AYURVEDIC APPROACH OF NON-COMMUNICABLE DISEASES
W.S.R. TO CARDIO VASCULAR DISEASE

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ABSTRACT
Non-Communicable Diseases (NCDs) is a non infectious or non transmissible disease. These are also known as chronic diseases. The main types of Non communicable diseases are Cardio-vascular diseases, Cancer, Chronic respiratory disease and Diabetes. NCDs disproportionately affect people in low- and middle-income countries. Of the 57 million global deaths in 2008, 36 million or 63% were due to NCDs. People of all age groups, regions and countries are affected by NCDs. These conditions are often associated with older age groups, but evidence shows that 15 million of all deaths attributed to NCDs occur between the ages of 30 and 69 years.[1] Major risk factors of Non communicable diseases are physical inactivity, unhealthy diet, use of alcohol or tobacco and faulty life style. Main risk factors of NCDs are Smoking, High blood pressure, Obesity, insufficient physical activity, Alcohol and Unhealthy diet. Ayurveda, the healing science is needed in daily regimen of life for wellness and illness in today’s scenario. Prevention and management of NCDs is possible by implementation of beneficial Ayurvedic concepts. Tridosha balance can be maintain by following rules of Ahar, Vihar, Nidra, Brahmacharya, Rasayan and kriyakal.

KEYWORDS: NCDs, Cancer, Diabetes, Obesity, Tridosha, kriyakal. Rasayan.

INTRODUCTION
Non-Communicable Diseases (NCDs) are characterized by gradual onset, multi factorial causation, long natural history, prolonged treatment and multidisciplinary approach in prevention and control. Non-Communicable Diseases (NCDs) mainly cardio and cerebrovascular diseases, chronic respiratory diseases, diabetes and cancer are top killer in
the world. 53% of all deaths are due to NCDs. One third of these deaths are premature and occurred before the age of 60 years, thus affecting economically productive individuals. NCDs are common among poor and impoverished families. According to WHO statistics for 2011, in India NCDs are estimated to account for 53% of all deaths. Of these deaths, cardiovascular diseases and diabetes are the most common cause of deaths due to NCDs in India.\[^{1,2}\]

**Risk Factors\[^{2}\]**

Non-Communicable Diseases (NCDs) are attributed to lifestyle factors. Lifestyle of human beings are greatly affected by socialization which impart habits of alcohol, tobacco, coffee and lack of exercise etc. The risk factors can be categorized into modifiable and non-modifiable risk factors. Modifiable risk factors are factors which can be reduced by intervention. These factors are:

- Smoking
- High blood pressure
- Obesity
- Insufficient physical activity
- Dyslipidaemia
- Alcohol

Non-modifiable risk factors includes age, sex, genetic susceptibility and family history.

**Types of NCDs\[^{2}\]**

There are number of NCDs, but the major public health problems are

1. Cardiovascular disease
2. Diabetes
3. Hypertension
4. Cancer
5. Chronic respiratory diseases
6. Mental disorders

**Ayurveda and NCDs**

Ayurveda is an eternal science which is in use since thousands of years in Indian sub-continent. Ayurveda has become an essential part and parcel of daily regimen of life in wellness and illness. Major and important concepts described in Ayurvedic texts under
various headings are very useful for prevention and management of Non communicable diseases. These concepts are Ahar (Dietetics), Nidra (sleep), Brahamcharya (ethics of sexual life), Vihara (living style & norms), Ausadha (Preventive/Supplementary medicine) and Prakriti. Observance of such Ayurvedic components of life are basically tools & primary preventive protocols of diseases and keep stress aways. Ahara, Vihara and Rasayana (Achara Rasayana & Naimitika Rasayana) are three dimensional approach towards maintenance of NCDs.

Here concept of Kriyakal is widely discussed. Hence theories of system regulation lie at the heart of understanding dosha imbalances and Shadkriyakala. It is important for understanding the root of disease and for a desirable approach towards the disease. Shadkriyakala's central concept of ‘Doshas going out of balance’ involves successive stages of imbalance represented by sequential stages of departure from equilibrium.

