanmuga velu,L.I.M.,H.P.I.M., and G.D.Naidu , Published by G.D.Naidu , charities,1978.

27.Dr.Lohar,M.sc.,Ph.D., protocol for testing of AYUSH medicines, department of AYUSH ,ministry of health &family welfare, pharmacopoeial laboratory for Indian medicines, chaziabad.

GOVERNMENT SIDDHA MEDICAL COLLEGE

ARIGNAR ANNA GOVERNMENT HOSPITAL OF INDIAN MEDICINE

CHENNAI – 600 106

AN OPEN COMPARATIVE CLINICAL STUDY ON "UDHIRAVADHA SURONITHAM"(RHEUMATOID ARTHRITIS) WITH THE EVALUATION OF SIDDHA TRIAL DRUG "RASA CHENDURAM" (INT), "ROGA SANJEEVI THYLAM" (EXT)&OTTRADAM.

POST- GRADUATE DEPARTMENT OF SIRAPPU MARUTHUVAM

FORM l - SCREENING AND SELECTION PROFORMA

1. OP NO: .....

2. NAME: …….

3. AGE: …… 4.GENDER: …….....

5. OCCUPATION: …….. 6.INCOME: ……

7. ADDRESS: ……

……

……

8. CONTACT NO: ……

INCLUSION CRITERIA:

- Age: 18-60 Years
- Sex: Both female & male (Female dominant disease)
- Anti CCP +ve
- RA factor +ve/ -ve
- Morning stiffness
- Low grade fever
- Pain and swelling in distal interphalangealjoints .

- Arthritis of more than 3 joints
- Spindle shape swelling

EXCLUSION CRITERIA

.KNOWN CASES OF

- Rheumatic fever
- Psoriatic arthropathica
- Gouty arthritis
- Systemic lupus erythematus
- Progressive systemic sclerosis(PSS)
- History of long term intake of steroids
- Any other serious illness
- Carries spine
- HIV
- Pregnant women and lactating mother
- Tumour
- Osteomyelitis
- Ankylosing spondylitis

ADMITTED TO TRIAL:

YES **NO**

If yes, **OPD/IPD**

Date:

Station:

Signature of the Guide: Signature of the Investigator:

GOVERNMENT SIDDHA MEDICAL COLLEGE

ARIGNAR ANNA GOVERNMENT HOSPITAL OF INDIAN MEDICINE

CHENNAI – 600 106

POST- GRADUATE DEPARTMENT OF SIRAPPU MARUTHUVAM

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FORM lI -HISTORY TAKING PROFORMA

1. SERIAL NO OF THE CASE: ……. 2.OP/IP NO: .....

3. NAME: …… 4. AGE: …….. 5. GENDER: ……..

5. OCCUPATION: …… 6. INCOME: ……..

7.COMPLAINTS & DURATION:

8. PERSONAL HISTORY:

PERSONAL HABITS	**YES**	**NO**	**IF YES, SPECIFY DURATION/QUANTITY**
Smoking			
Tobacco Chewing			
Alcoholism			
Narcotic drugs			

9. HISTORY OF PREVIOUS ILLNESS/PELVIC SURGERY

10. DIETARY HABIT:

1. Vegetarian
2. Non-vegetarian

11. FAMILY HISTORY:

Whether this problem runs in family?

1. Yes 2.No

If yes, mention the relationship of affected person(s) ----------

History of previous investigations if any ----------

Date:

Station:

Signature of the Guide: Signature of the Investigator:

GOVERNMENT SIDDHA MEDICAL COLLEGE

ARIGNAR ANNA GOVERNMENT HOSPITAL OF INDIAN MEDICINE

CHENNAI – 600 106

POST- GRADUATE DEPARTMENT OF SIRAPPU MARUTHUVAM

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FORM III – CLINICAL ASSESSMENT PROFORMA:

1. SERIAL NO: ……

2. OP / IP NO: .....

3. NAME: …… 4.AGE: …… 5.GENDER: .....

GENERAL EXAMINATION:

Height (cms) : …….

Weight (kg) : …….

Temperature(°F) : …….

Pulse rate(/min) : …….

Heart rate(/min) : …….

