

Role of Siddha medicine in the management of Carcinoma, one of the Major non communicable diseases

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Introduction

Siddha system is one of the oldest traditional systems of medicine, most popular among the oldest race of the world, Tamils. Developed from the folk experiences of antiquity and later incorporating Sankya Buddhist and Saivaite philosophies of Tamils, for healthy living, Siddha practice and philosophy are unique in its approach. Siddha, which deals with the human life in a holistic approach, where as Modern Bio Medicine, which is also an out shoot of this traditional understanding, 400 years before has evolved in the reductionistic approach because of everyday developing modern science. The Peculiarity of traditional Siddha Science, which has the components of ethistic / sankya/ ajveeha/ lohaidha/ Saiva philosophies-, has answers for many current day challenges.

NCDs (Non Communicable Diseases)

Increasing ageing population is the great victory of current contemporary health system. At the same time, it places, new, long-term demands too. At the same time these development has proved detrimental to environment, leading to many more lifestyle diseases. Chronic diseases and its sequel are projected to be the leading cause of disability throughout the world by the year 2020(WHO- NCD statement); If not successfully prevented and managed, they will become the most expensive problems and pressing concern for every individual especially, middle aged persons. Increased usage of tobacco products, social drinking, eating unhealthy junk foods, disregards of traditional lifestyle practices and culture, reduced physical activity and unaware about real internal happiness is the main pathogens of Non Communicable diseases.

What's called as Non Communicable Diseases-NCD? Several diseases come under the umbrella of NCD and more common are cardiovascular diseases, Cancer, Diabetes, and COPD. Medical systems, independent of each other, have struggled with these NCDs. A multi-targeted approach is required even to manage the disease. This dialogue tried to travel around these factors and explain, how to come out of the clutches of Carcinoma, one of the major NCDs with the help of Siddha system of medicine.

Management of Carcinoma with Siddha medicine

Traditional Siddha Medicine explained about various types of carcinoma, in the name of "puttru, vippuruthi, pilavai, odu-pilavai, thurmangisam katti kandamalai" and few other traditional tamil names. Based on the onset of cancer in various parts of the body, Siddhars had coined its name like Yoni puttru [Vaginal cancer], Linga puttru [Penile

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cancer], Kazhuthu puttru [Cervical cancer] in Siddha traditional literatures. Ancient Siddha literatures like *Anuboga vaithiya navaneetham*, *Yugi Vaithiya Sinthamani*, *Veera maamunivar vaagada thirattu, part - 2 Yakoppu vaithiya vaatha soothiram – 400*, *Veera maamunivar vaagada thirattu*, *Koshayee anubogha vaidhya bramma ragasiyam* are advocating many Siddha preparations for the management and treatment of Cancers.

Few classical Siddha medicine, indicated in Siddha classical literatures, which is indicated especially for controlling various types of Carcinomas

DRUG	INDICATION
Thamira parpam	Yoni puttru, linga puttru
Chitiramola nei	Yoni puttru
Megathu ennai	Yoni puttru, linga puttru
Mathusmeegi rasayanam	Linga puttru
Pavala vanga chendhuram	Linga puttru
Muthu chendhuram	Yoni puttru, linga puttru
Velleeya chendhuram	Kabala puttru
Soodha parpam	Puttru, araiyappu, linga puttru, kadithada puttru
Gaantha chendhuram	Linga puttru, yoni puttru
Chittira vallathi legium	Puttru
Vallarai nei	Yoni puttru
Sen kathari ennai	Thondai - naaku - vaai puttru
Vippuruthi ennai	Vippuruthi
Mega raasanga ennai	Moola puttru
Veera mezhughu	Mega puttru
Karanthai chooranam	Kanna puttru, yoni puttru, pilavai
Karuvanga chendhuram	Mega puttru
Kaala megha naarayana chendhuram	Kaana - araiyappu - puttru, Vila - madu - karuppai vippuruthi
Pancha chendhuram paadana	Pilavai, kanna puttru
Rasa parpam	Yoni puttru, vippuruthi
Linga chendhuram	Algul puttru

