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STUDY ON CLINICAL IMPORTANCE OF *RAKTA DHATU* EFFECT OF *BHRINGRAJ CHURNA* IN *RAKTALPATA* (IRON DEFICIENCY ANEMIA) - A REVIEW

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ABSTRACT

Rakta dhatu is one among the *Sapta Dhatus* of the body which is important for nourishment and functioning of vital organs of the body. Healthy *Rakta Dhatu* makes a person energized and passionate for life. Its properties are similar with the *Pitta Dosha*. Any change in equilibrium between *Tridosha* and *Dhatus* results in *Rakta dhatu vikara*. Iron deficiency anemia is caused due to the deficiency of iron in the diet, malabsorption of iron, etc. *Bhringraj* possess properties such as *Ruksha, Katu Tikta Rasatmak, Ushna viryatmak* therefore it acts as a *Rakta prasadhan* and *Rakta vardhak*. It reduces the vitiated *Pitta Dosha* and *Rasagata Pitta* which improves *Rakta Dhatu Pushti* hence it is an effective *Ayurvedic Dravya* to treat iron deficiency anaemia.

KEYWORDS: Bhringraj, Dravya, iron deficiency anaemia, Pitta, Rakta dhatu, Tridosha.

INTRODUCTION

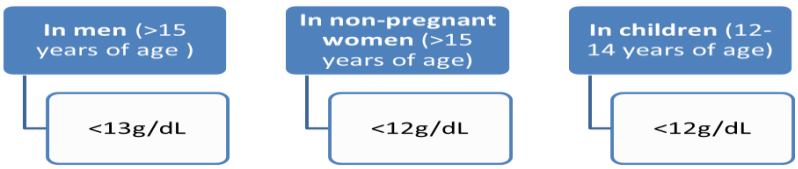
Iron-deficiency anemia is a serious health problem affecting people worldwide. According to W.H.O. half of the patients suffering from anemia are due to iron deficiency.[1] India has high ratio of children and women suffering from iron-deficiency anemia. This is due to the nutritional deficiency of anemia in majority of population. When we compare India to other countries, India has highest prevalence of Iron deficiency anemia among the adolescent girls, pregnant women, and lactating mothers. National Family Health Survey-4 (NFHS-4) in Tamil Nadu reported that prevalence of anemia among non-pregnant women and pregnant women were 55.4% and 44.4% respectively.[2] Nutritional deficiency of iron, increasing demand of iron during adolescence, excessive loss of blood during menstruation can cause anemia resulting into low birth weight, preterm labor, infant mortality and maternal mortality.

Ayurvedic Acharyas referred anemia as "*Panduroga*". Anemia word indicates lack of blood and *Pandu* indicates pallor (*Panduta*). Iron deficiency anemia can be related to the *Mrtibhakshanajanyapandu* of *Ayurveda.* The condition of *Raktadhatudushti* (*Alparakta, Dushtaraktadhatu*) results into *Dhatwagnimandya* and *Srotodushti*. Due to the aggravation of *Pitta Dosha, Raktadushti* occur leading to the development of *Pandu roga*.

Bhringraj word is derived from word ''*Bhrunga iva rajate*'' meaning which gives beetal like black color to the hairs. *Bhringaraj* is rich in properties such as *Deepana, Pachana, Tikta, Ushna, Vatanuloman, Rasayan, Kapha-vaatahar, Varnya*, etc.[3]

Anemia

According to *Charak Samhita*, anemia is deficiency of *Rakta*, *Ojas*, fat; looseness of body parts and abnormality of complexion. World Health Organization defines anemia on the basis of hemoglobin level as depicted in figure 1.[4]



The process of Hematopoiesis, Erythropoiesis, and iron metabolism takes place in spleen, reticuloendothelial system and liver. Erythrocytes contain hemoglobin responsible for gaseous exchange. In our body, formation of hemoglobin occurs in the spleen and liver. Liver is an important organ for erythropoiesis, iron storage, iron regulatory genes, and iron metabolism etc.[5] Hemoglobin is a conjugated protein which is synthesized inside the immature erythrocytes. There are certain genes which control the formation of hemoglobin. Globin part of hemoglobin comprises of alpha and beta chains.Various nutrients such as proteins, vitamin B12, folic acid, iron, nicotinic acid, pyridoxine, vitamin c, copper, cobalt, etc. are required.[5]

