SUVARNAPRASHANA THERAPY IN CHILDREN; CONCEPTS, PRACTICE AND PROSPECTS

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INTRODUCTION:
Administration of colloidal gold using fine particles of metallic gold or suvarna bhasma has been advised in Ayurveda in infants and children in various forms. Suvarnaprashana described in Kashyapa Samhita is intended to boost memory, intelligence and immunity in infants. It is one of the oldest applications of gold nano medicine. Suvarnaprashana therapy is becoming widely popular and being administered on the Pushya nakshatra of every month at Ayurveda centers across India. Clinical and pharmacological studies show immunomodulatory, nootropic as well as therapeutic effects of Suvarnaprashana therapy.

Concepts of Suvarnaprashana:
Ayurvedic texts have copious references describing the use of gold metallic powder (probably fine gold dust) or Suvarna bhasma in various rejuvenative therapies. Gold in the form of fine gold dust, red colloidal solution, Swarna Patra, Swarna Bhasma, Swarna Parpati, Kharaliya (triturated) formulations and Sindooralpa, often combined with ghee, honey, Medhya and Rasayana herbs were popularly used in the Ayurveda therapies. Despite their efficacy, these age-old therapies were discouraged, sidelined and almost forgotten during the colonial era and even after freedom. The use of bhasma form Gold, silver etc. metals and most herbo-mineral formulations of Ayurveda suffered a huge blow when some studies tainted Ayurvedic herbo-mineral formulations as toxic and contaminated with lead, mercury, arsenic and other toxic compounds[1].

The impact of these studies was such that herbo-mineral Ayurvedic formulations have been almost completely banned in most Western countries. What is more alarming is that the word ‘heavy metals’ is becoming synonymous with most indigenously procured and manufactured Ayurvedic medicines! However, despite of these set-backs, after a long lull, Ayurvedic bhasmas and other herbo-mineral formulations are receiving a renewed focus. They are re-emerging as some of the most effective drugs due to renewed drug discovery strategies[2].

Kaschya Samhita written by Vriddha Jeevaka, one of the oldest textbooks of Kaumbarhriya (one of the eight branches of Ayurveda dealing with mother and child health care), gives the first reference about giving Suvarnaprashana as a therapy for infants. This has been advised in infants and children from birth till 1 year of age[3].

There is misconception among the common man that, Suvarnaprashana is vaccination method in Ayurveda, because majority of the physicians administer it monthly once on the day of Pushya Nakshatra. But it is incorrect; Suvarnaprashana is a Rasayana Chikitsa, should be administered continuously to get the optimum therapeutic effects for the physical, mental, intellectual and spiritual wellbeing of the children.

Practice of Suvarna Prashana
The classical descriptions of Suvarna Prashana therapy uses metallic gold- rubbed on a clean rubbing stone with water, till fine gold particles are released. The rubbed gold or gold powder mixed with fine powder of Medhya, Rasayana herbs, ghee and honey is given to the newborn[4].

Rubbed gold in metallic form carries the risk of toxicity. Hence, a safer option of Suvarna bhasma is being used for the Suvarnaprashana now a day. The ancient alchemists in India discovered the process of bhasmikarana (calcination) which involves controlled incineration of metals, non-metals, minerals and certain organic ingredients, to make them safer and biocompatible. Ancient texts like the Charaka Samhita also describe process of dipping red hot metals in herb decoctions to obtain fine powders/ dust of metals[5].

Methodical guidelines on the preparation of non-toxic bhasma or nano particles of gold available in the Rasashastra texts dating back almost up to 4th century AD, is a testimony to the exhaustive research, efforts and dedication of ancient Ayurveda scholars and alchemists. Their methods have successfully passed the litmus test of time and modern science alike.
Preparation of Suvarna bindu (Gold drops):

Traditionally Shuddha Suvarna has been advised to be rubbed on a rubbing stone with water and then emulsified with madhu and ghrita to achieve a fine colloidal suspension. We now use Suvarna bhasma along with equal proportion of ghrita and madhu. Madhu and Ghrita in equal proportions have been considered as a Viruddha Samyoga (unwholesome combination) [6]. However, it is a popular belief that giving a low dose of this otherwise toxic combination is believed to trigger immune responses which helps to strengthen a child's immunity for toxins and allergens.

Ghrita fortified with Medhya and Rasayana herbs like Brahmi (Bacopa monnieri), Mandooparni (Centella asiatica), Yashtimadhu (Glycyrrhiza glabra) Shankpushpi (Convolvulus pluricaulis), Vacha (Acorus calamus) and Guduchi (Tinospora cordifolia) are commonly used in Suvarnabindu preparation by clinicians expecting an enhanced immunomodulatory and nootropic effects of Suvarnaprashana in children.

Following are some of the widely used ratios for preparation of Suvarnabindu:

Large Batch: 2.4 gm. of Suvarna Bhasma is added to 250 ml of honey and 250 ml processed ghee.

Individual Doses: 100mg Suvarna bhasma is added to 6 ml of processed ghee and 6ml of honey is kept separately. Honey is mixed with ghee just before the administration.