Sanda maarutha chendharam	Puttru, linga puttru, anda puttru, aaratha viranam
Poora kattu	Yoni puttru
Gorosanai mezhugu	Linga puttru, algul puttru
Vaayu mathirai	Linga puttru, algul puttru
Veera mezhugu	Linga puttru, algul puttru

Neeradimuthuvalathy Mezhugu (NM), a Siddha medicine containing 20 different botanicals (*Semecarpus anacardium*, *Hydnocarpus kurzii*, *Smilax china*, *Calamus rotang*, *Nigella sativa*, *Cuminum cyminum*, *Acorus calamus*, *Indigofera aspalathoides*, *Azima tetraantha*, *Corallocarpus epigaeus*, *Withania somnifera*, *Enicostemma littorale*, *Calatropis gigantia*, *Ficus racemosa*, *Boerhaavia diffusa*, *Toddalia asiatica*, *Wrightia tinctoria*, *Sesamum indicum*, *Indigofera tinctoria* and *Azadirachta indica*) and 4 different inorganic compounds (copper, sulphur, zinc and mercury), is prescribed as a therapeutic modality for cancer in southern parts of India for past 75 years.

In the contemporary world, quite number of plants with Indian origin possessing the property of anti cancer effect has been established and is in the current treatment and management of Carcinomas. Catharanthus roseas for Hodgekins lymphoma, Leukemia [ky loh, 2008] and *Taxus baccata* for ovarian cancer, breast cancer [paclitaxel cancer drug information 2006] are few examples.

AHPL 02 SP11, a herbomineral Siddha medicine, inhibits HS696 cells proliferation through apoptotic mechanism

AHPL 02 SP11, a herbomineral Siddha medicine, developed by Arogya healthcare, India, with the basis of Siddha medicine. The cytotoxicity potential of AHPL 02 SP11 was assessed by MTT colorimetric assay. The induction of apoptosis was analyzed by Bax, Bcl2 and p53 gene expression by reverse transcriptase polymer chain reaction (rtPCR). AHPL 02 SP11 produced a dose dependent cytotoxic effect on the Hs696 cell lines. Further, it had down-regulated the gene expression of Bcl2 and up-regulated Bax and p53 expression. These data suggest that AHPL contains bioactive compounds that may be beneficial in the treatment of adenocarcinoma.

Need of the hour

A dispassionate dialogue between AYUSH and Biomedicine professionals and intensified research in integrative oncology is the need of the hour. A state of the art research with Indian Siddha herbs and AYUSH formulations with a mission should second to it. Let us also plan how integrate chemo or mainstream modern bio medicines, yoga, nutraceuticals, AYUSH medicines, quality food and other lifestyle interventions. We shouldn't forget the statement given by Thirumoolar of east and Sir Osler from west, "Every patient is different. That's why medicine is not a science and it's an art still".

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A Scientific approach of Vataraktam

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INTRODUCTION

The changes in lifestyle, food habit, pace of life etc. have kept on contributing a number of new diseases, which have become a challenge for the human race.

Rheumatoid Arthritis is a common clinical entity afflicting nearly 1% of world's population. The reported prevalence of Rheumatoid Arthritis in adults varies from 0.5% - 3.8%, with an annual incidence 5% of women and 2% of men.

Definition:

Charaka Samhita defines Vatarakta as,

“Vayuh vivridho vridhena rakten avarita pathi Kritsna samdushayet raktam tat jneyam vatashonitam”

When the vitiated Rakta dhatu causes hindrance in the path of morbid Vata, it leads to further aggravation in Vata dosha. This causes the derangement of Rakta dhatu resulting in Vatasanita.

Types

2 types

Utthana Vataraktham

The disease presents with the clinical features like of Kandu(itching), Daha(burning sensation), Ruk(pain), Toda(pricking pain) and Sphurana(throbbing pain), which indicates the involvement of Twak and Mamsa dhatus and that deduces the probability of Utthana Vatarakta.

Gambhira Vatarakta

Acarya Charaka explains Gambhira Vatarakta as the one involving the deeper dhatus i.e. the dhatus other than Twak and Mamsa. The symptoms consists of Svayathu(oedema), Daha, Toda, Granthi, Paka(suppuration) and excruciating pain in Sandhi(joints), Asthi(bone) and Majja.(bonemarrow)

NIDANA

Vidahi annam : Excess intake of salt, sour, oily, hot food.