Respiratory rate(/min) : …….

Blood pressure(mm/Hg) : …….

	Present	Absent
Pallor		
Jaundice		
Cyanosis		
Lymphadenopathy		
Pedal edema		
Clubbing		
Jugular vein pulsation		

SYSTEMIC EXAMINATION

CardioVascular System : …….

Respiratory system : …….

Gastro-intestinal system : …….

Central Nervous System : …….

Urogenital system : …….

Endocrine System : …….

SIDDHA SYSTEM OF EXAMINATIONS:

1. THEGI: [BODY CONSTITUTION]

1. Vatha udal
2. Pitha udal
3. Kaba udal
4. Thontha udal

2. NILAM: [LAND WHERE PATIENT LIVED MOST]

1. Kurinji
2. Mullai
3. Marutham
4. Neithal
5. Paalai

3. KAALAM:

1. Kaar kaalam
2. Koothir kaalam
3. Munpani kaalam
4. Pinpani kaalam
5. Ilavenil kaalam
6. Muthuvenil kaalam

4. GUNAM:

1.Sathuvam 2.Raasatham 3.Thaamatham

5. IMPORIGAL (SENSORY ORGANS):

Normal/Affected

Mei ----------

Vaai ----------

Kann ----------

Mukku ----------

Sevi ----------

6. KANMENDHIRIYAM (MOTOR ORGANS):

Kai ----------

Kal ----------

Vaai ----------

Eruvai ----------

Karuvaai ----------

7. KOSANGAL (SHEATH):

Annamaya kosam ----------

Pranamaya kosam ----------

Manomaya kosam ----------

Vignana maya kosam ----------

Anandamaya kosam ----------

8. UYIR THAATHUKKAL: [THREE HUMORS] (VALI, AZHAL, IYAM)

A) VALI

Pranan –----------

Abanan ----------

Samanan ----------

Uthanan ----------

Vyanan ----------

Naagan ----------

Koorman ----------

Kirukaran ----------

Devathathan ----------

Dhananjayan ----------

B) AZHAL

Analakam ----------

Ranjakam ----------

Sathakam ----------

Prasakam ----------

Alosakam ----------

C) IYAM

Avalambagam ----------

Kilethagam ----------

Pothagam ----------

Tharpagam ----------

Santhigam ----------

9. SEVEN UDAL THATHUKKAL: (SEVEN SOMATIC COMPONENTS)

Saram ----------

Senneer ----------

Oon ----------

Koluppu ----------

Enbu ----------

Moolai ----------

Sronitham ----------

10. ENVAGAI THERVU:

I. NAADI: [PULSE PERCEPTION]

II. SPARISAM: [PALPATION]

III. NAA: [TONGUE]

IV. NIRAM: [COMPLEXION]

1. Vadham
2. Pitham
3. Kabam

V.MOZHI: [VOICE]

1. High Pitched
2. Low Pitched
3. Medium Pitched

VI.VIZHI: [EYES]

VII. MALAM: [BOWEL HABITS / STOOLS]

Niram

Irugal

Ilagal

Others

VIII. MOOTHIRAM [URINE EXAMINATION]

NEERKKURI:

Niram

Manam

Edai

Nurai

Enjal

NEIKKURI

Date:

Station:

Signature of the Guide: Signature of the Investigator:

GOVERNMENT SIDDHA MEDICAL COLLEGE

ARIGNAR ANNA GOVERNMENT HOSPITAL OF INDIAN MEDICINE

CHENNAI – 600 106

POST- GRADUATE DEPARTMENT OF SIRAPPU MARUTHUVAM

AN OPEN COMPARATIVE CLINICAL STUDY ON "UDHIRAVADHA SURONITHAM"(RHEUMATOID ARTHRITIS) WITH THE EVALUATION OF SIDDHA TRIAL DRUG "RASA CHENDURAM" (INT), "ROGA SANJEEVI THYLAM" (EXT)&OTTRADAM.

FORM IV : LABORATORY INVESTIGATIONS PROFORMA

1. SERIAL NO OF THE CASE: ……

2.OP / IP NO: .....

