Ayurveda and Yoga are alternative solutions for Cancer, Hypertension, Chronic Pulmonary Disease and Diabetes Mellitus type-II

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Abstract

Major reasons behind mortality and morbidity from Non Communicable Diseases are cardiovascular diseases, diabetes, cancers and chronic respiratory diseases. The socioeconomic impacts of NCDs are major hindrance towards the UN Sustainable Development Goals (SDG). It is not possible to win the battle against NCDs with Essential Medicines alone. We have to found an alternative solution; it may be -Alternative Medicine. Now 48.5% Australian, 40% in American and 38.5% South African (mainly Indian Origin) people are using herbal medicine as a form of Alternative Medicine. Alternative medicines like Ayurveda, Unani, Siddha and Homeopathy are being practiced in India and Indian subcontinent for more than 5000 years. From minor ailments as common cold to the major one as cancer, herbal medicines have a great role in prevention and treatment of diseases. In India, promotion of indigenous system of medicines was started through National AYUSH mission. The basic objectives were to promote AYUSH (Ayurveda, Yoga and Naturopathy, Unani, Siddha and Homoeopathy) medical systems, which is cost efficient, strengthen educational and research systems of AYUSH so that the quality control of Ayurveda, Siddha, Unani and Homeopathy drugs can be checked. The concept of treatment by holistic approach in Ayurvedas, has given more importance than allopathic medicines. For resource poor and high NCD burden countries Ayurveda may become a good alternative. The rejuvenation of Ayurveda in the form of AYUSH seems promising, but it requires more scientific research for its effectiveness. Then the basic concepts of Ayurveda the 5 mahabhutas, 7 dhatus and 13 agnis will be understandable to common peoples. More and more scientific research will reveal the Ayurveda concept and thus implementation will be easier.

Keywords- Ayurveda, Yoga,; Non-communicable diseases.

INTRODUCTION

Non Communicable diseases (NCDs) are largely responsible for increased morbidity and mortality, worldwide¹. Major reasons behind mortality and morbidity are cardiovascular diseases, diabetes, cancers and chronic respiratory diseases. In this article we will discuss four major NCDs i.e. cardiovascular diseases, Diabetes, Cancers and Chronic respiratory diseases. In South East Asian region NCDs are responsible for 7.9 million deaths annually¹. Various studies estimated that eighty million people are living with diabetes in the South East Asia region¹. Unfortunately, these NCD’s are quite epidemic in economically population too. It has been seen that poverty and NCD create a vicious cycle. Poverty exposes people to behavioural risk factors for NCDs and, in turn, NCDs pushes people from Above-Poverty-Line to
Below-Poverty-Line. An economic evaluation suggests that each 10% rise in incidence/prevalence of NCDs is associated with 0.5% lower rates of annual economic growth.

**Socioeconomic implications:**
The growing burden of NCDs in poor countries is accelerated by the three common factors-1. Harmful effects of globalization, 2. Rapid unplanned urbanization, 3. Adopting sedentary lifestyles. Food habits of Indian people have rapidly changed with more indulgence on food with more fat, salt or sugar content. This may be the reason behind higher prevalence of NCDs. Also multinational fast food giants like which are banned in many countries, are targeting India as their business hub. As we know that the treatment of NCDs are life long and expensive. Such treatment costs catastrophic spending and impoverishment in families. Due to economic stress many people indulge themselves into addiction to relieve the stress. This further deteriorates the condition as there is less money available for their basic necessities such food, shelter and education. One study suggests that each year, 100 million people are pushed into poverty because of direct health services payments. The treatment costs of NCDs are not only high, but also likely to be increase in future. Significant costs to individuals, families, businesses, governments and health systems add up to major macroeconomic impacts. The socioeconomic impacts of NCDs are major hindrance towards the UN Sustainable Development Goals (SDG). Due to rapid growth and involvement of huge money, many governments are not keeping pace with ever expanding needs for policies, legislation, services and infrastructure that could help to contain the expansion of NCDs. As for example- multinational companies spend millions to make promotional events for their product, unfortunately which is a yearly budget for many health programmes of any country.

