Calcium is one of the major constituents of our body formation. For children between 1 to 10 years of age, recommended calcium intake is 700-1000mg per day. It is the most abundant mineral in the human body, out of which 99% deposits occur in bone and teeth, while 1% share of calcium is present in blood and muscles of the body. In case of its deficiency, weakness of bones is expected that may ultimately cause bony deformity such as rickets. Calcium deficiency in children can be corrected by oral supplementation of calcium. *Sudha vargiya Dravyas* are group of drugs that possess high content of Calcium and they have gained therapeutic importance in contemporary clinical practices. **Aim & Objectives:** In the current attempt, available classical references and published scientific evidences on the use of *Sudhavargiya Dravyas* in the management of calcium deficiency and other *Balarogas* have been compiled. **Results & Conclusion:** Based on the observations, it can be concluded that *Sudhavargiya Dravyas* are good source of calcium and beneficial in children at specified therapeutic dose.

**Keywords:** Calcium, *Sudha varga*, *Balaroga*, Minerals.
Aim & Objectives:
In the current attempt, available classical references and published scientific evidences on the use of Sudhavargiya Dravyas in the management of calcium deficiency and other Balarogas have been compiled.

Enumeration of Sudhavarga dravyas: Sudha varga dravyas contains calcium as a chief ingredient. It includes Khaniya Dravyas like Sudha, Khatika, Godanti etc. and Pranita Dravyas like Samudraphena, Shankha, Shukti, Kapardika, Kurmapristha, Kukkutanda twak etc. Among these, Kaparda has been grouped under Sadharana Rasa, whereas Pravala and Mukta are grouped under Ratna Varga. Rasamritam has included these drugs under Sudha Vijnaneeyam.

Utility of Sudhavarga dravya:
In Children,
Godanti Bhasma: It works effectively in Calcium deficiency disorders like rickets, osteoporosis. It also helps in Jirna jwara, Kasa at a dose of 1-2 Ratti (125 mg-250 mg) with honey or cow ghee.
Kurmapristha Bhasma: It indicated in the Balarogas (Paediatric disorders) at the dose of 125 mg-500 mg along with Guduchi Satva (starchy extract of Tinospora cordifolia) as adjuvant. It gives strength to bones. In siddha system of medicine, it is used in cases of green diarrhoea in children.
Kukkutanda Twak Bhasma: It is rich source of calcium content and is included by recent authors. It is useful in cases like rickets (Balashosha), facilitates dental eruptions, as calcium supplementary in pregnancy & lactating mother. It is given in the dose of 250 mg to 500 mg along with honey, sugar, cow ghee or any other suitable adjuvant.
Shringa Bhasma: It act as expectorant and mucolytic. It provides strength to the bone, joints, cartilages and lungs at doses of 60-125 mg along with Khandha Shankara or honey as Sahapana.
Ajasthi Bhasma: It is also included by recent authors. It is indicated in rickets, nursing mother, pre-natal period, during dental eruptions, dental carries, as a natural calcium supplement. It is recommended with honey in the dose of 250-500 mg.

Khatika: One Masa (1 gm) of Sudha Khatika churna is administered daily with cold water to cure Pravahika, Raktpitta and Grahani roga. Khatika churna if added with sugar and administered along with Mishreya arka, it cures severe Atisara in children.
Pravala pishti: According to Unani therapeutics, Pravala Bhasma is administered in children who suddenly wake up from sleep in night and keep weeping due to fear. Pravala Pishiti along with Shringa Bhasma is useful in Asthi mridita (Rickets) associated with Kasa.
Samudraphena: It is used externally in Dusta vran (putrid ulcers), Puti karna (Suppurative otitis) at a dose of 2 Ratti.