3. NAME: …… 4.AGE: …… 5.GENDER: .....

A) BLOOD INVESTIGATIONS:

BLOOD INVESTIGATIONS		**BEFORE TREATMENT**	**AFTER TREATMENT**
Hb (gm/dL)			
ESR (mm)	**½ hr.**		
	1 hr.		
T.WBC (Cells / Cu.mm)			
Differential Count (%)	**Polymorphs**		
	Lymphocytes		
	Monocytes		
	Eosinophils		
	Basophils		

BLOOD INVESTIGATIONS		BEFORE TREATMENT	AFTER TREATMENT
	F		
	PP		

B) URINE INVESTIGATIONS:

URINE INVESTIGATIONS	BEFORE TREATMENT	AFTER TREATMENT
Albumin		
Sugar		
Deposits		

C) RADIOLOGICAL EXAMINATIONS

X-ray-Affected joints AP view and lateral view.

	BEFORE TREATMENT	AFTER TREATMENT
X-ray-Changes.		

Date:

Station:

Signature of the Guide: Signature of the Investigator:

GOVERNMENT SIDDHA MEDICAL COLLEGE

ARIGNAR ANNA GOVERNMENT HOSPITAL OF INDIAN MEDICINE

CHENNAI – 600 106

POST- GRADUATE DEPARTMENT OF SIRAPPU MARUTHUVAM

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FORM V: INFORMED CONSENT FORM

"I have read the foregoing information, or it has been read to me. I have had the opportunity to ask questions about it and any questions I have asked have been answered to my satisfaction.

I consent voluntarily to participate in this study and understand that I have the right to withdraw from the study at any time without in any way it affecting my further medical care".

"I have received a copy of the information sheet/consent form".

Date:

Signature of the participant:

In case of illiterate participant

"I have witnessed the accurate reading of the consent form to the potential participant, and the individual has had the opportunity to ask questions. I confirm that the individual has given consent freely."

Date:

Signature of a witness Left thumb Impression of the Participant

(Selected by the participant bearing no connection with the survey team)

Date:

Station:

Signature of participant:

Signature of the Guide: Signature of the Investigator:

«ÃÍ º¡ò¾ ÁÕòÐÅì ¸øæ¡¸ ¦ºý ¨É-106

«È¡»÷ « ñ ½¡ ÁÕòÐÅÁ¨É, ¦ºý ¨É

உதிரவாத சுரோணிதம் (ரச செந்தூரம் & உரோக சஞ்சீவி தைலம் & ஒற்றடம்)

À¡¸¡ôÒò ¾È¨É ì ¸ ñ ¼È¡Õõ ÁÕòÐÅ ¬öÅ¡ü¸¡É ¾¸Åø ÀÊÅõ.

´ôÒ¾ø ÀÊÅõ

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¿¡ý þó¾ ¬ö¨Å ÌÈ¡ò¾ «¨ÉòÐ Å¡ÀÃí¸¨ÇÔõ §¿¡Â¡Ç¡ì Ì ÒÃ¡Õõ Å¨¸Â¡ø±Î òÐ¨Ãò§¾ý ±É ¯Ú¾ÂÇ¡ì¸¡§Èý.

§¾¾¡: **¨¸¦Â¡ôÀõ:**

þ¼õ: **¦ÀÂ÷ :**

§¿¡Â¡Ç¡Â¡ý ´ôÒ¾ø

±ý É¡¼õ þó¾ ÁÕòÐÅ ¬öÅ¡ý ¸¡Ã½ò¨¾Ôõ, ÁÕó¾ý ¾ý¨Á ÁüÚõ ÁÕòÐÅ ÅÆ¡Ó¨È ÀüÈ¡Õõ, ¦¾¡¼÷óÐ ±ÉÐ ¯¼ø þÂì¸ò¨¾ ¸ñ¸¡½¡ì¸×õ, «¾¨É À¡Ð¸¡ì¸×õ ÀÂýÀÎõ ÁÕòÐÅ ¬ö×ì Ü¼ ÀÃ¡§º¡¾¨É¸û ÀüÈ¡ ¾Õô¾ «Ç¡ì Ìõ Å¨¸Â¡ø ¬ö× ÁÕòÐÅÃ¡ø Å¡Çì¸¡ì ÜÈôÀð¼Ð.

