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ANTI-ANAEMIC HERBS IN SIDDHA SYSTEM OF MEDICINE– A REVIEW

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ABSTRACT

Anaemia is a state of decrease in the number of red blood cells that is a deficit in oxygen-carrying capacity to satisfy the body's physiologic requirements. The physiologic needs differ from individual's age, gender, household above the sea level, smoking habits, and in each stage of pregnancy. Worldwide iron deficiency is thought to be the frequent cause of anaemia, but other nutritional deficiencies including vitamins like folic acid, vitamin A, and Vitamin B12 acute and chronic inflammatory conditions, parasitic infection, and genetic and acquired disorders affect haemoglobin synthesis. The WHO Global Nutrition Target 2025 on anaemia aims to lower anaemia in WRA by 50% by 2025. Classification is based on anaemia due to blood loss, anaemia due to impaired red cell formation, hemolytic anaemias, Microcytic, hypochromic, Normocytic, normochromic, and Macrocytic. The common symptoms are weakness, fatigue, palpitations, low blood pressure, chest pain, etc. The laboratory investigation of hemoglobin in iron deficiency shows a little level of MCH and MCHV. The other names are *Veluppu*, *Vennmai noi*, *Pandu*. These medicines are '*Aya jambeera karpam'*, *'Aya bringaraja karpam'* prepared from iron with lemon, and *Eclipta prostrata* are particularly indicated for anemia. Dietary recommendations are intake of fruits like pomegranate, Indian gooseberry, fig, dates, and greens such as *karisalai*, *ponnangani*, cury leaves, drumstick leaves, etc. It can be largely prevented and treated effectively with dietary sources of heamatinics medicinal herbs; grains and millets that form the nutritional

supplements, and with it healthier hygiene, sanitation practices, and regular deworming that has been described in this review.

KEYWORDS: Anaemia, Global burden, Types, Siddha, Anti-anaemic medicinal plants.

INTRODUCTION

Anaemia is a state of decrease in the number of red blood cells that is a deficit in oxygen-carrying capacity to satisfy the body's physiologic requirements. The physiologic needs differ from an individual's age, gender, household above the sea level, smoking habits, and in each stage of pregnancy.[1]

Definition

Anaemia is defined as reduced haemoglobin concentration in blood below the lower limit of the normal range for the age and sex of the individual. In adults normal heamoglobin levels are 13.0g/dl for males and 11.5g/dl for females. Newborn infants have higher haemoglobin levels 15g/dl is taken as the lower limit at birth.[2] The factors of anaemia are related to the growth, physiological state, sex, age, and race by WHO 2017.[3]

Etiology

Worldwide iron deficiency is thought to be the frequent cause of anaemia, but other nutritional deficiencies including vitamins like folic acid, vitamin A, and Vitamin B12 acute and chronic inflammatory conditions, parasitic infection, and genetic and acquired disorders affect haemoglobin synthesis.[4]

Epidemiology

Globally the load is high, affecting 27% of the population i.e.1.93 billion people in 2013. The anaemic load increase in developing countries accounts for up to 89%. Children at preschool age and reproductive-aged women are specifically affected. Worldly, Iron deficiency anaemia (IDA) is the presiding cause (>60%) of anemia. Other important causes of anaemia are infections, heamoglobinopathie's, chronic renal diseases, gastrointestinal disorders, and other conditions.[5]

The advancement of reduction in anaemia is sluggish and irregular. Total age groups including both male and female, evaluation on anemia exhibit that there is a lowering, roughly 7% between 1990 and 2016, from 40% to 33%. The WHO Global Nutrition Target 2025 on anaemia aims to lower anemia in WRA by 50% by 2025.[6] In the BRINDA project,

the most consistent predictors of severe anemia in population-based surveys of PSC (Preschool children) were malaria, uncleanliness, thin, and inflammatory diseases (in African countries only); retard growth, vitamin A deficiency (VAD), and backcountry location was also an important deciding indicator in high or very high infection.[7]

Pathophysiologic classification

- Anaemia due to blood loss- It may be acute or chronic blood loss.
- Anaemia due to impaired red cell formation- Bone marrow failure, aplastic anaemia.
- Hemolytic anaemias- Genetic (Example: Sickle cell anaemia, thalassemias, etc.) and acquired (autoimmune, mechanical destruction, toxic-metabolite, etc.)

