International Journal of Medicinal Plants and Natural Products (IJMPNP)
Volume 1, Issue 2, July - September 2015, PP 8-10
www.arcjournals.org

Conceptual Review of Iron in Ayurveda

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Abstract: *Iron used as medicine from the Vedic period. Blood itself is described as Lauha Gandhi (Iron odor). Mineral resources are one of the natural resource used in Ayurvedic preparations from the time of Charaka. Iron is treated in cow's urine and extensively used therapeutically as Ayaskruti or as Lauha rasayana before the evolution of Rasashastra as Ayaskruti. Iron bhasma is a later development of drug delivery system. The iron containing mineral are used internally from 2nd century and it is evident from the preparation of Navayasa Lauha and Lauha Rasayana in Charaka Samhita. The external uses of iron are also found in oil preparation (Taila Kalpana) and Varti preparations.*

Keywords: *Lauha rasayana, Iron, Ayurveda.*

1. INTRODUCTION

Iron is used as the means of life and in the protection of self as utensils, ornaments instruments for cultivation and weapons from the human existence in the earth as per the Greek and Roman mythology. The word iron is derived from the Latin word "Ferrum". The Siddha, Unani and Ayurvedic system of medicine have been using iron in different diseases from 2nd century BC. Iron supplements are used in all chronic diseases and iron deficiency anemia as diagnosed by modern medicine. Iron is the most highly utilized transition metal in human health. The widespread problem of iron deficiency Anemia in developing countries and in developed countries and in defined segment of more advanced societies elevated iron's status as an empowering nutrient. Even in USA one in ten women is anemic. Iron also generates magnetic blood current in the nerve spirals which pass through the arteries. Men and postmenopausal women need only 10 mg, but pregnant women should consume 30 mg as iron is important for fetal development. Deferasirox, Deferoxamine and Deferiprone are known chelating agents used in iron overload syndrome and iron toxicity.

2. REVIEW METHODOLOGY

2.1. Iron in Ayurveda[1, 2, 3]

Ayurveda is a well-documented Traditional system of Indian Medicine (TIM). Rasa Shastra, an offshoot of Ayurveda popular from medieval period, mostly deals with therapeutic utilization of metals and minerals. Iron is a noncontroversial metal for therapeutic use since centuries in east as well as west. Iron containing drugs are widely used in modern medicine as hematinic. These drugs are known to induce some adverse drug reactions -- gastro intestinal symptoms (nausea, vomiting, epigastric pain, eructation, pyrosis, meteorism, borborygami, colic pain, flatulence, constipation, black feces, and diarrhea). The hematinic market in India is currently worth around Rs. 900 crore and is growing at 15% per annum. Lauha Kalpas can be a better alternative from Ayurveda. Lauha Kalpas (LK) is formulations which possess Lauha Bhasma (calyx of iron) as the major ingredient along with the other herbal ingredients. These formulations have "Lauha" as suffix in their name.

2.2. Therapeutic Use of Iron Containing Compounds[4, 5, 6]

Table1. *Therapeutic use of Iron containing compound*

Compound	Ayurvedic Nomenclature	Dose	Mode of Administration	Therapeutic Use
Iron Nano Particles	Lauha Bhasma	125-250 mg	Oral and External	Anemia, Jaundice, Pain, Asthma, Piles, Skin disease
Iron Pyrite	Makhika	60-125 mg	Internal use	Normalizes toxic substances (light) of body, can be used in all diseases

Ferrous Sulphate	Kasisa	60-250 mg	Internal use	Leucoderma, Anemia, Parasite infection, tonic, increases flow of menstrual blood and eye disease
Ochre	Gairika	250-500 mg	Oral	Vomiting, Hick-cough, Cold diseases, Bleeding disorders, Skin disorder etc.

2.3. Important Formulations of Iron [7]

Lauha Kalpas are formulations which are safe, effective, and noteworthy compound formulations of iron. Lauha Kalpas can be classified on the basis of their preparations. Classical formulations for instance Agnikumar rasa, Kancanabhra rasa, Cintamani rasa, Saptamrta lauha, Navayas lauha, Mrityunjya lauha, Lauha parpati, Caturmukha rasa are significant enough to mention.

2.4. Classification of Iron in Ayurveda [8]

Three main varieties of Iron (Lauha) are mentioned in Rasa Shastra

Table2. *Iron in Ayurveda*

Varieties	Sub varieties	Properties	English name
Munda	Mrdu, Kuntha, Kadara	Ordinary	Cast Iron
Tiksna	Khara, Sara, Hrnnala, Taravatta, Vajira, Kalaloha	Better	Steel
Kanta	**On the basis of color** Pita, Krsna, Rakta **Magnetic effect** Bramaka, Cumbaka, Karsaka, Dravaka, Romaka **Magnetic poles** Ekamukha, Dvimukha, Trimukha, Caturmukha, Pancamukha, Sarvatomukha	Best	Magnetic iron

2.5. Ayurvedic Pharmacology [9]

Rasa: Tikta, Kasaya, Madhura

Guna: Sita, Sara, Guru, Ruksa

Virya: Sita

Karma: Lekhana, Balya, Vrsya, Rasayana, Vayasya, Caksusya, Vajikarana

The body of a healthy adult contains 4-5gms of iron. Women upto menopausal age requires more about 15mg per day rising up to 20 mg during pregnancy. Requirement of iron in children are about 0.5mg per kg body weight. Excretion of iron is only 0.4mg daily via urine and about 0.8mg via bile. About 10% of dietary iron is absorbed and converted to hemoglobin.

3. RESULTS AND DISCUSSIONS[10, 11, 12, 13, 14, 15]

Iron is the most highly utilized transition metal in human health. The widespread problem of iron deficiency anemia in developing countries and in developed countries and in defined segment of more advanced societies elevated iron's status as an empowering nutrient. Even in USA one in ten women is anemic. The existence of a more active and dynamic iron withholding defense mechanism became evident through scientific research. In 1932 Locke and co-workers described a profound drop in serum iron concentration experienced in patients with infection, cancer and inflammatory disease. [10, 11]

On account of its great affinity for oxygen, iron plays an important part in the organic world and stands in very close relation to the fundamental process of change of the matter and metabolism. Iron also generates magnetic blood current in the nerve spirals which pass through the arteries. Iron also act as a catalyst for oxygen free radical induces tissue damage. The growing number of conditions in which iron and oxidative stress are thought to be important includes the aging process itself. [12, 13]

Excess iron intake may cause iron overload syndrome and Haemacromosis. Therefore reducing iron level is highly necessary for the advance society is for decreased morbidity and increase life span. Our daily intake should at least meet the recommended dietary allowance (RDA). [14, 15]

4. CONCLUSIONS [16, 17]

Iron is known to Indians since ancient times, as in Vedic literature there are number of references to this metal. But during that period it was used for commercial purpose only. Ordinary iron is of light grey color and possesses a metallic lusture. Its dorsal surface put under microscope after proper cleaning looks granular. The average effective dose of iron has been defined as follows. The dose of iron which produces an average increase of at least 1% of hemoglobin per day in a substantial large group of patients with achlohydria and anemia. To achieve this one must consume at least 25mg of iron.

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