Iron obtained from diet is absorbed in the form of ferrous ion. It depends on presence of bile salts, phosphates, etc. Liver secretes apo-transferrin into the bile which binds with free iron, hemoglobin, myoglobin to form transferrin. Iron is absorbed from the intestinal tract and stored in the liver.[5]

Iron deficiency anemia is a type of nutritional deficiency anemia in which concentration of hemoglobin in an individual is below the normal level. It is due to the deficiency of one or more nutrients needed for the process of hematopoiesis. Iron deficiency anemia occurs due to the deficiency of iron which impairs the formation of hemoglobin. Some sign and symptoms of anemia are fatigue, tiredness, headache, muscular weakness, lethargy, pallor, fainting, menstrual disturbances, anorexia, flatulence, etc.[6]

Conceptual view according to *Ayurveda*

According to *Achayas, Rakta* is an important factor for the various *Karmas* of the body such as *Jeevana, Poshana, Dharana* etc. *Dhatu* are the functional apparatus of the body responsible for its growth and nourishment. There are total seven *Dhatu* classified by the *Acharyas*. Out of those, one is *Rakta Dhatu* which is considered as the primary fire of the body. *Rakta* word is derived from Sanskrit word *''Raj Ranjane''* which means to stain.[7] It has red color as its characteristic. It has properties similar in nature to the *Pitta Dosha* such as dryness, hotness, hardness, instability, roughness, clarity and sharpness.

In some places *Rakta dhatu* is present in large amount and these places are termed as *Sthana* of *Raktadhatu.* Liver and spleen are the main organs where the metabolism of *Raktadhatu* occurs and *Rkatavahasrotas* and *Raktadhara Kala* play an important role there. Liver is the site of origin of the *Raktavaha srota*.[7]

Due to the depletion of *Rakta dhatu* the qualities of *Pitta dosha* and fire reduces. The skin becomes pale, loses its luster; mental efficiency, concentration gets affected. *Raktalpata* causes modification of color i.e. *Harita.* Any kind of deviation in *Raktadhatu* (declining or increase) leads to pathogenesis. Vitiation of *Raktadhatu* (blood) shows the skin disorder in the body. *Rakta* is an important unit for the sustenance of the life. According to *Acharyas, Mrudbhakshanajanya Pandu* (iron deficiency anemia) is caused by eating clay and it can be treated by *Mandur Bhasma* (iron rust pills).

According to *Ayurveda, Pandu Roga* is the result of vitiation of *Pitta Dosha*. The vitiation of *Pitta Dosha* leads to discoloration of the skin and pallor (*Pandu*) which occurs due to the *Alpa Rakta* (reduced blood) or *Vidushya Rakta* (vitiation of blood).

This circulating *Pitta* and vitiated *Agni* causes depletion of *Rasa Dhatu* which in turn affects the production of *Rakta dhatu* by disturbing the *Sadhaka Pitta* (*Pitta* in the heart) and *Ranjaka Pitta* (in liver).[8] Decreasing level of *Rasa* and *Rakta* affect the nourishment of the body organs and disrupts the vital functions leading to heaviness in the tissues.[8] This affects the *Rakta* (blood), *Mamsa* (muscles) and *Ojas* causing pale complexion, palpitations, giddiness, loss of strength, fatigue, exhaustion, pain, irritability, breathlessness, edema etc.

Various etiologic factors in iron deficiency anemia are increased physiologic demand; decreased iron assimilation due to iron poor diet, faulty diet habit, iron mal-absorption; menstruation, pregnancy, lactation, growth, blood loss, parasitic infection, intravascular hemolysis and hemoglobinuria, etc.[9]

Management of Iron deficiency anemia

Due to the various properties of *Bhringraj*, it is considered important for the treatment of various disease conditions. It is used in *Kaphaja kasa chikitsa, Raktapittahara yoga, Vamak* and *Virechaka kalpa,* etc. Some properties and action of *Bhringraj* are.[10]