Viruddham : Frequent excess eating of food of opposite qualities.

Asrg pradushanam : Food and activities which causes vitiation of blood.

Vidhi hina swapna jagarana maithuna : Improper indulgence in day sleep, vigilance at night and sex.

PURVA RUPAM:

Bhavisyatah kushta samam : Purvarupa which mimics kushta rogam. (Skin diseases)

RUPAM Hard swelling appears preceded by severe pain, vata moves with great speed and spreads in the joints, bones and marrow. Produces cutting pain and curvature of bones and joints and moving all over the body makes the person lame by one or both the legs.

SADYA ASADYATA : Yapyam.(controllable)

SAMPRAPTI :

- Nidana sevana: Ruksha, laghu, sita ahara vihara ,,Katu, amla, lavana, vidahi ahara sevana
- **Vata dushti (Degeneration,Cala guna of vata**
- **(Pitta dushti) Rakta dushti(Inflammation),**
- **((sara guna of pitta or rakta)**
- **Auto immunity**
- **Reaches sandhi (kapha stana)**
- **Stana Samsraya takes place**

compromised stage

Slesaka kapha + sleshmadhara kala

Sneha guna nasana or snigdha ksaya takes place

Dosha dushya sammurchana

Joints become dry, stiff, kyphosed, unite together.

CIKITSA:

Vatarakta is a disease which is produced by dhatu paka. It has got various avastas Uttanam affects twak, raktam and mamsa dhatus. Gambhiram affects the other tissues. So dhatugata avasta is very important in vatarakta.

Snayu itself is a part of Madhyama roga marga. Hence in gambhira avasta madhyama roga marga and tiryak gati is involved. In tiryak gati rogas Vasti plays a major role. Hence it is said nothing equalizes vasti in the treatment of vatarakta.

kwatha prayogam

vari swinna kwatha vata raktha ruja paka (s.y)

kwatha with sathavari swanna pain get subsided

Kashayam	Rasa medicines	Churanam	Ghritam	Asava arista
manjistadi kashayam	vatagajakesari	Nimbadi	Jeevaniya	Kadirasava
patola mooladi kashayam	pitantaka loha	sudharasanam	Amrutadi	manjistadi
rasna erandadi kashayam	vatagajaankusam	bringaraja	guducyadhi	Dasamoolarista
punarnavadi kashayam	vatarakantaka ras	vaishvanaram	tiktam	chandanasavam
brihatyadi kashayam	vatarakantaka ras	shaddharanam	Jeevaniya	sarivadi asavam

Rheumatoid arthritis-modern approach

Rheumatoid arthritis (RA) is an autoimmune disease that causes pain and inflammation of the joints. Other parts of the body can also be affected. Inflammation causes the joints to become painful and swollen and movement may be restricted. Stiffness in the joints is common, especially in the morning. The inflammation caused by rheumatoid arthritis can result in damage to the joints.

Symptoms of rheumatoid arthritis

The most common symptoms of rheumatoid arthritis include:

- Swelling, pain and warmth in the joints,persistent fatigue
- Stiffness in the joints, especially in the morning
- Sleeping difficulties because of pain,weak muscles.
- The same joints on both sides of the body are usually affected.

.An immune system attack

Rheumatoid arthritis is an autoimmune disease. The normal role of the body's immune system is to fight off infections, however when a person has an autoimmune disease, the immune system starts attacking the body's healthy tissues.

In the case of rheumatoid arthritis, the immune system targets the lining of the joints, causing inflammation and joint damage. The characteristic swelling happens when the joint produces too much lubricating (synovial) fluid in response to the inflammation.

Managing rheumatoid arthritis

- **Medication** –Symptamatic treatment, NSAIDS.

The disease-modifying anti-rheumatic drugs (DMARDs) are a special group of medications used to treat inflammatory arthritis.

- Aids and equipment** – supporting aids for walking as per occupational theraphist advice.