**Prevention of deaths because of NCDs by essential medicines (western/allopathic):** Among existing options, like health promotion, early diagnosis and treatment, the “health promotion” is the cheapest but most difficult to practice. NCDs related morbidity and mortality can be addressed/prevented by taking regular medication, which is a costly affair. Unfortunately, affordability of allopathic medicines is very limited in poor countries like India. There is interplay of many factors which are responsible for low public sector availability of essential medicines. Lack of resources, under-budgeting, inaccurate demand forecasting, and inefficient procurement and distribution are common among them. Due to lack of access and availability of essential medicines the patients are forced to purchase expensive medicines from private sector. Sometimes the difference between cost of generic and branded drugs is more than ten times. Thus it leads to a huge and continuous financial burden on family. Many countries proposed that, “Essential Medicine Programme” may be an ideal way to reduce financial burden. There should be three clear objectives for any Essential Medicine Programme. 1. Equitable access, 2. Assured quality and safety, 3. Quality use by prescribers and consumers. With day to day increasing demand and limited supply, the essential medicines are not sufficient enough to address the problem of NCDs. We have to look for an alternative strategy. It is not possible to win the battle against NCDs with Essential Medicines alone. We have to find an alternative solution; it may be -Alternative Medicine.

**Alternative medicine:** It has been seen that around the globe, there is a tendency of people to use different types of medicines apart from the main stream western/allopathic medicine for prevention and cure of disease. Thus in simple words we can say that non-allopathic medicine is alternative medicine. It includes Herbal medicine, Ayurveda, Yoga, Unani, Siddha and Homeopathic medicine, Chinese medicine and many more. It has been observed that from 1990, there is a sudden increase in the popularity of alternative medicine especially for prevention and cure of NCDs.

**International experiences:** It is documented in literature that worldwide utilization of alternative medicine increases from 20-80% recently. Now 48.5% Australian, 40% in American and 38.5% South African (mainly Indian Origin) people are
### Table-1 Few uses of Herbal Medicines in NCDs

<table>
<thead>
<tr>
<th>Plant name</th>
<th>Active principle</th>
<th>Mechanism of action</th>
<th>Used in</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rauwolfa serpentina</td>
<td>Reserpine</td>
<td>Irreversibly blocks the vesicular monoamine transporter (VMAT).</td>
<td>Antihypertensive</td>
</tr>
<tr>
<td>Taxus brevifolia</td>
<td>Taxol</td>
<td>Interference with the normal breakdown of microtubules during cell division.</td>
<td>Antineoplastic</td>
</tr>
<tr>
<td>Nicotiana species</td>
<td>Nicotine</td>
<td>Desensitize nicotinic receptors.</td>
<td>Smoking cessation therapy</td>
</tr>
<tr>
<td>Podophyllum peltatum</td>
<td>Podophyllotoxin</td>
<td>Binding activity to the enzyme topoisomerase II during the late S and early G2 stage of cell division</td>
<td>Anticancer</td>
</tr>
<tr>
<td>Digitalis species</td>
<td>Digoxin, digitoxin</td>
<td></td>
<td>Cardiotonic</td>
</tr>
<tr>
<td>Campotheca acuminata</td>
<td>Campothecan</td>
<td></td>
<td>Antineoplastic</td>
</tr>
<tr>
<td>Boswellia serrata (B. serrata)</td>
<td>Boswellic acids which</td>
<td>Inhibit leukotriene biosynthesis.12</td>
<td>Asthma and bronchitis</td>
</tr>
<tr>
<td>Marihuana</td>
<td>Principal psychoactive ingredient (_9- tetrahydrocannabinol</td>
<td></td>
<td>Bronchial asthma</td>
</tr>
<tr>
<td>Allium cepa: (onion)</td>
<td>S-methyl cysteine sulphoxide (SMCS)</td>
<td>Normalized the activities of liver hexokinase, glucose 6-phosphatase and HMG Co A reductase</td>
<td>Diabetes Mellitus</td>
</tr>
<tr>
<td>Allium sativum: (garlic)</td>
<td>Allicin</td>
<td>Increased hepatic metabolism, increased insulin release from pancreatic beta cells and/or insulin sparing effect</td>
<td>Diabetes Mellitus</td>
</tr>
<tr>
<td>Azadirachta indica: (Neem)</td>
<td>Hydroalcoholic extracts</td>
<td>Increase in glucose uptake and glycogen</td>
<td>Diabetes Mellitus</td>
</tr>
</tbody>
</table>
using herbal medicine as a form of Alternative Medicine.  