- *Rasa – Katu,Tikta*
- *Guna - Ruksa, Tiksna*
- *Virya - Usna*
- *Vipaka - Katu*
- *Doshaghnata – Kaphavatashamaka*
- *Rogaghnata - Pandughna, Shotha, Shwasa, Vrana, Kshala, Netraroga, Granthi, Kesharoga, Bhrama, Naktandhya, Kamala, Kushtha, Kilasa, Jwara, Kasa, Daurbaya, Charmaroga.*
- *Karma - Vatahara, Kaphahara, Amahara, Balya, Rasayana, Kesya, Tvacya, Dantya, Caksusya, Visahara*

Bhringaraja churna is made up of one part of *Bhringraj* powder, half part of black sesame seeds, half part of *Aamalaki* (Emblica officinale). It is potent remedy for vitiated blood, *Gadanigraha*, splenic and liver enlargements, *Yakrut vikara, Pleeha vikara, Agnimandya, Kamala, Pandu* like diseases.[11]

Effect of *Bhringraj* on *Rakta Dhatu*

Bhringraj is rich in qualities such as *Ruksha, Katu tikta rasatmak, Katu vipaki, Laghu Gunatmak* and *Ushna viryatmak* therefore it is considered as *Pitta, Kapha* and

Vata shamak. The properties of *Katu tikta rasa* and *Ushna virya* helps in increasing absorption and digestion of food.[12] This helps in *Agnideepan* and *Amapachan*. It also increases the appetite and thus considered as *Katu Paushtika dravya*. When *Amapachan* and appetite is increased, formation of seven *Dhatus* also enhances. When formation of *Dhatus* increases it results in *Rasa* and *Rakta Dhatu Vardhan*. *Bhringraj* provides *Dhatu-Updhatu Poshana Nyaya* which helps in the *Vriddhi* of all the *Sapta Dhatus*.[12]

Increased appetite and *Amapachan* results in better formation of all the *Dhatus* and thus in turn, causes *Rasa* and *Rakta Dhatu Vardhan* which are the *Utpatti Sthanas* and *Ashraya Sthanas* of *Pandu*. The *Sapta Dhatu Vriddhi* takes place by *Dhatu- Updhatu Poshana Nyaya*.

It is a *Rasayana* (rejuvenating agent) *Dravya* acting as an enhancing moderator of all the *Dhatus*. It has *Katu tikta* and *Ushna* properties which helps in *Rakta prasadhan* and *Rakta vardhan*. It stimulates *Yakruta* and therefore considered as *Yakrut uttejak*. This property helps in controlling vitiation of *Pitta* and removal of excessive *Pitta* out from the body. Reduction of *Pitta Dosha* causes *Ama Pachana* and therefore in turn reduces *Rasagata Pitta*. This reduction in *Rasagata Pitta* improves the *Rakta Dhatu Pushti*. Removal of excessive *Pitta* from the body stimulates formation and circulation of *Rasa* and *Rakta Dhatu*. *Rasa* and *Rakta Dhatu* increases nourishment of body organs, improving their vital functions and efficiency.[13]

The process of hematopoiesis takes place in the liver and spleen. Iron absorption and storage also occurs in liver. The hepatoprotective effect of *Bhringraj* is helpful in restoring and improving hepatic functions in relation to iron absorption and erythropoiesis. It increases the process of formation of blood in the body and therefore acts as hematinic agent.[14] *Bhringraj churna* increases the bioavailability of iron, its absorption, metabolism, regulation; hepatoprotective actions; improved blood formation and therefore it is a potent remedy for Iron deficiency anemia.[15]

CONCLUSION

Iron deficiency anemia is a condition which is characterized by decrease in the concentration of blood hemoglobin due to nutritional deficiency of iron. It mostly affects people of adolescent age group predominantly women. Various iron regimens are prescribed for treatment but they result in complications like constipation, nausea, etc. Therefore *Ayurvedic* medication can play a better and role here. *Bhringraj* possess properties such as Ruksha, *Laghu gunatmak*, *Katu tikta rasatmak*, *Katu vipaki*, etc. which helps in balancing *Pitta*, *Kapha* and *Vata dosha*. Removal of excessive *Pitta Dosha* leads to *Amapachan*, increased erythropoesis, hematopoiesis, and iron metabolism. This mechanism of *Bhringraj* helps in curing iron deficiency anemia without any complications.

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