Kriyakal[3]

In this Ayurvedic context pathophysiology of disease in six successive stages are elaborated. These six stages are known as “Shat Kriya Kal”. Due to various causes when Tridosh gets vitiated, it also vitiate dhatus. From the time of imbalance of Tridosh a pathological changes occurs in the body beginning at microscopic level to macroscopic level. These pathological changes occur in dosha, dushya, agni, srota and other elements of body. These six stages permit the thorough recognition and elimination of disease long before it progress into evidently differentiated clinical symptom. The six stages are –

1. Sanchaya (mild accumulation of Doshas)

This is the stage of accumulation of Doshas. The features of this stages are fullness of Koshta (alimentary tract) and stability (absence of movement), these are due to vata. Mild increase of temperature due to Pitta. Feeling of heaviness of body and lassitude due to kapha. This is the prathama kriya kal. Such symptoms signals physiological imbalance, this should not be ignored, people has common tendency to ignore these symptoms as it may disappear themselves after some hours.

2. Prakopa (aggravation of the Doshas)

This is the second stage of aggravation of Dosha, which produces kosthatoda, sancharan (mild and diffuse pain and movement inside the alimentary tract), Amlika (sour bleching) Pipasa (thirst), and Paridaha (burning sensation all over the body).
3. Prasara (spreading)
In this third stage, aggravated Doshas are spread to other places. Features of vata dosha are vimarga gamana (movement of things in wrong direction inside the alimentary tract) and Atopa (gurgling sound in the abdomen), features of pitta dosha are Osha (feeling of burning sensation locally), Chosa (sucking pain), and Paridah (burning sensation all over the body), features of kapha dosha are Arochaka (loss of appetite), Avipaka (indigestion), and Chardi (vomiting). This is the stage of disease activity.

4. Sthana Samshraya (localization)
This is the fourth stage which is also known as stage of disease augmentation. In this stage specific susceptibility to serious infection and degenerative disease start. Aggravated Doshas become localised at certain places and produces disease is such places. Such examples are –

<table>
<thead>
<tr>
<th>LOCALIZATION</th>
<th>DISEASE PRODUCED</th>
</tr>
</thead>
<tbody>
<tr>
<td>Abdomen</td>
<td>Tumors, abscess, Visuchika (gastroenteritis), diarrhea etc.</td>
</tr>
<tr>
<td>Urinary bladder</td>
<td>Diabetes, urinary calculus, retention of urine etc.</td>
</tr>
<tr>
<td>Rectum</td>
<td>Fistula in ano, piles etc.</td>
</tr>
<tr>
<td>Skin, muscles, blood</td>
<td>Leprosy, erysipelas, skin diseases etc.</td>
</tr>
<tr>
<td>Fat tissue</td>
<td>Benign tumor, goiter, lymphadenoma of neck etc.</td>
</tr>
<tr>
<td>Legs</td>
<td>Filariasis, gout, sprain etc.</td>
</tr>
<tr>
<td>Entire body</td>
<td>Fever, disease affecting whole body.</td>
</tr>
</tbody>
</table>

5. Vyakti – (manifestation of disease)
This is the fifth stage in which clearly differentiated symptoms first appear. It is the stage of symptom manifestation. Now, disease affect the ability of body to maintain immunity and healthy functioning. At this stage, structural dysfunction or damage have progress to the point where the illness actually activates.

6. Bheda -(chronicity)
This is the six and last stage of Kriya Kaal. It is also known as the stage of complication. This stage gives information about detailed understanding of group of symptom that have surfaced the fact that all the doubts regarding the nature of the disease are eliminated. If the diseases are not treated in this stage they will become incurable.\[11\]

Rasayan therapy\[4\]
In ‘Ashtanga’ the eight part of Ayurveda, Rasayan has an important place. As described in Ayurvedic text, the aim of Ayurveda is “Swasthasya Swavaasthya Rakshanam Aturasya Vikar Prashmanam cha” i.e. it’s not only about the treatment of disease but how to maintain
and achieve good health throughout life. It is better to be free from various types of diseases by following the rules of Sadavritta and Achar Rasayan rather than taking treatment after being affected by diseases. Although Rasayan therapy provides strength and immunity to body but it also beneficial in mental disorder, peacefulness and calmness of mind. Rasayan acts in our body at microscopic level. It has been proven that Rasayan acts on Dhatu level, on Agni level and also on Srotas level. There are lots of Rasayan which can be use undoubtedly on regular basis which can facilitate protection from various ailments. Some important Rasayan Dravya are described here;