¿¡ý þó¾ ÁÕòÐÅ ¬öÅ¡ý §À¡Ð, ¸¡Ã½õ ±Ð×õ ÜÈ¡Áø, ±ô¦À¡ØÐ §Å ñÎÁ¡É¡Öõ þó¾ ¬öÅ¡Ä¡ÕóÐ ±ý¨É Å¡ÎÅ¡òÐ ¦¸¡û Ùõ ¯Ã¡¨Á¨Â ¦¾Ã¡ó¾Õì¸¡ý§Èý. ¿¡ý ±ý Û¨¼Â Í¾ó¾ÃÁ¡¸ §¾÷× ¦ºöÔõ ¯Ã¡¨Á¨Âì ¦¸¡ñÎ உதிரவாத சுரோணிதம் §¿¡öì¸¡É ரச செந்தூரம் ÁÕó¾ý ÀÃ¸Ã¡ôÒò ¾È¨É ì ¸ ñ ¼È¡Õõ ÁÕòÐÅ ¬öÅ¡üÌ ±ý¨É ¯ðÀÎò¾ ´ôÒ¾ø «Ç¡ì¸¡§Èý.

§¾¾¡: **¨¸¦Â¡ôÀõ:**

þ¼õ: **¦ÀÂ÷ :**

§¾¾¡: **º¡ðº¡ì¸¡Ã÷ ¨¸¦Â¡ôÀõ:**

þ¼õ: **¦ÀÂ÷ :**

¯È×Ó¨È :

Ð¨Èò¾¨ÄÅ÷ ¨¸¦Â¡ôÀõ: **¬Ã¡öîº¡Â¡Ç÷ ¨¸¦Â¡ôÀõ:**

GOVERNMENT SIDDHA MEDICAL COLLEGE, CHENNAI

POST- GRADUATE DEPARTMENT OF SIRAPPU MARUTHUVAM

AN OPEN COMPARATIVE CLINICAL STUDY ON "UDHIRAVADHA SURONITHAM"(RHEUMATOID ARTHRITIS) WITH THE EVALUATION OF SIDDHA TRIAL DRUG "RASA CHENDURAM" (INT), "ROGA SANJEEVI THYLAM" (EXT)&OTTRADAM.

FORM VI - WITHDRAWAL FORM

SI NO:

OP / IP NO:

NAME:

AGE / GENDER:

DATE OF TRIAL COMMENCEMENT:

DATE OF WITHDRAWAL FROM TRIAL:

REASONS FOR WITHDRAWAL:

- Long absence at reporting : Yes/ No
- Irregular treatment: Yes/ No
- Shift of locality : Yes/No
- Increase in severity of symptoms: Yes/No
- Development of severe adverse drug reactions: Yes/No

Date:

Station:

Signature of the Guide: Signature of the Investigator:

GOVERNMENT SIDDHA MEDICAL COLLEGE

ARIGNAR ANNA GOVERNMENT HOSPITAL OF INDIAN MEDICINE

CHENNAI – 600 106

POST- GRADUATE DEPARTMENT OF SIRAPPU MARUTHUVAM

AN OPEN COMPARATIVE CLINICAL STUDY ON "UDHIRAVADHA SURONITHAM"(RHEUMATOID ARTHRITIS) WITH THE EVALUATION OF SIDDHA TRIAL DRUG "RASA CHENDURAM" (INT), "ROGA SANJEEVI THYLAM" (EXT)&OTTRADAM.

FORM VII – PATIENT INFORMATION SHEET

Name of Co- Investigator: C.ARUNA

Name of the college: Govt. Siddha Medical College

Arumbakkam

Chennai-106.

INFORMATION SHEET FOR PATIENTS PARTICIPATING IN THE OPEN CLINICAL TRIAL.

I, C.Aruna studying M.D (Siddha) at Govt.Siddha Medical College, Chennai, is doing a clinical trial on "UTHIRA VADHA SURONITHAM(RHEUMATOID ARTHRITIS) It is becoming a most common disease, occurring throughout the world. In this regard, I am in need to ask you few questions. I will maintain confidentiality of your comments and data obtained. There will be no risk of disclosing your identity and no physical, psychological or professional risk is involved by taking part in this study. Taking part in this study is voluntary. No compensation will be paid to you for taking part in this study.