Although large batches are convenient for commercial use, Suvarna bhasma may settle down in ghee after some time, thus reducing the concentration of Suvarna bhasma per dose. Hence, preparing suvarnabindu in smaller batches is desirable.

Suvarna Vacha

Suvarna Vacha or Suvarna Vacha which is purified gold wire inserted into processed underground stem (dry or fresh) of Vacha (Acorus calamus) is yet another unique formulation which is popularly used for giving Suvarnaprashana. Suvarna vacha is rubbed on a clean rubbing stone (5-6 rotations) with milk or water, so as to get fine gold particles along with a paste of vacha. This is then mixed with equal amounts of Ghee and honey and used for Suvarnaprashana. Many practitioners use this as an alternative method for Suvarnaprashana. Suvarnavacha uses metallic gold as opposed to calcinated gold which is used in Suvarnabindu. The benefits of suvarnavacha are claimed to be same as that of Suvarnaprashana. The one special benefit of suvarnavacha is improvement of speech. Practitioners advice administration of suvarnavacha in infants after 3 months of age till 5-6 years or 12 years.

Although there is one clinical study which reports immunomodulatory effects of suvarna vacha in neonates without any toxicity; further research on standardization of the technique, therapy, along with toxicity studies on appropriate animal models is required to establish the safety as well as efficacy of this therapy [7].

Absorption and assimilation of Suvarnabindu:

The amazing effects of Suvarnaprashana in infants mentioned in Samhitas are owing to the quick absorption and assimilation of gold nanoparticles contained in the Suvarnabindu. Research studies on nanoparticles show that they can by-pass digestion and are directly absorbed via the sub-lingual route into the blood stream [8] [9]. Gold nanoparticles have been found to be absorbed in the small intestines and nanoparticles less than 58 nm in size reached the target organs via blood [10].

Suvarnoprasana has been advised to be given on empty stomach to assure maximum absorption without interference of food. At least a gap of 2 hours should be given after eating food for administering Suvarnoprasana.

Duration of Suvarna Prashana therapy:

Suvarnaprashana can be given from birth to sixteen years, keeping in mind the rapid growth and development during this phase of life. Some practitioners advise it only up to 12 or 14 years. Clinically, a minimum therapy of 6 months, 1 year to two years is recommended in order to get considerable results.

Experienced Vaidya says that, administration of Suvarnoprasana just on the day of Pushya Nakshatra (once in a month) does not provide significant health benefits. The best method is to give the low dose Suvarnaprashana (Suvarna Bhasma less than 0.2mg per dose) for a period of 3 months. If this method is not possible, then Suvarnaprashana can be given for 10 to 12 days per month. Such 6-12 cycles should be repeated to get optimum health benefits.

Contraindications of Suvarnaprasana:

Children with organ transplants and those on immunosuppressive therapy should not be given Suvarnaprashana therapy due to the fear of organ rejection. Also, children with liver and kidney disorders should be contraindicated for this therapy.

Prospects of Suvarnaprashana:

There is urgent need of standardizing the preparation, dose, duration and method of administration of Suvarnaprashana. With the potential role of Suvarnaprashana in boosting nonspecific immunity and overall growth and development; initiative needs to be taken to promote and incorporate Suvarnaprashana as a Public Health Initiative by the central government. The dept. of AYUSH should include Suvarnaprashana under mother and child health care scheme. Before doing this, the dept. of AYUSH should frame guidelines for preparation, distribution, marketing and practice of Suvarnaprashana.

The scope of Suvarnaprashana needs to be evaluated in Geriatric medicine as a preventive and palliative therapy for degenerative neurological disorders like Alzheimer’s, dementia etc. Given the role of gold in glycemic control, Suvarnaprashana needs to be evaluated as therapy for juvenile (Type-I) diabetes and early onset Type II diabetes.

It is unique and one of the best examples of nanomedicine applied for preventive health care in Ayurveda. The efficacy and safety of Suvarnaprashana therapy entirely depends upon the quality of Suvarna bhasma, ghee and honey. Hence, standardized suvarna bhasma along with superior quality herbs, ghee and honey should be used for the preparation of
**Suvarnabindu.** Standardization of *Suvarnabindu* preparation is needed to prevent toxicity and malpractice.

*Suvarnaprashana* has a vast scope in achieving immunomodulatory, adaptogenic and nootropic effects in children, thus improving overall health and vitality of children at all ages. Also, the utility of *Suvarnaprashana* in geriatric medicine for prevention and control of neurodegenerative, senile disorders as well as for rejuvenation needs to be explored.

*Suvarnaprashana* has an excellent scope as in boosting community health by ensuring healthy childhood. It needs to be popularized and promoted as a proactive and preventive therapy in society.

**CONCLUSION:**

*Suvarnaprashana* is a comprehensive *Rasayana Chikitsa*, administered for the physical, mental, intellectual and spiritual wellbeing of the children. It can be safely administered in infants and children up to 16 years of age. There is urgent need of standardizing the preparation, dose, duration and method of administrations.

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