- Relaxation techniques** – muscle relaxation, distraction, guided imagery to manage pain

- Exercise** –to manage pain, improve muscular strength, and for joint flexibility

- **Physiotherapy** –to manage pain and physical activity

- **Rest** – rest can help you to manage fatigue, particularly for swollen joints

- **Nutrition** –balanced diet to maintain general health and prevent other medical problems.

- **Support** – a peer support group can provide understanding, advice.

- **Complementary therapies** – such as massage or acupuncture may be helpful.

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Molecular Dynamics of Ayurgenomics

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"It's far more important to know what person has the disease than what disease the person has"

-Hippocrates

"Every individual is different from another and hence should be considered as a different entity. As many variations are there in the universe, all are seen in human beings".

- Charaka Samhita

Indians are pioneers in many fields of science like Astronomy, Physics, Botany, Mathematics and Medicine etc., In mathematics Indians contributed 'Zero' which changed the understanding of mathematics; In Botany Sir J.C.Bose's contribution on life of plants brought major changes in understanding plant physiology and plant pathology. In the Medical field, Ayurveda is a complete Vedic design for healthy life.

Ayurveda is one of the oldest of medicine followed among the countries of the world. Its origin can be traced back to 4500 BC, based on the ancient knowledge contained in *Rigveda - Atharvaveda*. It deals with the Totality of individual and social health including preventing and curative aspects. In fact Ayurveda is a way of life based on emphasis of certain diet, lifestyle, and yoga practices suitable for an individual according to his/her constitution. The basic concept of Ayurveda is based on the fact that the universe is made up of five elements earth, air, water, fire and space. Human beings are also composed of these same elements. These five elements interact and in humans they occur as three *dhosas* (*Vata, Pitta and Kapha*) called 'Tridhosas' When the *Dhosas* are out of balance, the body does not function properly and the disease follows. Considering all its aspects, which consists of salubrious use of drugs, diets and practices. The main concept is based on '*dosha – dhatu-mala*' theory, which is concerned with 'tridhosasa' explained. To say Ayurveda is the science of the sum of all the knowledge's related to life from the Origin of Universe to Pralaya (Dissolution) of Shristi (Nature).

Potentials of Ayurveda:

There are many fundamentals, which stood Ayurveda as supreme scientific way of life. Among them some are given below which will contribute to modern medicine to make complete and health care system.

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Concept of Prakriti (Ayurgenomics), Concept of Agni (Digestion & Metabolism), Concept of ojas (Immunity in Ayurveda), Concept of Sathmya (Homologation), Concept of Ama/Amavisha (Auto intoxication), Concept of Sukhayu (Healthy aging), Panchakarma (Bio-servicing procedures), Concept of Rasayana (Biological Response Modifiers), Concept of Baishajya Kala (Chronotherapeutics), Ayurvedic Drug Spectrum, Concept of Viruddhdhatha (Incompatibility) and Concept of Samprapti/Shathkriyakala (Pathogenesis)

The first concept the Prakriti is basically “Bio-Genetic Mind –Body typing”. Ayurveda classifies every patient’s prakriti (internal nature), which does not change the patient’s mind body type from birth to death. We know everything from color of hair, eye’s, build of the body and behavior of each individual is programmed in genetics and the surrounding environment as long as one is close to the original constitution, Patient stay healthy. Constant inevitable interaction with external surroundings by violating the rules of nature for that particular individual gives rise to imbalanced internal nature, which is Vikriti. It is best to treat any first signs of Vikriti in any individual. The unique thing of Ayurveda is this clinical reading of genetic expression of each individual’s Prakriti and it’s interaction with external nature producing internal derangement Vikriti.