You can choose not to take part. You can choose not to answer a specific question. There is no specific benefit for you if you take part in the study. However, taking part in the study may be of benefit to the community, as it may help us to understand the problem of defaulters and potential solutions.

If you agree to be a participant in this study, you will be included in the study primarily by signing the consent form and then you will be given the internal medicine Rasa chenduram 122-244mg with honey.

The information I am collecting in this study will remain between you and the Co- investigator (myself). I will ask you few questions through a questionnaire. I will not write your name on this form. I will use a code instead.

The questionnaire will take approximately 20 minutes of your time.

If you wish to find out more about this study before taking part, you can ask me all the questions you want or contact C.Aruna, PG Scholar cum Co- investigator of this study, attached to Govt. Siddha Medical College, Chennai-106. You can also contact the Member-secretary of Ethics committee, Govt.Siddha Medical College, Chennai.

«ÃÍ º¢ò¾ ÁÕòÐÅì ¸øæ¡¢, ¦ºý ¨É-106

«È¢»÷ « ñ ½¡ ÁÕòÐÅÁ¨É, ¦ºý ¨É

உதிரவாத சுரோணிதம் (ரச செந்தூரம் & உரோக சஞ்சீவி தைலம் & ஒற்றடம்)

À¡¢¸¡ôòò ¾¢È¨É ì ¸ ñ ¼È¢Ôõ ÁÕòÐÅ ¬öÅ¢ü¸¡É ¾¸Åø ÀÊÅõ

¬Ã¡öîº¢Â¡Ç÷ ¦ÀÂ÷: ÁÕòÐÅ÷. ச. அருணா

¿¢ÚÅÉò¾¢ý ¦ÀÂ÷ : «ÃÍ º¢ò¾ ÁÕòÐÅì ¸øæ¡¢

«Õõ À¡ì¸õ,

¦ºý ¨É-106

«ÃÍ º¢ò¾ ÁÕòÐÅì ¸øæ¡¢Â¢ø Àð¼ §ÁüÀÊôÒ ÀÂ¢ýÚ ÅÕõ ¿¡ý ÁÕòÐÅ÷. ச.அருணா , உதிரவாத சுரோணிதம் ±ýÛõ §¿¡Â¢ø ÁÕòÐÅ ¬Ã¡öîº¢Â¢ø ®Îàðîû§Çý.

þó¾ ¬Ã¡öîº¢ ºõÀó¾Á¡¸ º¢Ä§¸ûÅ¢¸¨ÇìÀ§¸ð¸×õ, §¾¨ÅÂ¡É ¬öÅ¸ô ÀÃ¢§º¡¾¨ÉìÌ ¾í¸¨Ç¯ðÀÎò¾×õ¯û§Çý.

þó¾ ¬Ã¡öîº¢ìÌ ¾í¸û Å¢ÕôÀò¾¢ý §ÀÃ¢ø¯ðÀÎõÀðºò¾¢ø¯ûÁÕó¾¡¸ “ரச செந்தூரம் 122-244 மி¸¢ §¾É¢ø 2 §Å¨Ç(¸¡¨Ä, Á¡¨Ä)¯½×ìÌ À¢ý 48 ¿¡ð¸û¯ð¦¸¡ûÇ §Åñ Îõ.. வெளி மருந்தாக உரோக சஞ்சீவி தைலம் 48 நாட்களுக்கு நோய் உள்ள இடங்களில் வெளியே தடவி ஒற்றடம் செய்ய வேண்டும்.¦ÅÇ¢ §¿¡Â¡Ç÷¸û 7 ¿¡ð¸Ùìì´ÕÓ¨ÈÁÕòÐÅÁ¨Éìì ÅÃ§Åñ Îõ.