**National context:** Alternative medicines like Ayurved, Unani, Siddha and Homeopathy are being practiced in India and Indian subcontinent for more than 5000 years. Among all, Ayurveda has been the ancient and sacred system (Hindu) of health care in India. It was originated in India more than 5000 years ago. Ayurveda is also referred to as science of prolonging life…ayu badane ka vigyaan. Primary, secondary and tertiary prevention, patient self-empowerment and self-efficiency play crucial roles in the holistic and multi-dimensional Ayurvedic approach to healing in NCDs. Yoga and Ayurveda both are originated as part of a great system of Vedic knowledge. Ayurveda is based on the principles of the Panchamahabhutas (earth, air, fire, water and space) and Trigunas (sattva, rajas and tamas). It also encompasses an understanding of dosha-dhatu-mala/humor-tissue –waste material theory (how the body works and the effect of food) and rasa-virya-vipaka/taste –energy- post digestive effect concept (effect of medicines on the body). Yoga and Ayurveda share virtually the same anatomy and physiology, which consists of 72000 subtle channels (nadis), 7 energy centres (main chakras), 5 bodily seaths (pancha koshas) and the serpent power (the Kundalini Shakti). Among alternative medicines Yoga and Ayurveda are most popular in India. Number of yoga practitioners, campaigns, training centers continues to rise tremendously which indicates the increasing popularity of Yoga. Among many benefits of Yoga described, blood pressure control is one of the most studied topic. It is well established that it has a preventive and curative role on high blood pressure and heart diseases, but the degree to which yoga may decrease blood pressure and its mechanism of action is yet to be established. Improving insulin sensitivity, glucose tolerance and lipid profiles, preventing obesity and hypertension are the tangible benefits of Yoga in the patients of type 2 diabetes mellitus (DM). The scientists around the world accepted that it also leads to a reduction in oxidative damage (delays ageing), improves pulmonary function and coagulation profiles and decreases sympathetic activation in patients with DM related chronic disorders. It may also useful in decreasing medication requirement in patients with DM and could help to prevent cardiovascular complications. Ayurveda makes the best use of the meta physics of yoga and yoga practices to treat the patient in totality. It also advocates the regular practice of asana, pranayama, and meditation as well as the use of body purification procedures, herbs, food and chanting of mantras for physical and mental health. Ayurveda reveals to us the secret powers of the body, senses, breath, mind and spirit. More importantly, it unfolds transformational methods to work on them through proper diet, herbs, panchakarma and meditation-covering the entire range of our lifestyle. Herbal medicines play an important role in Ayurveda.

**Herbal medicines:** Indians used to take foods on daily basis which have medicinal properties for about last 5000 years. As for example we take citrus lemon, chilli, black pepper, haldi, tulsi, ginger, garlic etc. which have medicinal properties. Details are given in table-1. We have multiple options for prevention and treatment of Chronic Diseases by herbal medicines. These herbal medicines are the integral part of alternative medicine. A survey from WHO indicates that 70-80% of world population depends on herbal sources. There is great potential and accumulating evidence that plants are safe and effective alternative medicines for modern chronic diseases. Herbal medicines have been reported with lowest level (7.6%) of adverse effects as compared to the other practices of alternative medicine. From minor ailments as common cold to the major one as cancer, herbal medicines have a great role in prevention and treatment of diseases. Plant molecules such as Taxol and Camptotheacin show significant anticancer properties. Even today many plant molecules are under investigation for their preventive and curative role in cardiovascular diseases and cancers. There is accumulative evidence which suggests that herbal medicine has immunomodulatory properties, that means it improves our immune system. At the same time, it maintains a balance between pro and anti-inflammatory mechanisms. The suggested antioxidant mechanisms include alteration in pro-inflammatory cell signalling, production of cytokines and cytokine like other pro-inflammatory mediators. It is envisaged by Government of India that herbal medicines not only showed promising results but also can also reduce the cost of NCDs.
treatment. Therefore, Government of India formed a separate ministry to promote our traditional medicines, under the name of “Ministry of AYUSH”.

