A CRITICAL REVIEW OF PATHYA-APATHYA DIETS IN DEFICIENCY OF RAKTA DHATU

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ABSTRACT

“Raktam Jeeva iti Sthit” that implies the life (Jeeva) of an individual lives in Rakta (Blood), any extreme hindrance or loss of blood can cause demise. Alterations in skin colour, such as a yellowish white discoloration, are common in Rakta deficiency. This condition can be compared to Panduroga in Ayurveda, which is frequently referred to in various Ayurvedic texts as either a separate disease or the symptoms of another disease. On the basis of symptoms and causes, it can be linked to iron deficiency anaemia in modern science. It is brought on by iron loss from the body, inadequate diet, gastrointestinal tract infections, worm infestation, and insufficient iron absorption. According to the classics of Ayurveda, it develops as a result of a decrease in Rasa Dhatu, which makes it unproductive to produce Rakta Dhatu. There are different food articles, diets, Ayurvedic herbal and herbo-mineral formulations are indicated in Ayurvedic texts for the management of lack of Rakta Dhatu. These diets and Ayurvedic formulations have been found to be safe, effective and free of side effects in numerous studies.

Keywords: Ahara, Pathya, Rakta Dhatu

1. INTRODUCTION

The core of life is blood (Rakta) and nature has developed a novel method for continuously supplying blood to every cell and area of the body. The streaming blood, with the heart at its centre, persistently supplies nourishment and oxygen to
Oxygen is necessary for all of the metabolic processes in a cell as well as for the production of energy for these processes. Pazare et al. (2020)

**Dosha, Dhatu and Mala** are regarded as the three fundamental components of the body. Sushruta (2007) Dhatu performs Dharana Karma among them Sushruta (2007) These are seven in number. Rakta Dhatu is the second Dhatu. With the aid of Rasa Dhatwagni and Bhootagni, Rakta is originated from the essence part (Prasada Bhaga) of Rasa Dhatu. Agnivesha (2009) Its properties like Sneha, Ushna, Teekshna, and Drava is comparable to the properties of Pitta Dosha. It is dominated by Apa and Teja Mahaboota, circulates throughout the body from heart to arteries, performs Jeevana, and nutrition to muscle.

Both Rasa and Rakta Dhatu are liquids that circulate within the intravascular compartment. Both these Dhatu collectively can be thought of as blood. The completely digested essential and smallest material (nutrients absorbed in blood) has been referred to as Rasa-Rakta Dhatu. Patwardhan (2015) Rasa is clear and colourless, so it can be taken as plasma; Rakta can be refers to Red blood cells (RBCs), as it is stated that red colour of blood is like Gunjaphala (Abras precatorius fruit) and Padma (Nelumbo nucifera), though the white blood cells (WBCs) can be compared with Shonitarupi Oja. Agnivesha (2004) Tadasad et al. (2018)

Food that contains all six tastes, according to Ayurveda, is capable of developing all Dhatus. Food that is Agneya in nature must increase Rakta because Rakta has Agneya property. Mostly Agneya foods having hot (Ushna), dry (Ruksha), sharp (Teekshna), clear (Vishada) and subtle (Sukshma) properties and contains various colour (Roopa). This type of food produces burning sensation (Daha), lustre (Prabha), colour (Varna), brightness (Prakasha) and improves the digestion. Sushruta (2004)

### 2. MATERIALS AND METHODS

Ayurvedic text books such as Brihatrayi, Laghutrayi and Nighantu were studied to understand the Rakta Dhatu Kshaya and various types of Pathya- Apathya in it. Online database including research work related to the topic like PubMed, Scopus, Google scholar, DHARA etc. were searched. The key words searched were Ahara, Pandu and Rakta Dhatu etc. Article published in various index journals were reviewed thoroughly.

