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ETIOLOGICAL FACTORS RESPONSIBLE FOR NCDs W.S.R TO NUTRITIONAL DEFICIENCY ANEMIA

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ABSTRACT

NCDs are the most important and severe threats of social & economic development. Malnutrition still affects over 1 billion people worldwide as a result of changing global nutrition landscape, influenced by economic growth and urbanization. Nutritional deficiency anemia is a global public health issue as harmful as the epidemics of infectious diseases, it mainly results from a lack of iron, folic acid, vitamin B12 and vitamin C. India continues to have highest prevalence of iron deficiency anemia because of low dietary intake, poor availability of iron and chronic blood loss due to worm infestation because of poor hygiene and contaminated water used in street foods. Children may be malnourished even though they consume enough calories, because they fill up on “empty” non nutritional calories such as cookies, potato chips etc, as lack of balanced diet interferes dhatu poshana. Panduroga is caused due to indulgence of more Amla, kshara, lavana, Ruksha, Ushna substances(may injure gastric mucosa). Food derived from grains like nishpav, maash etc, iron forms a stable complex with phytates and only small amount of it can be converted to absorbable form. Vitamin B12 and folic acid synthesize DNA in rapidly multiplying cells like RBCs, their deficiency arrest erythropoiesis resulting in megaloblastic anemia. Fish, egg and meat are fair sources, hence strict vegetarians and low income families are more affected. Many drugs such as navayas loh, amalaki rasayan etc enhances iron absorption as it works on poshak rasa level (nutrition), agni level (metabolic appreciation) and srotas level, so by practicing ayurveda the burden of anemia can be minimized.

KEYWORDS: NCDs, Malnutrition, Nutritional deficiency Anemia.

INTRODUCTION

Non-communicable diseases (NCDs) are globally recognized threats; thus, reducing the burden of NCDs has been included as one of the targets of the Sustainable Development Goals.[1] NCDs are new priorities and additional burdens on health in low and middle income countries, where urbanization and lifestyle changes are advancing rapidly. In addition, low birth weight and childhood malnutrition among the poor may increase the risks of cardiovascular diseases and diabetes in adulthood.[2]

The burden of NCDs is increasing due to lifestyle changes and possible childhood under nutrition. The global health threat posed by non communicable diseases is enormous. NCDs are responsible for 63% of 57 million deaths worldwide. The World Economic Forum has placed NCDs among the most important and severe threats to economic development.[3]

Malnutrition still effects over 1 billion people worldwide and 36 countries are considered high burden.[4] Malnutrition needs to be urgently addressed because under nutrition kills in early life, and it can also lead to increased risk of NCDs and death later in life.[5]

Globalization of trade and marketing of food products are changing dietary habits in the direction of less healthy choices. Branded products like chips, soft drinks, noodles etc attract people, specially children this leads to excessive use of non nutritional products such as junk food, canned and processed food, readymade food as they are available everywhere and easy to prepare.

There are many social causes contributing to the development of malnutrition such as poverty, illiteracy, ignorance, overcrowding, large family size, poor maternal health, faulty feeding, cookies and cultural practices etc.

Nutritional deficiency Anemia is a global problem, more so in developing countries. Globally about 3.6 billion people are suffering from this. In India, it is very high among nutritionally vulnerable groups such as infants, children and women specially during pregnancy. It results from deficiency of one or more nutrients, specially iron, less frequent causes are deficiency of folic acid, Vit.B12 and Vit. C.

Causes of Iron deficiency Anemia

Iron deficiency can arise either due to inadequate intake or poor bioavailability of dietary iron or due to excessive loss of iron from the body. The poor bioavailability is considered to be major reason for widespread iron deficiency. Some of other factors leading to anaemia are intestinal parasites (hookworm etc.) & malaria.

Human body contains about 4 gm of iron, of which about 3gm are present in the blood as hemoglobin and 1gm as storage iron. There are two forms of iron – Heam iron and non heam iron. Heam iron is obtained from animal sources such as liver, meat, fish and poultry and non haem from vegetable sources such as green leafy vegetables, ragi, jaggery and dried fruits. Heam iron is better absorbed than non heam iron and the former promotes the absorption of the latter, so strict vegetarians and poor income families are mostly affected. Milk is a poor source of iron. Also in the presence of calcium the absorption of iron is hampered. So anemia predisposes in children with milk based diet. Some other causes of iron deficiency are-

1. Inadequate dietary intake due to poverty, non availability of green leafy vegetables, diminished quality of fruits and vegetables by excessive use of insecticides and pesticides.
2. Presence of interfering factors of iron absorption like phytates of wheat, phosphates, tannin of tea in excessive tea intakers, oxalates of vegetables etc and in intestinal malabsorption such as in coeliac disease iron absorption is hampered.
3. Increased demand during spurts of growth in infancy, childhood and adolescence, pregnancy and lactation and under circumstances of infections when not fulfilled leads to iron deficiency.
4. Increased blood loss in physiological conditions such as menstruation, menorrhagia, repeated miscarriages, etc and in pathological conditions such as peptic ulcers, bleeding haemorrhoids, ulcerative colitis, haematuria, haemoptysis etc.
5. Hookworm infestation, causes chronic blood loss: This results form the withdrawal of blood (a) by the parasites – for their food and (b) chronic haemorrhages from the punctured sites. other contributory factors is deficiency of iron in the diet. It is apparent that a chronic blood loss cannot be fully compensated for infected individuals with a faulty diet.