Samprapthi- Ayurveda explains 6 stages of the disease process as Accumulation (Sanchaya), Aggravation (Prakopa), Dissemination (Prasara), Localization (Sthana samsraya), manifestation (vyakthavastha) and Disruption (Bhedavastha). Ayurveda treats effectively first 4 stages of the disease where the symptoms are very vague and occasional such as stomach acidity, headaches etc., and modern medicine treat these with over the counter OTC medicines. During this stage if the patient visits the MD he or she would not find any serious clinical signs or symptoms of the disease and lab tests will be perfectly normal and patient is sent back home. This window of courtship of imbalance of health lasts many years before the tests show any abnormality. Modern medicine starts to recognize symptoms of any disease in the 5th stage and starts to treat 6th stage of Disease. So 80 to 90 percent ill health is waiting to mature to be treated as heart attacks, total knee replacement, open heart surgeries etc. Thus one can argue that Ayurveda is a preventive medicine treating healthy population. While modern medicine is for totally sick patients. Ayurvedic clinical methods are sensitive enough to pick up subtle imbalance in the mind and body functioning and so we are treating very early before localization of the disease. According to Ayurveda the standard of health is very high and perfect health is not mere absence of disease.

A landmark study, the first of its kind in the world, finds links between Prakriti, a fundamental principle of personalized medicine of Ayurveda, and modern genomics for development of predictive and personalized medicine. The study reveals that it is possible to identify groups within normal individuals of the populations, which could be predisposed to certain kind of diseases, and also might respond differently to drugs. Such integration of the principles of Ayurveda with genomics, appropriately termed as Ayurgenomics, holds great potential and promise for future predictive and personalized medicine at an affordable cost.

For the first time it has been demonstrated that normal individuals within the same ethnic population, clustered on the basis of clinical criteria described in Ayurveda, show variations in the basal levels of blood parameters used in routine for diagnostic purposes, as well as in basal levels of expression of genes. Human genome sequencing and subsequent mapping of genetic variability has allowed us to identify genetic variations and patterns of variability across diverse global populations.

India has also put systematic and concerted efforts to identify relatedness amongst the diverse Indian populations at genetic level. The first step in this regard was the CSIR led Indian Genome Variation Consortium project, which provided the first genetic landscape of India. In this project, 55 distinct populations of India, classified on the basis of linguistic lineage and ethnicity from different geographical zones of the country, were found to cluster into five major groups of relatedness. However, despite greater genetic similarity there was high inter-individual variability within each cluster. This inter-individual variability confers differential susceptibility to common diseases like diabetes, asthma, cardiovascular disease and differential drug responsiveness. Therefore, the next logical step was to identify groups within these related populations that are likely to be similarly predisposed or protected from the disease. According to Ayurveda, an individual's basic constitution, Prakriti, to a large extent, determines predisposition and prognosis to diseases as well as suitability of preventive and curative regimen for the same. This study explored whether this ancient and documented system of Prakriti analysis could be correlated in modern biology terms. For this purpose, more than 1000 individuals were screened, out of which 120 individuals of predominant prakriti were identified, and subsequently 96 unrelated ethnically matched healthy individuals with predominance of either Vata (39 individuals), Pitta (29) or Kapha (28) prakriti, belonging to an age group of 18 – 40 years with equal numbers of both genders (n=48 in each case) were recruited for further analysis. Blood sampling was carried out from these individuals following all ethical guidelines. DNA, RNA and serum were isolated and whole genome expression profiling, using H19Kv8 cDNA microarray as well as biochemical testing for 33 parameters used in routine testing was carried out to study whether these groups exhibit any differences. These subjects were all from North India and of Indo-European origin. The genetic background of the subjects was reconfirmed through analysis of genetic similarity with this group and populations of the Indian genome variation project. The subjects shared genetic affinity with the Indo-European populations of North India.

In this study, normal individuals of the three most contrasting Prakriti types, namely, Vata, Pitta and Kapha, were identified following clinical criteria described in Ayurveda in Indian population of Indo-European origin. It was observed that these Prakriti types exhibited differences at biochemical profiles like liver function tests and lipid profiles and hematological parameters like hemoglobin level etc. Differential gene expression was found in significant number of housekeeping and disease related genes. A significant variation in expression of genes related to metabolism, transport, immune response and regulation of blood coagulation etc. was also observed. The results of the study conceptualized by Prof Samir Brahmachari, Director General, CSIR and led by Dr. Mitali Mukerji at the Institute of Genomics and Integrative Biology have been reported in the Journal of Translational Medicine

recently (September 2008). There was intense involvement of Dr. Bhavana Prasher an Ayurveda expert and Dr. Sapna Negi a senior molecular biologist (senior authors of paper) along with a team of trans-disciplinary people that included Ayurveda doctors, molecular biologists, biochemists, bioinformaticians and statisticians.

