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A CRITICAL REVIEW OF ANEMIA WSR TO AYURVEDA

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ABSTRACT

Anemia is a reduction in hemoglobin (Hb) or hematocrit (HCT) or RBC count. It is a presentation of an underlying condition. It is an extremely common disease affecting up to one-third of the global population. In many cases, it is mild and asymptomatic. The prevalence increases with age and is more common in women of reproductive age, pregnant women and the elderly. The prevalence is more than 20% of individuals who are older than the age of 85. The incidence of anemia is 50%-60% in the nursing home population. Patients with anemia typically present with vague symptoms such as lethargy, weakness, and tiredness. Severe anemia may present with syncope, shortness of breath, and reduced exercise tolerance.

KEYWORDS: Iron Deficiency Anemia, Haemoglobin, *Pandu*, Ayurveda.

INTRODUCTION

Anemia is an extremely common disease affecting up to one-third of the global population. In many cases, it is mild and asymptomatic and requires no management. Anemia is described as a reduction in the proportion of the red blood cells. Anemia is not a diagnosis, but a presentation of an underlying condition. Whether or not a patient becomes symptomatic depends on the etiology of anemia, the acuity of onset, and the presence of other comorbidities, especially the presence of cardiovascular disease. Most patients experience some symptoms related to anemia when the hemoglobin drops below 7.0 g/Dl.[1] The prevalence increases with age and is more common in women of reproductive age, pregnant

women, and the elderly. The prevalence is more than 20% of individuals who are older than the age of 85. The incidence of anemia is 50%-60% in the nursing home population. In the elderly, approximately one-third of patients have a nutritional deficiency as the cause of anemia, such as iron, folate, and vitamin B12 deficiency. In another one-third of patients, there is evidence of renal failure or chronic inflammation.[2] Nutritional iron deficiency is the most common cause of anemia in India. According to National Family Health Survey (NFHS) III data, the incidence of anemia overall is 79%.[3] Iron deficiency anemia occurs when iron losses or physiological requirements exceed absorption. Blood loss, malabsorption, physiological demands are the main causes for iron deficiency anemia. Worldwide, hookworm and schistosomiasis are the most common cause of gut blood loss.

Erythropoietin (EPO), which is made in the kidney, is the major stimulator of red blood cell (RBC) production. Tissue hypoxia is the major stimulator of EPO production, and levels of EPO are generally inversely proportional to the hemoglobin concentration i.e. individual with low hemoglobin has elevated levels of EPO. However, levels of EPO are lower than expected in anemic patients with renal failure. In anemia of chronic disease EPO levels are generally elevated.[4]

Pandu roga is a clinical entity with great resemblance to iron deficiency anemia. *Pandu roga* is *Pitta pradhan vyadhi*. In *Pandu roga* tissue metabolism gets affected due to vitiated *Doshas* which in turn into *Dhatu- shyathilya* in all *Dhatu*. There is a predominance of paleness all over the body. *Rasavaha* and *Raktavahasrotasas* are chiefly involved in the pathogenesis of *Pandu*. *Pandu* means pallor or whiteness. In this disease, there is pallor on the skin, due to deficiency of blood tissue either in form of haemoglobin or red blood cells, hence called anemia.[5]

ETIOLOGY

The cause of iron-deficiency anemia varies based on age, gender, and socioeconomic status. Iron deficiency may result from insufficient iron intake, decreased absorption, or blood loss. Iron-deficiency anemia is most often from blood loss, especially in older patients. It may also be seen with low dietary intake, increased systemic requirements for iron such as in pregnancy, and decreased iron absorption such as in celiac disease.[6]

The causative factor of *Pandu* are excessive intake of alkaline, sour, pungent and salty, too hot, incompatible and unsuitable food, suppression of natural urges, *Manas Bhav* like anxiety, fear, anger causes *Pitta* vitiation and is propelled to the body by aggravated *Vata.*[7]

PATHOPHYSIOLOGY

The pathophysiology of anemia varies greatly depending on the primary cause. Iron is essential for the production of hemoglobin. The depletion of iron stores may result from blood loss, decreased intake, impaired absorption, or increased demand. Iron-deficiency anemia could arise from occult gastrointestinal bleeding. Iron deficiency leads to microcytic hypochromic anemia on the peripheral blood smear. RBC are produced in the bone marrow and released into circulation. Approximately 1% of RBC are removed from circulation per day. Imbalance in production to removal or destruction of RBC leads to anemia.[8]

In *Pandu roga* tissue metabolism gets affected due to vitiated *Doshas* which in turn into *Dhatu- shyathilya* in all *Dhatu*. There is a predominance of paleness all over the body. *Rasavaha* and *Raktavahasrotasas* are chiefly involved in the pathogenesis of *Pandu.*

MECHANISMS INVOLVED IN ANEMIA[9]

Increased RBC destruction

1. **Blood loss**

a. Acute- hemorrhage, surgery, trauma, menorrhagia

b. Chronic- heavy menstrual bleeding, chronic gastrointestinal blood losses[6] (in the setting of hookworm infestation, ulcers, etc.), urinary losses (BPH, renal carcinoma, schistosomiasis)

2. **Hemolytic anemia**

a. Acquired- immune-mediated, infection, microangiopathic, blood transfusion-related, and secondary to hypersplenism

b. Hereditary- enzymopathies, disorders of hemoglobin (sickle cell), defects in red blood cell metabolism (G6PD deficiency, pyruvate kinase deficiency), defects in red blood cell membrane production (hereditary spherocytosis and elliptocytosis)

Deficient/defective erythropoiesis

1. Microcytic
2. Normocytic, normochromic

3. Macrocytic

SYMPTOMS OF ANEMIA

Classically depends on the rate of blood loss.

1. Weakness
2. Tiredness
3. Lethargy
4. Restless legs
5. Shortness of breath, especially on exertion, near syncope
6. Chest pain and reduced exercise tolerance- with more severe anemia
7. Pica- desire to eat unusual and nondietary substances
8. Mild anemia may otherwise be asymptomatic

According to Ayurveda –Palpitation in the heart, dryness of skin, absence of perspiration, fatigue, cracks in the skin, salivation, looseness in the joints and whole body, urge for eating mud, edema under the eye lids, slight yellowish discolouration to urine and feces.

SIGNS OF ANEMIA

1. Skin may be cool to touch
2. Tachypnea
3. Hypotension (orthostatic)

COMPLICATIONS

The complications of iron deficiency anemia include-

1. Increased risk of infections
2. Heart conditions
3. Developmental delay in children
4. Pregnancy complications
5. Depression

MANAGEMENT

The treatment of iron-deficiency anemia includes treating the underlying cause, such as gastrointestinal bleeding and oral iron supplementation. Iron supplementation should be taken without food to increase absorption. Iron supplementation is needed for at least three months

to replenish tissue iron stores and should proceed for at least a month even after hemoglobin has returned to normal levels.[10]

Diet - Carrot, beetroot, green leafy vegetables, tomato, egg, meat, *Gud* (jaggery), *Draksha*, *Munakka*, raisins, *Kharjur*, prepare food in *Lauh* patra etc.

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