**National AYUSH (Ayurveda, Yoga and Naturopathy, Unani, Siddha and Homoeopathy) Mission** In India promotion of indigenous system of medicines was started through National AYUSH mission 2014. The basic objectives were to promote AYUSH (Ayurveda, Yoga and Naturopathy, Unani, Siddha and Homoeopathy) medical systems, which are cost efficient, strengthen educational and research systems of AYUSH so that the quality control of Ayurveda, Siddha, Unani and Homeopathy drugs can be checked. It envisaged the establishment of a National Mission as well as corresponding missions at the state level. Recently, by acknowledging the benefits of Yoga in holistic health and by the efforts of Indian government UN general assembly has declared the 21st June an International yoga day, it was really a mental booster to make Yoga acceptable and popular worldwide. Increment and up gradation of AYUSH educational institutions has already done, which resulted in improvement in the education level of AYUSH. Accessibility and availability of AYUSH services has increased because of increase number of AYUSH clinics, availability of drugs and manpower. To overcome the problem of sustained availability of quality raw materials for AYUSH systems of medicines, Government of India promoted the concept of AYUSH grams (villages). AYUSH Gram is a concept wherein one village per block was selected for AYUSH interventions of health care by setting up health facilities to cater the population. The health of entire population has to be looked after by AYUSH doctors, with main focus on health promotion and prevention of diseases. The communities has empowered by education regarding healthy practices and advantages of traditional food items which has inherent medicinal properties. The AYUSH doctors used to do health checkup camps; empowerment of health workforce to make a healthy village (ASHAs, Anganwadi workers, school teachers etc). They also used to make a beneficial collaboration among Gram Panchayats involving Schools, Anganwadis, Self-help groups and other Community organizations. Improved availability of quality AYUSH drugs is ensured by increase in the number of quality pharmacies and drug laboratories. It was a welcome step towards the expansion of the healthcare interventions with the help of Indian streams of medicines.

**DISCUSSION**

In India accessibility of health care services is a little bit difficult for common people. That’s why they used to seek health care where they feel comfortable, usually from multiple sources. The health care services utility largely depends on multiple factors as Quality, availability, cost, health belief, cultural factors, social factors and personal characters of individuals. For a common man, treatment in hospital is cumbersome process as well as costly, time consuming and it is not related to their roots/tradition. The people are tending towards alternative medicine because it is culturally acceptable, less costly, and growing concern about adverse effects of drugs for taken for life-long treatment in cases of chronic disease. The socio-demographic characteristic of patients also plays a crucial role for choosing an alternative medicine, as an example we Indians commonly practice Ayurveda, in China they commonly practice Chinese herbal medicines, acupuncture etc. Now a day’s alternative medicine is gaining popularity because it is consonant with common people’s personal values, devotional and health philosophies. The rejuvenation of Ayurveda in the form of AYUSH seems promising. But it requires more scientific research for proving its effectiveness. Then the basic concepts of Ayurveda the 5 mahabhutas, 7 dhatus and 13 agnis will be understandable to common peoples. Scientific research will reveal the Ayurveda concept and thus implementation will be easier. For resource poor and high NCD burden countries Ayurveda may become a good alternative. If we have to understand the details of biological function, we have to analyze regulatory and information processes in complementary medicine like Ayurveda. The promotive role of Government of India is a boon for Ayurveda. Thus further research in Ayurveda will help us to better understand the role of Ayurveda in NCDs. With this hope and promise we can definitely say, that it is the high time to explore holistic approach of Ayurveda to treat NCDs. The Global Alliance for Chronic Disease (GACD) also giving emphasis on to develop chronic care models. When the world
of allopathic medicines restricting us to make a limited choice. To overcome the barrier of pain and misery of NCDs, Alternative medicines like Ayurveda or Yoga can help us to restore our health in a holistic manner. Ayurveda, or Yoga and other traditional AYUSH systems, can give fresh air for the common peoples suffering from NCDs. Now it is our call and our duty to offer the best of our knowledge and skills to assuage the crisis with which our world is now facing.

REFERENCES:

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