Morphologic classification

- Microcytic, hypochromic: Mean Corpuscular Volume (MCV), Mean Corpuscular Haemoglobin (MCH), Mean Corpuscular Haemoglobin Concentration (MCHC) are all reduced. Example: Iron deficiency anaemia (IDA), sideroblastic anaemia, thalassaemia.
- Normocytic, normochromic: Mean Corpuscular values are all normal. Example: Acute blood loss, haemolytic anaemia.
- Macrocytic: Mean Corpuscular Volume (MCV) alone is raised. Example: Megaloblastic anaemia is deficiency of Vitamin B12 or Folic acid, drugs.[8]

  Note: MCV-Mean corpuscular volume, MCH- Mean Corpuscular Heamoglobin, MCHC-Mean Corpuscular Heamoglobin Concentration.

Iron Deficiency Anaemia (IDA) - The main risk factors for iron deficiency anaemia are: iron intake is lower than the normal, varying degrees of chronic haemorrhagic loss, and malabsorption.[9]

Symptoms

Symptoms vary according to every patient about the intensity of the disease. The common symptoms are,

- Weakness
- Fatigue
- Palpitations
- Low blood pressure
- Chest pain

- Dyspnea
- Anorexia[10]

Evaluation

The laboratory investigation of hemoglobin in iron deficiency shows a little level of MCH and MCHV. Other analysis shows microcytosis, hypochromia, and anisocytosis found thicker than the reference range. Serum levels exhibit reduced levels of ferritin, iron, and transferrin.[11]

Siddha aspect of the disease

The other names are *Veluppu, Vennmai noi, Pandu*.

Definition: The natural color of the body changes to pallor, and when examining the eyes and nail buds it turns pallor without blood.

Etiology: The cause of the disease is excessive intake of dietary sources rich in salt and sour. The other causes are diseases like fever, diarrhea, vomiting, osteoarthritis, menorrhagia, hematemesis, and dysentery. Some other causes are acute hemorrhagic loss, chronic intake of toxic drugs, worm infestations, tuberculosis, liver disorders, hemorrhoids smoking tobacco, and eating ash, and camphor. There are several types classified by the *Siddhar Yugi munivar*.

Siddha medicines: *Thalisapathri chooranam, Elathy chooranam, sundai vattral chooranam*, these medicines are used as an appetizer and reduce loose stools; and can be administered along with foremost medicines prepared from iron. These medicines are '*Aya jambeera karpam', 'Aya bringaraja karpam'* prepared from iron with lemon, and *Eclipta prostrata* are rejuvenating medicines particularly indicated for anemia.[12]

Controlling Anaemia through Indian System of Medicine, State Planning commission, workshop series in 2013

The economy is affected by the results of anaemia which affects the earning capacity, lifespan, and health care is expensive for human. A frequent cause of anemia is a lack of iron and vitamins. Dietary modifications or intake of supplements like herbal and nutritional usually help, and following the healthier hygiene, sanitation practices and regular deworming also support in preventing anaemia. Deworming is done through the *Vaividanga* (*Emblia ribes) chooranam*. Dietary recommendations are intake of fruits like pomegranate, Indian gooseberry, fig, dates, and green leafy vegetables such as *karisalai*, *ponnangani*, cury leaves,

drumstick leaves, etc., Food rich in iron sources gets absorbed easily. Medicinal herbs in Siddha Medicine that are rich in iron content, iron in 100gm are,

1. Ficus racemosa (Atti) - 1.0mg
2. Punica granatum (Pomegranate) -1.7mg
3. Phoenix dactylifera (Dates) - 7.3mg
4. Phyllanthus emblica (Gooseberry) -1.2mg
5. Sesamum indicum (Ell) -9.3mg.
6. Boerhavia diffusa (Mookirattai keerai) -18.4mg

This mission also includes a preparation called *"Panchamutti kanji"* containing five kinds of grams such as black gram, Bengal gram, green gram, yellow split peas, and raw rice, to enhance the protein in the diet.

Studies have been done on plants and many exhibiting anti-anaemia properties are,

Asteraceae

1. *Eclipta prostrata (Karisalankanni)*

The powder of the plant along with herbo-metallic preparation *Aya cheduram* (made from iron) is treated for anaemia, dropsy, and jaundice.[13a]

Poaceae

2. *Saccharum spontaneum (Linn)(Nanal)*

The sugarcane juice from it is consumed for psychological disorders, antiemetics, intestinal worms, asthma, anaemia, and obesity.[13b]

Solanaceae

3. *Lycopersicon esculentum (Shimaithakkali)*

It acts as a coolant, and raises hemoglobin level.