#### 1) Etiology (Nidana)

In Ayurvedic Samhitas, Acharyas have described the Nidana of each disease, which are directly or indirectly responsible for the causation of the disease. Sushruta (2004) Apathya Ahara is the most important factor among those etiological factors. Thus, Ayurveda places an emphasis on various rules and regulations regarding food consumption. Chandurkar & Modase (2021) Nutritional deficiencies, particularly a lack of iron in the diet, are the primary cause of Rakta Dhatu deficiency. Blood loss, inadequate nutrition, GIT infections, worm infestation, or malabsorption are all causes of Rakta Kshaya. This situation arises when the amount of iron lost is greater than the amount consumed, and this imbalance cannot be compensated for solely through diet. Iron lost through sweat, feces, and urine should be replaced by the iron obtained from diet. A low iron-based diet and its poor absorption fail to meet the increased demands for iron and then results anaemia. Gothwal & Goyal (2018)

#### 2) Pathogenesis (Samprapti)

The term “Samprapti” refers to the Dosha- Dushya Sammurchchhana and the subsequent appearance of the disease. In Samprapti, every factor related to the
sequence of illness at various stages is considered. In Samprapati of Pandu Roga, there is vitiation of all three Doshas and among them Pitta Dosha is prevailing in manifestation of the illness. This Pitta becomes vitiated due to the etiological factors (Nidana Sevana), leading to diminished appetite (Agnimandya), anorexia (Aruchi), Rasa Pradosha, and the potential to develop Dhatu Shaithilya. During pathogenesis, all the three Doshas vitiate the Rakta Dhatu (Raktam Vidushya) and causes dryness and coarseness in the skin. Pazare et al. (2020)

3) Sign & Symptoms (Rupa)- Agnivesha (2009), Sushruta (2014)

The following are signs and symptoms found in Rakta Dhatu deficiency.

- Coarse skin (Parusha/ Twak-Parushya)
- Cracked skin (Sphutita)
- Lustreless skin (Mlana)
- Roughness / dryness in skin (Twag-Rukshata)
- Desire to take sour articles (Amla-Prarthana)
- Desire to take cold items (Sheeta-prarthana)
- Flaccid veins (Sira-Shaithilya)

4) Pathya – Apathya diets-

Acharya Charaka depicts a few measures for Pathya- Apathya diets. Ayurveda stated that the kind of food, we eat and how we eat it all affects health of person and his body's constitution. Some of the requirements include measurement, time, preparation method, habitat, constitution, and morbid Doshas. Ayurveda holds that ‘Ahara’ is a major component of life’s sub-pillars (Trayo Upstambha). The basis for how we may largely benefit from Yukti-Vyapashraya therapy are these sub-pillars of support. Sharma (2016)

Preventive interventions such as dietary administration and taking action to stop misfortunes or malabsorption, are the preferred administration systems in deficiency of Rakta Dhatu. Both healthy and unhealthy conditions are influenced by diet. The seat of life satisfaction is the food that is consumed according to the instructions. Food is essential for the Ojas, Teja, Dhatu, Indriya, Bala, Tushti, and Arogya. Vagbhata (2006)


The important principles of Pathya should be food items (Ahara) that can cause Agni-Deepana (improves digestion). Food having sweet- bitter- pungent taste and heavy- dry- sharp properties ought to be given.

Table 1

<table>
<thead>
<tr>
<th>S. No.</th>
<th>Group (Varga)</th>
<th>Food articles (Dravya)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Shooka Dhanya Varga</td>
<td>Old barley (Purana Yava), old wheat, old rice, Tandula, Shashtika shali</td>
</tr>
<tr>
<td>2</td>
<td>Shami Dhanya Varga</td>
<td>Green gram, pigeon pea (Adhaki), red lentil (Masoora)</td>
</tr>
<tr>
<td>3</td>
<td>Mamsa Varga</td>
<td>Jangala Mamsa &amp; Matsya, Tittira, Barhi, Daksha</td>
</tr>
</tbody>
</table>
A Critical Review of Pathya-Apathya Diets in Deficiency of Rakta Dhatu

Table 2

Table 2 Ahara Dravya Mentioned in Various Nighantu Prajapati (2021)