Causes of folic acid and Vit.B12 deficiency

Folic acid is present in the food in both free folates and bound folates, the former is rapidly absorbed. Folic acid is necessary for the synthesis of DNA in the rapidly multiplying cells like RBCs. It is also necessary for the maturation of normoblasts to RBCs its deficiency leads to Megaloblastic Anaemia.

Liver, soya bean and dark green leafy vegetables are the rich sources.

Causes of Pandu in Ayurveda

In Ayurveda causes of Pandu Roga are described in details e.g. *Asatmya bhojana* or *viruddha bhojana*[6] may inhibit normal process by antisubstance or aam formation and may lead to disturbance of the digestive and assimilative process. Excessive activity in the form of *ativyayma, ativyavaya, shramandhikya* causes excessive caloric output which out balances the intake of calories. *Kama, Krodha, Bhaya, Chinta and Shoka*[7] like *manasa bhavas* are the major causes of *Pandu roga*. If a person takes balanced diet even at proper time but with *chinta* or worries, the digestive functions are disturbed this results in *mandagni* and the food will not be properly digested. and deficient nutrition to *dhatus* or *dhatu aposhana* which is stated to be the cause of *Pandu roga*. Now a days due to hectic atmosphere of competition stress is very common which leads to unhealthy life style behaviors i.e inadequate eating behavior in terms of quality and quantity of food, smoking and alcohol abuse.

Panduroga is caused due to indulgence of food containing more Amla, Kshara, Lavana, Ushna, Ruksha as they may injure the gastric mucosa first and then mixed with rasa and may lead to haemolysis, and disturbed metabolism of various tissues following Anaemia. In food derived from grains like nishpav, pinyaka, til etc, Iron forms a stable complex with phytates and only small amount of such iron can be converted to absorbable form.

Prevention of Nutritional deficiency anaemia

- Nutrition education to improve dietary habits.
- Health education specially to pregnant mothers about hazards of Anaemia and their prevention.
- Nutritional supplementation
- Food fortification.
- Education about cooking habits such as repeated overheating and intake of stale or parushit food, over washing of food articles should be avoided as nutritive components

are lost, food is to be taken while it is hot etc, by following asthwidh aahaar vidhi visheshayatana

- Periodical deworming specially among children.

Many drugs such as navayas loh, amalaki rasayan etc enhances iron absorption as it works on poshak rasa level (nutrition), agni level (metabolic appreciation) and srotas level (tissue nourishment), and also Amalki being rich source of Vit. C helps in absorption of iron through reduction of ferric iron to ferrous iron which seems to be the requirement for the uptake of iron into the mucosal cells. So to a great extent Ayurveda can minimize the burden of Anaemia.

CONCLUSION

Faulty diet habits, faulty cooking habits, excessive intake of contaminated non nutritional street foods, excess use of processed food like biscuits, jam, jellies, soft drink, ketch-up etc, lack of balanced diet etc contributes to the development of nutrition deficiency which can be prevented by educating people about the advantages of balanced diet as there is a saying that "if you have a perfect kitchen you will not need a pharmacy"

REFERENCES

1. United Nations. Sustainable development goals. Goal 3: ensure healthy lives and promote well-being for all at all ages. http://www.un.org/sustainabledevelopment/health (accessed 8 Sep. 2016). Google Scholar
2. Risnes KR, Vatten LJ, Baker JL, *et al*. Birthweight and mortality in adulthood: a systematic review and meta-analysis. Int J Epidemiol, 2011; 40: 647–61. doi:10.1093/ije/dyq267 CrossRef PubMed Web of Science Google Scholar
3. WHO Global status report on NCDs, 2010.
4. Lancet Nutrition series on maternal and child undernutrition, January 2008.
5. WHO Global status Report on NCDs, 2010.
6. Charaka-Charaka Samhita, vidyotini teeka, pt. Kashinath Shastri, Dr Gorakhnath Chaturvedi, ed. Chaukhamba, Varanasi, 2007, chi. Sthana 16/8, 488.
7. Charaka-Charaka Samhita, vidyotini teeka, pt. Kashinath Shastri, Dr Gorakhnath Chaturvedi, ed. Chaukhamba, Varanasi, 2007, vimana Sthana 2/9, 688.