4. *Solanum nigrum (Manaththakkali)*

This is a rejuvenating herb. Fresh leaf juice 35ml can be administered thrice a day for anemia, ascites, and stomatitis.[13c]

Moraceae

5. *Ficus racemosa (Atti)*

The fruit syrup or dried powder of fruit is consumed for increasing hemoglobin, reliving constipation, and diabetes mellitus.[13d]

Combretaceae

6. *Terminalia chebual (Kadukkai*)

A preparation from *kadukkai* called "*bhavana kadukkai"*is prescribed for anaemia, *pitha* diseases, cough, asthma, *vatha* diseases, hemorrhoids, cholera, and gastric ulcer.[13e]

7. *Anogeissus leiocarpus (DC)*

The stem bark and leaves decoction is administered for anaemia and intestinal worms.[14]

Punicaceae

8. *Punica granatum (Mathalai)*

The flower of this plant is indicated for heamatemesis, hemorrhoids, and anemia. It gives strength to the body. The syrup of this fruit is given for anaemia.[15,16]

Vitaceae

9. *Vitis vinifera (Thrakshi)*

The plant is stated for constipation, rise in haemoglobin level, hematemesis, and gives strength to the heart.[13f]

Euphorbiaceae

10. *Phyllanthus emblica (Nelli)*

The plant parts are made in the rejuvenating medicine form and along with a diet regimen administered for anemia, ascites, pain, dropsy, hemorrhoids, etc. The '*Nellikkai legium'* a polyherbal formulation is prescribed for anaemia, vomiting, jaundice, dropsy, urinary tract infection, peptic ulcer, etc.[13g]

11. *Phyllanthus amarus (Keelanelli)*

The decoction of the whole plant is specified for anaemia.

12. *Bridellia ferruginea*

The leaves decoction is used to treat anaemia, intestinal worms, and tonic.

13. *Ricinus communnis (Amanakku)*

The leaves and stems are indicated for anaemia and skin diseases.

Anacardiaceae

14. *Lannea acida*

The stem barks and roots decoction are used for treating anemia.

15. *Lannea barteri*

The stem bark is indicated for anaemia.

Bombaceae

16. *Adansonia digitata L.*

The stem bark decoction is administered for anaemia, wound, and tonic.

Amaranthaceae

17. *Amaranthus spinosus L. (Mullik keerai)*

The decoction of the whole plant is given for anaemia and cough.

Caesalpinaceae

18. *Detarium microcarpum*

Decoction of leaves sated for anaemia.

19. *Detarium senegalense*

Leaves decoction consumed for anaemia.

Fabaceae

20. *Cajanus cajan* (L) Millsp

Leaves and stem decoction are used for anaemia, wound, and skin diseases.[14]

Acanthaceae

21. *Hydrophila auriculata (Nirmuli)*

The whole plant is indicated for anemia, ascites, sinusitis, and swellings. The filtration of the dried plant soaked in water for three days is administered with a dose of 1- 3 teaspoons for anaemia, ascites, and obesity.[13i]

Piperaceae

22. *Piper nigrum. Linn (Milagu)*

The fruit of this plant is indicated for anaemia, diarrhea, peptic ulcer, hemorrhoids, psychological disorders, hemiplegia, vaginal diseases, ear pain, indigestion, and jaundice.[13j]

23. *Piper longum (Thippili)*

The dried part is specified for anaemia, asthma, sinusitis, peptic ulcer, headache, respiratory diseases, giddiness, throat infection, nose-ear-eye diseases, and chronic infections.[13k]

Scrophulariaceae

24. *Scoparia dulcis Linn.*

The stem and leaves are used for treating anaemia, albuminuria, ketonuria, and other diabetic complications.[17]

Verbenaceae

25. *Tectona grandis L. f.*

The leaves stem and stem bark decoction is treated for anemia and malaria.[14]

Plants used in the management of sickle cell anaemia

Rutaceae

26. *Zanthoxylum zanthoxyloides*

Constituents: divanilloylquinic acids, parahydroxybenzoic acid.

Caricaceae

27. Carica papaya

Constituents: Unripe fruit and leaf contain phenylalanine, tyrosine, and glycine.

Amaryllidaceae

28. Allium sativum

Constituent: Allicin

Fabaceae

29. Cajanus cajan

Constituent: Phenylalanine.

Myrtaceae

30. Syzygium aromaticum

Constituents: Vanilloids

These plants possess the antisickling effect and other phytochemical constituents that could manage sickle cell anemia.[18]

CONCLUSION

Anaemia though became a global burden; Governments are implanting various schemes to combat anaemia. It can be largely prevented and treated effectively with dietary sources of

heamatinics medicinal herbs; grains and millets that form the nutritional supplements, and along with it healthier hygiene, sanitation practices, and regular deworming that has been described in this review. Anaemia can be overcome by Siddha and other Traditional systems of medicine. India is the only country where AYUSH traditional systems have been organized.

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