þó¾ ¬Ã¡öîº¢Â¢ø ¾í¸¨Ç «ÛÁ¾ò¾ À¢È Ì¯í¸Ùìì Å¢ÕôÀõ þø¨Ä¦ÂÉ¢ø ±ô§À¡Ð §Åñ ÎÁ¡É¡Öõ ¬Ã¡öîº¢Â¢ø þÕóÐ Å¢ì¸ì ¦¸¡ûÇ¯Ã¢¨Á¯ûÇÐ.

þó¾ ¬Ã¡öîº¢ ºõÀó¾Á¡¸ §¿¡Â¢ý ¾ý¨Á ÀüÈ¢Ôõ ÁüÈ Å¢ÀÃí¸Ùìì õ ¬Ã¡öîº¢Â¡ÇÃ¡É ÁÕòÐÅ÷: ச.அருணா, (Àð¼ §Áü ÀÊôÀ¡Ç÷ சிறப்பு ÁÕòÐÅ Ð¨È) «Å÷¸¨Ç ±ó¾§¿ÃòÖõ ¦¾¡¼÷Ò ¦¸¡ûÇÄ¡õ ¨¸ô§À º¢ ± ñ : 9789974091

§ÁÖõ þó¾ ¬Ã¡öîº¢ìÌ ¾ì¸ «ÛÁ¾îº¡ý Ú (IEC) ¦ÀÈôÀð Îû ÇÐ.

§ÁÖõ ¯½× Ó¨ÈÂ¼ø ÁÕòÐÅÃ¡ø ÜÈôÀÎõ Àò¾¼Âõ ¸¡ì ÌÁ¡Ú «È¼×Úò¾ÀÎ¸¼ÈÐ.

þÐ ºõÀó¾Á¡É ¾í¸ÇÐ «¨ÉòÐ Å¼ÅÃí¸Ùõ Ã¸º¼ÂÁ¡¸ ¨Åì¸ôÀÎõ ±É ¯Ú¾«Ç¼ì¸¼§È ý.

þ¾ø ÀÂ½ôÀÊ Ó¾Ä¼Â ±ó¾ ¯¾Å¼ò ¦¾¡¨¸Ôõ ÅÆí¸ô À¼Á¡ð¼¡Ð.

þó¾ ¬Ã¡öîº¼Â¼ý §À¡Ð ¯¼Öì Ì §ÅÚ À¡¾¼ôÒ ²üÀÎõ Àðºò¾ø «È¼»÷ « ñ ½¡ÁÕòÐÅÁ¨ÉÂ¼ø, ¾ì¸ º¼¸¼î¨º «Ç¼ì¸ôÀÎõ.

இந்த மருந்து சிறப்பாக உதிரவாத சுரோணிதம் நோய்க்காக அங்கீகரிக்கப்பட்ட சித்த மருத்துவ நூலில் கூறப்பட்டுள்ளது. ஏற்கனவே உபயோகத்தில் உள்ள இது போன்ற மருந்து இதுவரை நோயாளிகளிடம் எந்தவித பக்கவிளைவுகளை ஏற்படுத்தவில்லை.

Tha Tamil Nadu Dr.M.G.R.Medical University

69,Anna Salai,Guindy,Chennai - 600 032.

This Certificate is awarded to Dr/~~Mr/Mrs~~.....C. Anna.....

for participating as ~~Resource Person~~ / Delegate in the Seventeenth (XVII) Workshop on

" RESEARCH METHODOLOGY & BIOSTATISTICS "

FOR AYUSH POST GRADUATES & RESEARCHERS

Organized by the Department of Siddha

The Tamil Nadu Dr. M.G.R. Medical University from 15th to 19th June 2015.

Dr.N.KABILAN, M.D.(Siddha)
READER,DEPT.OF SIDDHA

Prof. **Dr.P.ARUMUGAM,** M.D.,
REGISTRAR i/c

Prof. **Dr.D.SHANTHARAM,** M.D., D.Diab.,
VICE - CHANCELLOR

POONGA BIOTECH RESEARCH CENTRE

No.10/58, Kamala Nehru Nagar, 1st Street, Choolaimedu, Chennai - 600 094.
Ph : 044 - 23634289, Website : www.poongabiotech.com

Dr. B. Janarthanam
Chief Scientist,

12.07.2016

To whomsoever it may concern

This is to certify that Dr. C. Aruna, PG Scholar, Department of Sirappu Maruthuvam, Goverment Siddha Medical College, Arumbakkam, Chennai – 600 106 has carried out the following work in our centre.