<table>
<thead>
<tr>
<th>S. No.</th>
<th>Food article</th>
<th>Botanical name</th>
<th>Family</th>
<th>References</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Ardraka</td>
<td>Zingiber officinale</td>
<td>Zingiberace</td>
<td>Priya nighantu</td>
</tr>
<tr>
<td>2</td>
<td>Bimbi</td>
<td>Coccinia indica</td>
<td>Cucurbitaceae</td>
<td>Dravyagunasamgrah</td>
</tr>
<tr>
<td>3</td>
<td>Chukra</td>
<td>Tamarindus indica</td>
<td>Caesalpiniacea</td>
<td>Kaidevnighantu</td>
</tr>
<tr>
<td>4</td>
<td>Draksha</td>
<td>Vitis vinifera</td>
<td>Vitaceae</td>
<td>Sushennighantu</td>
</tr>
<tr>
<td>5</td>
<td>Haridra</td>
<td>Momordica charantia</td>
<td>Cucurbitaceae</td>
<td>Dhanvantrinighantu, Rajnighantu, Priyanighantu</td>
</tr>
<tr>
<td>6</td>
<td>Karvellaka</td>
<td>Momordica charantia</td>
<td>Cucurbitaceae</td>
<td>Rajnighantu, Kaidevnighantu</td>
</tr>
<tr>
<td>7</td>
<td>Katphala</td>
<td>Myrica nagi</td>
<td>Myricaceae</td>
<td>Yadavjitrikamji</td>
</tr>
<tr>
<td>8</td>
<td>Lashuna</td>
<td>Allium sativum</td>
<td>Lilliaceae</td>
<td>Shankaranighantu</td>
</tr>
<tr>
<td>9</td>
<td>Pippali</td>
<td>Piper longum</td>
<td>Piperaceae</td>
<td>Rajnighantu, Priyanighantu</td>
</tr>
<tr>
<td>10</td>
<td>Shunthi</td>
<td>Zingiber officinale</td>
<td>Zingiberace</td>
<td>Dravyagunasangrah, Priyanighantu</td>
</tr>
<tr>
<td>11</td>
<td>Tiktabimbi</td>
<td>Cephalandra indica</td>
<td>Cucurbitaceae</td>
<td>Bhavprakash, Ravallebhanighantu</td>
</tr>
<tr>
<td>12</td>
<td>Aja navneeta (Goat butter)</td>
<td>-----------</td>
<td>-----------------</td>
<td>Bhavprakash, Priyanighantu</td>
</tr>
<tr>
<td>13</td>
<td>Godugdha (Cow’s milk)</td>
<td>-----------</td>
<td>-----------------</td>
<td>Bhavprakash, Priyanighantu</td>
</tr>
<tr>
<td>14</td>
<td>Madhu (honey)</td>
<td>-----------</td>
<td>-----------------</td>
<td>Laghunighantu</td>
</tr>
<tr>
<td>15</td>
<td>Navina Ghrita (Fresh ghee)</td>
<td>-----------</td>
<td>-----------------</td>
<td>Madhav's Nighantu, Rajnighantu, Kaidevnighantu, Madanpalnighantu</td>
</tr>
<tr>
<td>16</td>
<td>Takra (Buttermilk)</td>
<td>-----------</td>
<td>-----------------</td>
<td>Dravyagunasangrah, Rajnighantu, Kaidevnighantu, Madanpalnighantu</td>
</tr>
<tr>
<td>17</td>
<td>Guda (Jaggary)</td>
<td>-----------</td>
<td>-----------------</td>
<td>Dravyagunasangrah, Rajnighantu, Bhavprakash-nighantu</td>
</tr>
<tr>
<td>18</td>
<td>Kanji (Fermented gruel)</td>
<td>-----------</td>
<td>-----------------</td>
<td>Brihatnighantu</td>
</tr>
<tr>
<td>19</td>
<td>Yavasura (Fermented preparation of barley)</td>
<td>-----------</td>
<td>-----------------</td>
<td>Laghunighantu</td>
</tr>
</tbody>
</table>
6) Review of Apathya Ahara-
All the etiological factors leads to deficiency of Rakta Dhatu are considered as Apathya, mention in following table-

