

ROLE OF DIET AND LIFESTYLE IN PREVALENCE, PROGNOSIS AND MANAGEMENT OF NON-COMMUNICABLE DISEASES

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ABSTRACT

Proper diet and life style are important parts of leading a healthy life. They can help to reach and maintain a healthy weight, reduce the risk of diseases and promote mental & physical well being. According to Ayurveda, one who takes healthy diet and adopts healthy lifestyle, by following daily and seasonal regime, always remains healthy. Today, wide changes have occurred in food habits and lifestyle due to industrialization and urbanization. Malnutrition, faulty dietary habits, sedentary life style, smoking, alcohol consumption and stress have caused various types of Non Communicable Diseases (NCDs), like DM and IBS. NCDs, all known as chronic diseases, do not transmit from person to person, tend to progress slowly, include endogenous as well as psychic diseases and are highly prevalent globally. In India,

every year, around 5.8 million people die from NCDs while 38 million deaths occur due to the same cause, worldwide. Faulty diet and lifestyle may cause genetic mutations or alter disease suppressing effect of genes and hence cause CVDs, Asthma, DM and Cancer. Moreover, if a person continues indulging in causative factors, even medicine cannot improve the prognosis. Hence, only healthy diet and lifestyle modification can help reducing the global burden of NCDs.

KEYWORDS: Ayurveda, Diet, Life Style, Non- Communicable Diseases (NCDs).

INTRODUCTION

Non-Communicable diseases (NCDs) have been traditionally associated with developed countries. However in recent decades, the prevalence of these diseases and their antecedent risk factors has rapidly increased in developing countries, too. These changes are caused to a

lame extent by dietary changes in relation **Table 1: DEATH RATE DUE TO NCDs** conditions.^[1] India too illustrates this health transition, which positions NCDs as a major public health challenge of growing magnitude in the twenty-first century. These diseases are driven by forces that include rapid unplanned urbanization as well as globalization of unhealthy diet and lifestyle. For example, unhealthy diets may show up in individuals as raised blood pressure, increased blood glucose, elevated blood lipids and obesity. These are called 'Intermediate risk factors' or metabolic / physiological risk factors which can lead to cardiovascular disease, an NCD. In terms of attributed deaths, the leading metabolic risk factor globally is elevated blood pressure (to which 18% of global deaths are attributed) followed by overweight, obesity and raised blood glucose.^[2]

AIMS AND OBJECTIVES

- i) Understanding the role of diet and lifestyle in prevalence, prognosis and management of NCDs.
- ii) To aware the society about the risk factors of NCDs including diet and lifestyle, so as to prevent the occurrence of NCDs.

Literary Review

Prevalence of NCDs

NCDs affect people in every corner of the world. of 52.8 million deaths that occur worldwide, 38 million were due to NCDs in 2015. Almost three quarters of NCD deaths-28 million occur in low and middle income countries.16 million NCD deaths occur before the age of 70 years and 82% of these "premature" deaths occur in developing countries.^[2]

Table 1: Death Rate due to NCDS.

S.No	Disease	Worldwide	India
1	Cardiovascular diseases	17.5 million people	45%
2	Cancer	8.2 million people	12%
3	Respiratory diseases	4 million people	22%
4	Diabetes Mellitus	1.5 million people	3%

These 4 groups of diseases account for 82% of all NCD deaths. In India, the probability of dying between ages 30 and 70 yrs from four major NCDs is 26%.^[3] Also the prevalence of

accident and injuries, an NCD, is increasing rapidly in which 93% incidents were due to unnatural causes while only 7% were attributed to natural causes. The rate of mortality among different age groups, due to accidents and injuries, was: 8.2% (14yrs), 62% (15-44yrs), 20% (45-59yrs) and 9.2% (>60yrs). 73% of total deaths occurred among men, with a ratio of 3:1 between men and women.^[4] The prevalence of the modifiable behavioural risk factors worldwide are Tobacco accounts for around 6 million deaths every year including the effects of exposure to second-hand smoke. About 3.2 million deaths annually can be attributed to insufficient physical activity. More than half of the 3.3 million annual deaths from harmful drinking are from NCDs.

Determinants of Health Transition

Health transition, where by NCDs are being more & more prevalent, is principally due to combination of demographic and lifestyle changes. Due to socio-economical development, there is a decline in the mortality attributable to infectious diseases and nutritional disorders. As more individuals survive to enter the middle ages, the years of exposure to the risk factors of chronic diseases increase. Simultaneously, urbanisation, industrialisation and globalisation are often accompanied by several undesirable lifestyle alterations in the form of a diet rich in saturated fat, salt and excess calories, decreased physical activity, addictions like tobacco & alcohol and augmentation of psychosocial stress. Thus, the dose and duration of risk factor exposure, both increase resulting in manifestation of large numbers of lifestyle related diseases and their consequences.^[5]