1. Qualitative analysis of Heavy metal in Rosa Chenduram

B. Janarthanam

Dr. B. Janarthanam

C.L.BAID METHA COLLEGE OF PHARMACY

(An ISO 9001-2000 certified institute)

Jyothi Nagar, Old Mahabalipuram Road

Thoraipakkam, Chennai – 600 097

CERTIFICATE

This is to certify that the project entitled, **Toxicological and Pharmacological study on RASA CHENDHURAM** in rats submitted in partial fulfilment for the degree of **M.D. (siddha)** was carried out at C.L. Baid Metha college of Pharmacy, Chennai-97, in the Department of Pharmacology during the academic year of 2015-2016. It has been approved by the

IAEC No: IAEC/XLVIII/29/CLBMCP/2016

C.L. Baid Metha College of Pharmacy CHENNAI-97 Thoraipakkam

(Dr.P.Muralidharan)
IAEC Member Secretary

Government Siddha Medical College
Department of Medicinal Botany

Dr.S.Sankaranarayanan M.Sc., M.Phil., Ph.D.,
Asst. Professor
Head of the Department

6, Anna Arch Rd,
NSK Nagar,
Arumbakkam, Chennai,
Tamil Nadu 600106.

AUTHENTICATION CERTIFICATE

Based upon the organoleptic/macroscopic/microscopic examination of fresh/market sample, it is certified that the specimen given to Dr. C. Aruna B.S.M.S., doing M.D. (S) at Government Siddha Medical College, Arumbakkam, Chennai-106 is identified below as

Binomial name	Family
Mirabilis jalapa	Nyctaginaceae

References: Flora of Presidency, Gamble, J. S

GSMC/MB-Voucher Specimen No.25/2017

Date: 15.06.2016

Dr. S. Sankaranarayanan M.Sc., M.Phil., Ph.D.,
Head
Dept. of Maruthuva Thavarainyal
(Medicinal Botany and Pharmacognosy)
Govt. Siddha Medical College,
Arumbakkam, Chennai - 600 106.

சித்த மருத்துவ மைய ஆராய்ச்சி நிலையம், சென்னை - 600 106
सिद्ध केंद्रीय अनुसन्धान संस्थान,
अण्णा सरकारी अस्पताल परिसर, अरुम्बाक्कम, चेन्नई – 600 106
SIDDHA CENTRAL RESEARCH INSTITUTE
(Central Council for Research in Siddha, Ministry of AYUSH, Govt. of India)
Anna Govt. Hospital Campus, Arumbakkam, Chennai – 600106
Phone: 044-2621 4925, Fax: 044-2621 4809

08.3.2017

CERTIFICATE

Name of the student: Dr. C. Aruna, III year PG student, Sirappu Maruthuvam, Government Siddha Medical College, Arumbakkam, Chennai-600 106.

Name of the sample: Rasa Chendhooram

Name of the Experiment	Value
Loss on drying(at 105°C)	0 %
Total ash	100 %
Water soluble ash	24.25 %
Acid insoluble ash	55.11 %
pH value (10%)	3.07

(R. Shakila)
Research Officer (Chemistry) & Head,
Department of Chemistry

(Dr. P. Sathiyarajeswaran)
Assistant Director (Siddha) I/c

The Tamil Nadu Dr.M.G.R. Medical University

#69, Anna salai, Guindy, Chennai-600 032.

This certificate is awarded to

Dr./Mr./Ms. C. ARUNA

for participating as ~~Resource Person~~ / Delegate in the First Workshop on

"Pre-clinical Studies in Research"

for Faculties & PG students of ASU Systems

Organised by the Department of Siddha,

The Tamil Nadu Dr. M.G.R. Medical University on 16.12.2014

Dr. N. KABILAN M.D. (Siddha)
Reader, Dept. of Siddha

Dr. JHANSI CHARLES, M.D.
Registrar

Prof. Dr. D. SHANTHARAM, M.D., D.Diab.,
Vice-Chancellor

POST GRADUATE DEPARTMENT OF GUNAPADAM (PHARMACOLOGY)