<table>
<thead>
<tr>
<th>S. No.</th>
<th>Varga</th>
<th>Food articles</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Rasa</td>
<td>Excessive consumption of sour, pungent, salty food and having alkali (Kshara) in nature</td>
</tr>
<tr>
<td>2</td>
<td>Guna</td>
<td>Food having heavy, dry, rough, sharp and hot properties.</td>
</tr>
<tr>
<td>3</td>
<td>Anna</td>
<td>Vidadi Ana, Guru Ahara, Viruddha Ahara, Asatmya Ahara</td>
</tr>
<tr>
<td>4</td>
<td>Jala</td>
<td>Excessive consumption of water, polluted water, water from rivers of Sahyadri &amp; Vindhya</td>
</tr>
<tr>
<td>5</td>
<td>Kritanna Varga</td>
<td>Oil cake (Pinyaka)</td>
</tr>
<tr>
<td>6</td>
<td>Shami Dhanya Varga</td>
<td>Black gram, horse gram, bean (Nishapav)</td>
</tr>
<tr>
<td>7</td>
<td>Sneha Varga</td>
<td>Sesame oil</td>
</tr>
<tr>
<td>8</td>
<td>Gorasa Varga</td>
<td>curd, curd water (Mastu)</td>
</tr>
<tr>
<td>9</td>
<td>Madya Varga</td>
<td>Alcohol (Sura)</td>
</tr>
<tr>
<td>10</td>
<td>Aharapayogi Varga</td>
<td>Asafoetida, betel leaf, Teekshna article like black pepper</td>
</tr>
<tr>
<td>11</td>
<td>Anya Dravya</td>
<td>Soil (Mrittika)</td>
</tr>
</tbody>
</table>

3. INHIBITORS (WHICH PREVENT IRON ABSORPTION)

Gothwal & Goyal (2018)

- Consuming a diet heavy in phosphates and calcium may lead to a reduction in the intestinal region’s ability to absorb iron in its hemo form.
- Foods including cereal brains, grains, legumes, nuts, and seeds that are rich in inositol and phytochemicals called phytates. (2001 WHO)
- Drinking too much tannin-containing liquids, such as tea, coffee, carbonated soda, and drinks made with cocoa. (2001 WHO)
- Overindulgence in fried food, hot, pickled and jam goods; excessive intake of highly salted food & unsanitary food.
- Keep away from unnecessary utilization of acid neutralizers/Anti-inflammatory medicine/ NASIDS/ Aspirin as they harm the digestive verdure (Castro and Cairo, 2014).
- Children are most likely to lose iron from their sweat and urine while working in too hot environments.

The Rakta has been considered an essential component of the Jeevana, Prinana, Dharana and Poshana procedures performed by the body. Since Rakta is a Pitta Vargiya, it is common to observe that Doshas, particularly Pitta Dosha, vitiate Rakta,
resulting in Rakta deficiency symptoms. Pazare et al. (2020) Kumari et al. (2020) As Acharya Charaka pointed out, the etiological factors based on what and how we eat make it easy to link Rakta deficiency and iron deficiency anaemia because both conditions are caused by factors that interfere with iron absorption or have a low nutritional value. Aradhya & Vidy Shree (2022)

Depending on the components that would supports the body's daily needs, such as carbohydrates, calories, and protein, modern dietitian suggests a specific diet regimen. Ayurveda, on the other hand, never recommends a specific diet for everyone. Ayurveda provides dietary recommendations based on a person's digestive power (Agnibala), condition of bowel (Koshtha), and disease conditions in terms of various modes of food preparation (Ahara Kalpana) and food types (Ahara Varga).

The recommended diet (Pathya Ahara in Table 1 and Table 2) provide relief from disease. Appetizer (Deepana), digestive (Pachana), diminishes pallor (Varnya), improves blood quality (Rakta-doshagna), increases blood (Rakta Vardhaka), body humour specifier or Kapha -Pitta pacifying properties, Krimighna, increases strength (Balya) and Rejuvenative (Rasayana) are some of their properties. The proper diet moreover aids in improving the process of iron absorption and cleaning the obstructions in body channels (Srotorodha), restoring the strength of tissues (Dhatubala), and removing the toxins (Ama Dosha).