Various formulations prepared with Sudha varga dravyas and indicated in Atisara, Balasosha, Shwasa, Kasa etc. are as below:
Churnodaka: Used internal as well as external purposes. It is mainly effective in Dantodbdha janita rogas of children. It is beneficial in curing Atisara (diarrhoea) and Amlpitta (Hyperacidity). In the children with lactose intolerance i.e. who cannot digest milk, few drops of Churnodaka will correct the digestion process. It cures Udara shoola (abdominal pain) and Grahani roga (Sprue). It is used as Basti Dravya for enema to clear the intestinal worms. It is mixed with Atasi oil and made into an emulsion, which is applied on burns and also used for gargling, to treat Mukhapa (Stomatitis), used to wash putrefied wounds. For children aged one year, the dosage of Churnodaka is 30 drops to 60 drops.
Sudhashatakyo Yoga: It included six Sudha varga dravyas i.e. Pravala Bhasma, Mukta Bhasma, Shankha Bhasma, Kapardika Bhasma, Kurmapristha Bhasma, and Godanti Bhasma. It is beneficial in Balashosha (Rickets) at dose of 2 to 8 Ratti (250 mg-1000mg) along with cow milk twice a day.
Balapanchabhadra Churna\textsuperscript{16}: It is used in cases of Pandu roga, Jirna Jwara and Balasosha and in condition of calcium deficiency at dose of 2-4 Ratti (250 mg-500 mg) licked with honey and after that administered cow milk as adjuvant.

Muktadi vati\textsuperscript{17}: It is indicated in Jirna jwara, Balasosha, Pandu, diarrhoea or vomiting due to intolerance of milk, Kasa etc. at dose of 1-4 Ratti (125-500mg) with Cow milk or mother milk.

Bala vati\textsuperscript{18}: If it administered at dose 1-2 Ratti (125-250mg) with cow milk twice a day, milk is easily digested and having good sleep.

Mugdha Rasa\textsuperscript{19}: It is Nirgandha Parada Murchchhit yoga. It is applied in suitable dosage internally, very effective in Atisara (diarrhoea), Vamana (vomiting) and Sahaja phiranga (congenital syphilis). It is especially useful in paediatric abdominal complaints (Udara roga). For children aged one year and above dosage is 1/8 Ratti to 1/4 Ratti (15.62-31.25 mg).

Mrutika Virechana Yoga\textsuperscript{20}: In this formulation Mrudar Shringa is present as Shudha Varga Dravya. It is beneficial in Mrutika Bhakshana janya Pandu in children. It is omitted Mritika by Virechana karma at dose of 2 Masa (2g) along with cow milk within 5 days.

Shuktadi Yoga\textsuperscript{21}: It contains Shukti Bhasma, Godanti Bhasma, Yashada Bhasma and Trikatu. It is very cost effective, easily available with highest calcium supplementation.

RESULTS & DISCUSSION

As per the reference of Rasarnava and Rasa ratnakara, Sudha varga dravyas are included under the Shukla varga and the classification might be based on their colour. But, in Shukla varga all the Dravyas, except Krimpristha are white in colour. Hence the criteria for classification may be based on their colour (white) and their chemical composition-calcium.

Godanti Bhasma is a mineral based Ayurvedic medicine prepared from gypsum. It is rich in natural calcium and sulphar content. Godanti Bhasma has healing properties like antipyretic, anti-inflammatory, analgesic and can be a good calcium supplement.

Shringa Bhasma contains calcium, zinc, magnesium and some heat stable amino acids. It is mainly beneficial in respiratory tract and musculo skeletal disorders. With mucolytic property, it helps in cleaning the lungs and airways by regulating mucous secretion.

Author of Siddhabhaisajya Manimala mentioned Shodhana and Marana procedure of Kukkutanda Twaka and its internal use in Upadansha. Kukkutanda Twaka Bhasma is an excellent Asthimamsa dhatu poshaka and Vardhaka as well as Rasayana. It is easily absorbable and rich form of calcium, which is useful in Asthi kshaya (Osteoporosis). It is also indicated in Khaliya and Palitya (Premature greying and loss of hair) as Kesha is a Mala of Asthi dhatu. All the Sudha vargiya dravyas are used in the form of Bhasmas expect Pravala and Mukta. Bhasmas are unique dosage forms in Ayurveda, that acts in small doses and can cure chronic ailments. Calcium compounds are alkaline in nature. The natural calcium preparations like Bhasmas are most effective than synthetic calcium as they contain easily absorbable and assimilable form of calcium.

CONCLUSION

Based on the observations, it can be said that all the calcium compounds used in Ayurveda are grouped under Sudha varga Dravyas. They are good source of calcium and gained therapeutic importance as supplement in calcium deficiency, to enhance normal growth and development. Sudha vargiya Dravyas are mild organic form of Calcium Carbonate i.e. a part of calcium supplement and very beneficial in children in their therapeutic dose in various disease conditions.
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