Dietary transition

The industrial revolution in the last 200 years, has introduced radical changes in methods of food production, processing, storage and distribution. Economic developments together with recent technological innovations and modern marketing techniques have modified dietary preferences and have consequently led to major changes in the composition of diet. There was a shift towards high fat, refined carbohydrates and low-fibre diet. The dietary transition took place first in the industrialized world. The accelerating factors for the rapid transition include - exposure to the global mass media, shift in occupational structure including the trend from labour-intensive occupation and leisure time activities toward more capital-intensive, less strenuous work and leisure. Often overall nutrient intake adequacy improves with an increasing variety of foods, but the movement towards more fats, salts, sugars and refined foods quickly moves beyond this more optimal state to one in which diet contributes

to rapidly escalating rates of obesity and chronic diseases. Salt-sensitive hyper-tension or fat-sensitive cardiovascular disorders that may not have been expressed on a traditional diet have become much more prevalent with current dietary changes. This transition is accelerated by a high urbanization rate, which is usually accompanied by decreased physical activity, overweight and obesity. Urbanisation increased labour-force participation of women and it indirectly affected the diet of the family. Whereas the food supply of rural populations comes from its own production, the food supply of urban populations has to be purchased, providing new options, new norms and values. With a monetary economy, comes more store brought and processed foods, rather than fresh animal products and garden produce.^[6]

Lifestyle Patterns and Health

Lifestyle refers to the characteristics of inhabitants of a region in special time and place. It includes day to day behaviours and functions of individuals in job, activities, fun and diet. In recent decades, life style, as an important factor of health, is more interested by researchers. Variables of lifestyle that influence health can be categorized in some items: Diet and Body Mass Index (BMI), Exercise, Sleep, Sexual behaviour, Substance abuse, Medication abuse and application of modern technologies. For example, substance abuse like Smoking increases blood cholesterol level with the ratio of high density lipoprotein (HDL) cholesterol to low density lipoprotein (LDL) cholesterol being lower in smokers as compared to non-smokers.^[7] Sedentary life-style is a major independent risk factor for non-communicable diseases (NCDs) such as hypertension, type 2 diabetes mellitus, obesity and cardiovascular disease, often referred to as 'Lifestyle Diseases' (LSDs). Factors that contribute to a sedentary lifestyle are:

- Increased use of computers, TV and other 'screens' (tablets and smart phones) for work, school, entertainment and social interaction.
- Online shopping.
- Increased access to motorised transport.
- Urban design not favouring walking or cycling.
- Automated manufacturing processes.
- Reduction in sports activities in schools'.

Therefore, campaign for healthy lifestyle among people who smoke, are heavy drinkers of alcohol as well as people who live unhealthy lifestyles is necessary.

Socio-economic impact of NCDs

Death or disability from NCDs in the productive middle ages results in major economic burdens on the affected individuals, their families and society as a whole. The management of established NCDs is often technology intensive and expensive. Though NCD epidemics usually originate in the upper socio-economic strata, they diffuse across the social spectrum, with the social gradient ultimately reversing and the poor becoming predominantly afflicted. Vulnerable and socially disadvantaged people get sicker and die sooner than people of higher social positions, especially because they are at greater risk of being exposed to harmful products, such as tobacco or unhealthy food, and have limited access to health services.^[5]

In low-resource settings, health-care costs for cardio-vascular diseases, cancers, diabetes or chronic lung diseases can quickly drain household resources, driving families into poverty. The exorbitant costs of NCDs are—they often include lengthy and expensive treatment.

Non communicable diseases (NCDs) contribute to around 5.87 million deaths that account for 60% of all deaths in India. India shares more than two-third of the total deaths due to NCDs in the South-East Asia Region (SEAR) of WHO.

Prognosis

Dietary habits and lifestyle pattern play a key role in the prognosis of NCDs. Even if sufferers of NCDs take proper medication, the prognosis of their diseases may be poor until the diet and life style modifications have not been implemented. Like, in case of hypertension (HTN), one should avoid excessive intake of salt. A CVD patient who is involved in the sedentary job, like sitting and working in front of computer whole day, should avoid consumption of fatty foods. If these patients continue eating such foods, even their medicine cannot give optimal effect and the disease may dangerously boost up any time.

Management of NCDs

First of all, for the Prevention and Management of NCDs, the diet habits as well as lifestyle pattern should be focused. Appropriate dietary habits, doing physical activities or adoption of regular exercise practice and least consumption of tobacco & alcohol, is very helpful in treating NCDs. It's important to focus on lessening the risk factors associated with these diseases. Low-cost solutions exist to reduce the common modifiable risk factors (mainly tobacco use, unhealthy diet, physical inactivity and the harmful use of alcohol) and map the epidemic of NCDs and their risk factors.

Other ways to reduce NCDs are high impact essential NCD interventions that can be delivered through a primary health-care approach to strengthen early detection and timely treatment. Traditionally, public health approaches to NCD control have been a high risk strategy, targeting persons with high levels of risk factors and employing interventions to reduce them, usually with drugs and a population strategy which attempts to reduce risk factor levels in the whole community, usually through lifestyle related measures. However, population-based and lifestyle linked strategies are likely to prevent the acquisition or augmentation of NCD risk factors in transitional societies like India, while avoiding the economic and biological costs of pharmacological risk reduction strategies practised in the developed countries.