- The majority of green vegetables (Shaka Varga) having pungent (Katu) and bitter (Tikta) dominant taste may increase Rakta and iron absorption in the body. These are generally appetizer (Deepaneeya), digestive (Pachaneeya), pacifying Kapha-Pitta Dosha and relish (Ruchya) in nature.

- Dried ginger, black pepper, turmeric having pungent (Katu) dominancy which elevates the digestive power (Jatharagni) due to their appetizer (Deepana) & digestive (Pachana) properties, works in anorexia and on iron bio-availability.

- Turmeric having anti-inflammatory property, hostile to hepatotoxic action, antioxidant activity. Deepshiksha & Manisha (2020)

- Gooseberry (Amalaki) is pacifying all the three Doshas predominantly Pitta Dosha. It contains the most vitamin C, which reduces ferric iron into ferrous and aids in the production of red blood cells. Likewise, Rasayana to prevent Ojokshaya.

- Aged rice (Jeerna Shali) having diuretic property; thus, they are beneficial in inflammation (Shotha). The property of Shramahara helps to alleviate tiredness and fatigue, improve sperm quality (Shukra Dhatu) and is ultimately beneficial to Ojokshaya.

- Aged rice and old wheat having Shukral property, bulk promoting (Brimhaneeya) and jivaneeya as Rasayana.

- Old barley having astringent (Kashaya), sweet (Madhura) taste, Katu Vipaka and cold potency pacifies the Kapha and Pitta Dosha. It also improves the digestive power (Agni vardhaka), works in worm infestation (Kriminashaka), provides strength to the body and purifies the blood (Raktaprasadana). Sushruta (2015)

- Pulses (Shami Dhanya) having Kapha-Pitta pacifying properties.

- Green gram (Mudga) possesses Kapha-Pitta pacifying & Vata Dosha vitiating properties and having sweet & astringent taste, easily digestible (Laghu), producing dryness in body (Ruksha), cold potency and Katu
- **Vipaka.** It is an iron-rich pulse that is suitable for dieters (3.9 mg/100 g) & potassium (1150 mg. 100 grams). *Kokate et al. (2005)*


- Pigeon pea (*Adhaki*) also known as the red gram, having properties of lightness (*Laghu*), dryness (*Ruksha*), astringent & sweet in taste, cold potency and Grahi. It pacifies aggravated Pitta and *Kapha Dosha* while it aggravates Vata Dosha. In contrast, *Acharya Sushruta* stated that Adhaki does not aggravates the Vata excessively. *Sushruta (2015)* It have folic acid, which helps in preventing anaemia. Since folic acid is essential for the development of the foetus and helps avoid neural tube birth abnormalities like spina bifida, it is also advantageous for pregnant women.

- The meat of animals residing in dessert (*Jangala*) and pheasant bird (*Tittira*) having hot potency & unctuousness properties, enhances the digestive power as well as strength of the body.

- *Tanduliyaka* is a good source of iron, nutrients, minerals and vitamins, high in dietary fibres. The presence of lysine, an amino acid, aids in the elimination of free radicals. It is also helpful in treating ulcers of mouth, premature hair loss and greying of the hair. *Mahesh et al. (2017)*

- Raw banana (*Taruna Kadali*) which is high in dietary fibres, proteins, unsaturated fatty acids, vitamin E and flavonoids

- Ash gourd (*Kushmanda*) having plentiful nutrients and vitamins like B1, B3 and C. It has different minerals like Sodium, Potassium, Calcium, Selenium and 96% of water. It is a good source to boost energy levels.

- *Sauveeraka & Tushodaka* have appetizer (*Deepana*) & digestive (*Pachana*) properties and beneficial in cardiac disorders, anaemia & worm infestation.

- By virtue of sweet taste, cold potency, unctuousness and *Sara* properties, sugarcane juice (*Ikshuras*) pacifies *Pitta Dosha*. It is rich in iron, magnesium, calcium and different electrolytes.

- The preparation of *Krittanna Varga* having *Agnivardhaka* and *Vatanulomaka* properties, thus taking *Peya* and *Yusha* can help with constipation caused by iron consumption.

- *Peya* alleviates fever, abdominal problems, weakness, exhaustion, thirst, and hunger. It causes easy expulsion of feces and flatus. It stimulates appetite, digestion and producing sweating. It also functions as diuretic and carminative.