<table>
<thead>
<tr>
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</thead>
<tbody>
<tr>
<td>Rauwolfia serpentine</td>
<td>Hypertension</td>
</tr>
<tr>
<td>Commiphora mukul</td>
<td>Hyperlipidemia</td>
</tr>
<tr>
<td>Momordia charantia</td>
<td>Diabetes</td>
</tr>
<tr>
<td>Termenalia chebula</td>
<td>Anti-ageing</td>
</tr>
<tr>
<td>Celestrus paniculatus</td>
<td>Mental disorder</td>
</tr>
<tr>
<td>Terminalia arjuna</td>
<td>Cardiotonic</td>
</tr>
<tr>
<td>Piper longum</td>
<td>Respiratory disorder</td>
</tr>
</tbody>
</table>

Cardiovascular Disease
Cardio vascular disorders continue to be the major cause of mortality representing about 30% of all deaths worldwide. With rapid economic development and increasing westernization of lifestyle in the past few decades, prevalence of these diseases has reached alarming proportions among Indians in the recent years. In Ayurveda cardiovascular disease discussed under “Hridaroga”. Hridya has been referred to be the site of psyche.

Dosha in Heart
- *Praan Vayu* - Responsible for conduction of heart.
- *Vyana Vayu* - Responsible for the blood circulation.
- *Saman Vayu* - Responsible for Annaras (end product of digestion) to carry toward heart.
- *Sadhak Pitta* – Responsible for action of heart.
- *Avalambak Kapha* - Responsible for strength of body and mind in combination with Annaras.
Nidan of Hridarog (Etiological factors of heart disease).[6]

- Tikta dravya (bitter & spicy)
- Ushan dravya (things creating heat in body)
- Addhyashana (over eating)
- Asatmya bojana (un adapted diet)
- Veg sandharan (holding natural urges)
- Aghata (shock)
- Tikta dravya (bitter & spicy)
- Ruksha anna (eatable causing dryness)
- Viruddha bhojana (incompatible diet)
- Ajirna bhojana (eating without digestion)
- Adhika vyayama (excessive exercise)
- Abhigata (trauma)
- Chinta (anxiety)
- Trasa (mental shock)
- Asya vairasya (distaste in mouth)
- Vamana (vomitting)
- Vaivarnya (discoloration or palor)
- Aruci (anorexia)
- Murcha (shock)
- Jvara (fever)

General Signs and Symptoms of Heart Disease.[6]

- Shwasa (dyspnoea)
- Kasa (cough)
- Kaphotkleda (expectoration)
- Ama (incomplete digestion)
- Vamana (vomiting)
- Asya vairasya (distaste in mouth)
- Trisha (excessive thirst)
- Vaivarnya (discoloration or palor)
- Aruci (anorexia)
- Murcha (shock)
- Jvara (fever)
- Kasa (cough)
- Kaphotkleda (expectoration)
- Asya vairasya (distaste in mouth)
- Vaivarnya (discoloration or palor)
- Murcha (shock)
- Ruja (pain)

Types of Hridroga- There are five types of Hridroga - Vataj, Pittaj, Kaphaj, Tridoshaj and Krimij.

Samprapti (etiopathogenesis) of Hridroga

Vata getting obstructed by kapha and pitta present in the chest and combining with rasa present in the heart, give rise to pain which causes obstruction to breathing, this is called ‘Hridshula’ produced by rasa and Vata. Suppressions of the urges, ingestion of food of hot potency and dry in great quantities, use of incompatible foods, more quantity of food often, uncooked food in more quantity by these causes Dosha get aggrevated, vitiate the ras present in the heart and give rise to pain in the heart, this is known as Hridroga.