At the population level, programmes for promotion of a "Health promoting diet" (calories appropriate to the level of physical activity; moderation in the intake of saturated fat, salt, and refined sugar; high intake of fresh fruit and vegetables; fish in preference to red meat in non-vegetarian diets), adequate physical activity and regular exercise are required. These are likely to have benefits for a wide range of NCDs, especially CVD, diabetes, hypertension, and some cancers which are related to saturated fat intake. Tobacco control is a major public health imperative which will provide the largest benefit for NCD prevention.

Whether it is food (production, pricing, labelling) or tobacco (production, sale, advertising) or physical activity (a conducive transport policy which favours urban cycle lanes and curbs vehicular transport as well as provides facilities for leisure time exercise in community playgrounds), active health policy measures are required alongside public health education. An enlightened policy and an empowered community can together stall the advance of the emerging epidemics of NCDs in India.

Government of India initiated an integrated National Programme for Prevention and control of Cancers, Diabetes, Cardiovascular diseases and Stroke (NPCDCS). The focus of the programme is on health promotion and prevention, strengthening of infra-structure including human resources, early diagnosis & management and integration with the primary health care system through NCD cells at different levels for optimal operational synergies.^[9]

DISCUSSION

The estimated prevalence of NCDs indicates that the major causative factors for NCDs are dietary habits like more consumption of fat rich diet, junk foods, dairy products and the

preservatives as well as lifestyle habits like substance abuse, addiction, less manual work and lack of physical activities, load of stress etc. In case of accident & injuries, prevalence due to unnatural causes is more. In Ayurveda, Prajnaparadha is considered to be the cause of all diseases as well as unnatural deaths. So, if one follows the rules of Swasthavritta and Sadvritta, one could protect one's self from the demerits of Prajnaparadha. Also the ratio of accident & injuries is more in men than women because men are more used to driving and so are exposed to risk factors. Sometimes they consume alcohol while driving, that's why they are more vulnerable to NCDs risk.

Global diet is going through a remarkable transition: staple foods are becoming more refined and processed, fat and meat intake is increasing, processed dairy products and other processed foods are being consumed more than before and larger number of meals are eaten outside home, making household more reliant on the food industry, food vendors and markets. So, the dietary as well as lifestyle transition like consumption of alcohol & tobacco, stress and physical inactivity are associated with the escalating trends of NCDs. In Ayurveda, even in daily and seasonal regimen, the importance of dietary habits and lifestyle is mentioned.

NCDs mostly affect the middle or young age group which is the most efficient age group. So, with these diseases the productive age group is harmed, in a result a Nation can be harmed in terms of socio economic status. Other than the mortality rate, the rate of DALY (Disability Adjusted Life Years) due to NCDs is also high. DALY is an indicator of burden of disease on a population. It takes into account the disability caused by disease or injury. For example, in case of diabetes, if the complication like diabetic gangrene occurs, then amputation of the leg may be needed to be done. DALY also occurs in the case of Ischemic Heart Disease, CerebroVascular Disease, road traffic accidents and alcohol use disorders etc. As NCDs treatment is expensive, therefore the nation could bear a burden in their funding.

In the prognosis of the NCDs, diet and life style play an important role. Such as in osteoarthritis patient, heavy exercise is contraindicated but in case of obesity heavy exercise is recommended. In Ayurveda, season wise rules of diet, lifestyle, sleep etc are mentioned. If these rules are not followed, then disease can occur.

According to Acarya Charaka, for the treatment of any disease, three steps are to be followed in which one is, to avoid the causative factors.^[10] Like in case of diabetes. if the patient is

taking medicine regularly but he fond of sweets, then the medicine's dose can be increased and further complications may also occur. Therefore, its necessary to give up the causes of NCDs otherwise the prognosis of the disease is worsened. Various studies have shown that the primary determinants of most cancers are life style factors, such as tobacco, faulty dietary habits and infectious agents rather than inherited genetic factors.

For the management of NCDs, three types of approaches were mentioned earlier. These are-

Public Health Strategy- in which every individual should be focussed

Population Strategy- in which mass community should be focussed

These two strategies are followed in developing countries.

Pharmalogical Risk Reduction Strategy followed in developed countries.

List of the treatment mentioned for NCDs

- Three ways strategies
- Health promoting diet & regular exercise
- Health policy measures
- Public Health Education
- National programmes

CONCLUSION

NCDs constitute not only a major threat to the health of an individual but also a major challenge for overall development of the country. The four major NCDs are the result of four common shared life style related Modifiable Risk Factors viz. tobacco use, physical inactivity, unhealthy diet and alcohol use which in turn lead to key metabolic or pathological changes like high blood pressure, obesity, high blood glucose and high cholest-erol. The NCDs epidemic exacts a massive socio-economic toll throughout the world. It is raising rapidly in lower income countries and among the poor in middle and high income countries. It is important to find coast effective solutions to change unfavourable trends. Diet together with life style should get a major focus in public health policies for combating the emergence of NCDs.

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