GOVERNMENT SIDDHA MEDICAL COLLEGE, CHENNAI-106

IDENTIFICATION AND AUTHENTICATION CERTIFICATE

Name of the Student : C. ARUNA

Department : PG – SIRAPPU MARUTHUVAM

Batch year : 2014 – 2017

Name of the sample : RASAM (Hydragyram), Gandhagam (Sulphu
PAAL THUTHAM (Zinc sulphate)

Sample description : Dried whole plant / metal /mineral

Date of the receipt : 6. 6. 2016

REPORT

This sample has been critically studied with macroscopic and organoleptic characters along with relevant literature, I declared that this plant/metal/mineral material is correctly identified as Rasam, Gandhagam, Paal thutham and I hereby authenticate that the sample given by Dr. C. ARUNA.

This certificate issued at his/her request and is given only for dissertation purpose.

6/6/16

Date: 6.6.2016

Place: Chennai

Signature with Seal

Dr. V. VELPANDIAN, M.D(s), Ph.D,
H.O.D - Department of Gunapadam,
Govt. Siddha Medical College,
Chennai - 600 106.

INSTITUTIONAL ETHICS COMMITTEE

Date:

Sub: IEC review of research proposals.

Ref: Your letter dated

MEMBERS	PARTICIPATION	SIGNATURE
DR.P.JEYAPRAKASH NARAYANAN M.D(S)., Chairman	✓	
DR.V.BANUMATHI M.D(S)., Member Secretary		26/03/15
DR.N.KABILAN M.D(S)., Clinician- Siddha	✓	26/3/15
DR.P.SATHIYA RAJESWARAN M.D(S)., Clinician- Siddha	✓	26/3/15
DR.G.AADINAAATH REDDY,M.Pharm, Ph.D., Pharmacologist	✓	Aadinaath 26/03/15
DR.S.THILAGAVATHY Msc.,Ph.D., Social Scientist	✓	26/3/15
DR.T.MAHALAKSHMI M.A.,Ph.D., Linguistic Expert	✓	T. Mahalakshmi 26.03.15
DR.P.VIDYA M.B.B.S., DMRD., Modern Medicine Expert	✓	26/3/15
MR.P.SARAVANAN., Public Person		

26/3/15

Dr.P.Jeyaprakashnarayanan
Chairman

26/3/15

Dr.V.Banumathi
Member Secretary

GOVERNMENT SIDDHA MEDICAL COLLEGE

Arumbakkam, Chennai-106

Communication Of The Decision Of Institutional Ethics Committee (IEC)

IEC No: GSMC-CH-ME-4/2015/013

Protocol title: AN OPEN COMPARATIVE CLINICAL STUDY ON "UDHIRAVADHA SURONITHAM"(RHEUMATOID ARTHRITIS) WITH THE EVALUATION OF SIDDHA TRIAL DRUGS "RASA CHENDURAM" (INT), "ROGA SANJEEVI THYLAM" (EXT) & OTTRADAM.
Principal Investigator: Dr. C. Aruna
Name & Address of Institution: Government Siddha Medical College, Arumbakkam, Chennai-106
☑ New Review ☐ Revised Review ☐ Expedited Review
Date of review (DD/MM/YY): 26/03/2015 Date of Previous Review, If Revised Application:
Decision of the IEC ☑ Recommended ☐ Recommended with suggestions ☐ Revision ☐ Rejected
Suggestions / Reasons / Remarks: Heavy metals analysis should be done.If metals level are raised from normal ppm level ,chronic toxicity study should be done. Change sample size as : 20 patients- Internal & External drugs, 20 patients Internal , External drugs and Ottradam. Anti-inflammatory should be done.
Recommended for a period of 1 year from date of completion of preclinical studies :

Please Note:

- Inform IEC immediately in case of any adverse events/serious drug reaction.
- Seek IECapproval in case of any change in the study procedure, site and investigator
- This approval is valid only for period mentioned above
- IEC member have the right to review the trial with prior intimation.

26/3/15.

Dr.P.Jeyaprakashnarayanan
Chairman

Dr. V.Banumathi
Member Secretary