Fixed and Modifiable Risk Factors

<table>
<thead>
<tr>
<th>Fixed risk factors</th>
<th>Modifiable Risk Factors</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age</td>
<td>Hypertension, diabetes, hyperlipidemia, stroke and peripheral vascular disease in first degree relatives.</td>
</tr>
<tr>
<td>Sex</td>
<td>Sedentary lifestyle (lack of exercise)</td>
</tr>
<tr>
<td>Family history of CVD</td>
<td>Smoking (tobacco in any form)</td>
</tr>
<tr>
<td>Post menopause women</td>
<td>Obesity</td>
</tr>
<tr>
<td></td>
<td>Hypertension</td>
</tr>
<tr>
<td></td>
<td>Diabetes</td>
</tr>
<tr>
<td></td>
<td>Hyperlipidemia</td>
</tr>
</tbody>
</table>
High Risk Subjects

| ✔ | Family history of CAD, hypertension, diabetes, hyperlipidemia, stroke and peripheral vascular disease in first degree relatives. |
| ✔ | Sedentary lifestyle (lack of exercise) |
| ✔ | Smoking (tobacco in any form) |
| ✔ | Obesity |
| ✔ | Hypertension |
| ✔ | Diabetes |
| ✔ | Hyperlipidemia |

Key Steps to Reduce Heart Attack Risk

- Stop smoking
- Lower high blood pressure
- Reduce high blood cholesterol
- Aim for a healthy weight
- Be physically active each day
- Manage diabetes

Stress Reduction

- Urbanization and Westernization of lifestyle are taking the toll.
- Fast life now guided by the IT revolution is leaving many of us stressed out even at the beginning of the day.
- People with established cardiovascular illnesses should seriously consider lifestyle modification. This includes yoga, meditation, relaxation, exercises and even change of job and / or place.
- Awareness of the stress as a risk factor by the patient is very important. Any kind of psychological disturbances will lead to a disturb patho-physiology of heart. Hence it is suggested to protect the heart from every kind of stress.

Treatment

- Elimination of the cause (*Nidana Parivarjana*).
- Rest - mental and physical relaxation.
- Dietary & life style modifications.
- Palliative and purification (*Samana & Sodhana*) treatment.\(^7\)

**Single Herbs:** *Pushkarmula, Arjuna, Haritaki, Triphala, Methi, Karcura, Punarnava, Guggulu, Vaca*, etc have been proved anti-anginal, anti-ischaemic, anti-hyperlipedemic, anti-
arrhythmic, cardio-protective and cardio-corrective as well. Properly selected drugs for proper case, at proper time, for a proper period can prevent and avert heart emergencies and surgeries.

**DIETARY CONSIDERATIONS**

*Pathya-Apathya in Hridroga (Do’s and don’ts)*: Diet is an important factor responsible for coronary heart disease (CHD). A major part of its effect is mediated through lipo-proteins. A high portion of energy from saturated fat raises the LDL (bad cholesterol), where as a high portion of energy from unsaturated fat (soyabean oil, sunflower oil, mustard oil, cotton seed oil, til oil, rice bran oil, etc) raises HDL (good cholesterol).

To prevent coronary blockage, total fat intake must consist of no more than 10-15% of the total calorie. Other dietary ingredient with beneficial effect includes- anti-oxidants, vitamins (vit-B, C, E), flavonoids, phyto-estrogens and fibre, present abundantly in fruits & vegetables.

**Do’s**

Have wheat, Yava, Mudga (green gram), horse gram, cabbage, gourd, serpent gourd, Alibanam (Tendil), ginger, garlic, Onion, Dry ginger, Old pumpkin Pomegranate, mango, grapes, lemon, Orange, Honey, hot water, Cow's ghee, *Ajawayana*, Safflower oil, Sunflower oil, Regular exercise- walking, yoga etc.

**Don’ts**

Eat Maize. Jvara, Varak, Pot herbs, bitter gourd, Sago ,Pea, Black gram, Cow pea, Kidney beans, fish, Aquatic animals meat, Red meat, Milk, Milk products, Avoid stress and fatigue.

**CONCLUSION**

Non Communicable Diseases (NCDs) carrying a major burden for public health in developing countries. The recent rises in morbidity and mortality of NCDs delivering awareness at international level that now the time has come for positive implementation of treatment protocol for NCDs. Ayurveda is hopefully emerging as a great scope in this field. First of all concept of *Kriyakal* is essential to understand the disease and its nature. So that we can combat any sort of ailment in earlier stages by following preventive aspects. Theory of *Rasayan* therapy including *Achar Rasayan* is beneficial not only for physical health but also
for mental disorders. The development of a country is depends upon its healthy individuals, so all the endeavor should be align for practically adapting Ayurveda, “The elixir of life”.

REFERENCES