- *Vilepi* prevents the body from releasing fluids, good for the heart, quenches thirst and stimulates appetite. It is light in nature, easily digestible, energizing and strength providing. *Jasminbegan et al. (2020)*

- Cow urine (*Gomutra*) used to relieve in *Kaphaja Panduroga, Pandujanita Shotha, Udararoga* and worm infestation due to its properties such as lightness, dryness, sharpness, hotness and pungent (*Katu*) in taste. The antioxidant property of cow urine is very high. The primary factor that stimulates the production of red blood cells is erythropoietin stimulating factor.

- Butter (*Navneeta*) perform the functions of Grahi, appetizer (*Deepana*), Hridya and relish (*Ruchya*).
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• Buttermilk (Takra) having properties like pacifying all the three Doshas, alleviates oedema, anorexia and anaemia. It also having vitamin B12, an extrinsic factor that aids in iron absorption.

• Ghee is primarily regarded as Pitta Dosha alleviator along with both Doshas. The regular use of ghee enhanced the quality of Meda Dhatu and also act as Agnideepaka, Ojovardhaka and Vrishya. Additionally due to its Yogavahi property, it can be used as Anupana, it improves the absorption of medicine in the body. It also has antioxidant property due to presence of beta carotene (600 mg.) & Vitamin E.

The preceding information (Table 3), deficiency of blood may be brought on by intake of Apathya diet since Pitta Dosha is directly aggravated by the diet containing excess alkali (Kshara), sour (Amla) and salty (Lavana) taste.

• Particularly sour taste does Kapha dilution (Vilayana), aggravating Pitta, vitiating blood and flaccidity in the body (Shaithilya).

• Consumption of excessive salt tasted food results in Pitta aggravation.

• Tridosha is tainted by Viruddha Ahara.

• Black gram may cause Kleda and Klaibya.

• Sesame oil having hot potency and aggravates Rakta-Pitta Dosha.

• Beans aggravates the Pitta-Vata Dosha, Vidahi, causing Glani and destroying semen.

• Alcohol may destroy Oja, vitiating Rakta and aggravating Pitta.

• Diminished digestive fire (Mandagni), aggravation of Pitta and Vata are caused by Asatmya & Viruddha food, excessive consumption of sour, pungent, salt taste and alkaline, hot, sharp and rough diets.

• As per Sushruta, excessive consumption sour and salty taste food may produces flaccidity and discolouration (Vaivarnata) in the body.

• The vitiated Vata, Pitta and digestive fire may lead to malnutrition by either eating little quantity of food (Pramita Bhojana) or not eating food (Abhojana).

• Food articles such as bean (Nishpava), sesame oil (Tila taila), sesame cake (Pinyaka), black gram, alcohol, fish and eating soil are the root causes of diminishing digestive fire and aggravation of all the three Doshas, primarily Pitta, which in turn causes the disease. Ingested food become Vidagdha.

5. CONCLUSION

Dietary deficiencies that fail to meet the body's iron needs are the primary cause of Rakta Dhatu Kshaya. According to the Ayurvedic etiology, signs and symptoms of Rakta deficiency disorder can be corresponded with anaemia. The primary cause is a lack of iron in the diet. Children and younger women are more likely to get Rakta deficiency.

Even though Rakta deficiency is a nutritional disorder that affects people all over the world, we must prevent it by adopting healthy eating habits like improving or modifying our diets and supplementing them with Ayurveda. In the Ayurvedic texts, it is already stated that the best medication for a patient is accustomed diet (Pathya). It is also stated that eating Pathya with a balanced mental state helps to achieve a healthy body by balancing the body constitution.
One of the three sub-pillars that support life is food (Ahara). It is accountable for the existence of all beings. Food is the source of life for all beings. A disease can be cured without the use of any medication by simply adhering to a healthy diet, whereas a disease cannot be cured without a healthy diet. There are no medicines that can compare to food; a healthy diet can cure a person of any disease.

CONFLICT OF INTERESTS
None.

ACKNOWLEDGMENTS
None.

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