In view of Dr. Ramniwas Prasher; Ayurgenomics can be foundation stone laid by Dr. B.K Samir& his team of scientists including Dr. Bhavana Prasher as an Ayurveda expert, not only in curative but also in preventive medicines once this mission of co-relation between the Ayurvedic genetic -physiological factors VATA-PITTA & KAPHA modern molecules of genetics could be traced as Stratified lifestyle & dietary-regimen & guidelines can be in accordance to the types of prakriti that will check the manifestation of the diseases in spite of having proneness to that categories of diseases.

Human Genome Project Yesterday

Just a half-century ago, very little was known about the genetic factors that contribute to human disease. In 1953, James Watson and Francis Crick described the double helix structure of deoxyribonucleic acid (DNA), the chemical compound that contains the genetic instructions for building, running and maintaining living organisms. Methods to determine the order, or sequence, of the chemical letters in DNA were developed in the mid- 1970s. In 1990, the National Institutes of Health (NIH) and the Department of Energy joined with international partners in a quest to sequence all 3 billion letters, or base pairs, in the human genome, which is the complete set of DNA in the human body. This concerted, public effort was the Human Genome Project. The Human Genome Project's goal was to provide researchers with powerful tools to understand the genetic factors in human disease, paving the way for new strategies for their diagnosis, treatment and prevention. From the start, the Human Genome Project supported an Ethical, Legal and Social Implications research program to address the many complex issues that might arise from this science. All data generated by the Human Genome Project were made freely and rapidly available on the Internet, serving to accelerate the pace of medical discovery around the globe. The Human Genome project spurred a revolution in biotechnology innovation around the world and played a key role in making the U.S. the global leader in the new biotechnology sector. In April 2003, researchers successfully completed the Human Genome Project, under budget and more than two years ahead of schedule.

Human Genome Project as on Today

The Human Genome Project has already fueled the discovery of more than 1,800 disease genes. As a result of the Human Genome Project, today's researchers can find a gene suspected of causing an inherited disease in a matter of days, rather than the years it took before the genome sequence was in hand. There are now more than 2,000 genetic tests for human conditions. These tests enable patients to learn their genetic risks for disease and also help healthcare professionals to diagnose disease. At least 350 biotechnology-based products resulting from the Human Genome Project are currently in clinical trials. Having the complete sequence

of the human genome is similar to having all the pages of a manual needed to make the human body. The challenge now is to determine how to read the contents of these pages and understand how all of these many, complex parts work together in human health and disease. One major step toward such comprehensive understanding was the development in 2005 of the HapMap (<http://hapmap.ncbi.nlm.nih.gov/>), which is a catalog of common genetic variation, or haplotypes, in the human genome. In 2010, the third phase of the HapMap project was published, with data from 11 global populations, the largest survey of human genetic variation performed to date. HapMap data have accelerated the search for genes involved in common human diseases, and have already yielded impressive results in finding genetic factors involved in conditions ranging from age-related blindness to obesity.

The tools created through the Human Genome Project continue to underlie efforts to characterize the genomes of important organisms used extensively in biomedical research, including fruit flies, roundworms, and mice. NIH's Ethical, Legal and Social Implications program has become a model for other research efforts seeking to address ethical issues in a proactive manner. With the drastic decline in the cost of sequencing whole exomes or genomes, groundbreaking comparative genomic studies are now identifying the causes of rare diseases such as Kabuki and Miller syndromes. Much work still remains to be done. Despite many important genetic discoveries, the genetics of complex diseases such as heart disease are still far from clear. Pharmacogenomics is a field that looks at how genetic variation affects an individual's response to a drug. Pharmacogenomics tests can already identify whether or not a breast cancer patient will respond to the drug Herceptin, whether an AIDS patient should take the drug *Abacavir*, or what the correct dose of the blood-thinner Warfarin should be.

Human Genome Project on Ayurveda Medicine will provide a novel molecular framework for integration of these two disciplines for predictive and personalized medicine in the near future.

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