

SUVARNA PRASHANA: AN AYURVEDIC APPROACH TOWARDS CHILD IMMUNIZATION

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ABSTRACT :

All countries in the world have an immunization programme to deliver selected vaccines to the targeted beneficiaries, specially focusing on pregnant women, infants and children, who are at a high risk of diseases preventable by vaccines. In Kashyap Samhita *Suvarnaprashana samskara* is given as *Lehan kapana* (medicine to be licked) which is useful in enhancing immunity as well as for intellectual development. In this *samskara* (rituals) *swarna Bhasma* (gold preparation) with herbs like *Vacha Churna* (*Acorus calamus*), *Brahmi* (*Bacopa Monnieri*) mixed with Honey and ghee is administered to the new born baby. Analysis of Various experimental studies shows that *Swarna Bhasma* possesses immunomodulatory, free radical scavenging activity, antistress activity and analgesic activity. Animal studies data shows that chronic administration of *suvarna bhasma* is nontoxic. The purpose of *suvarna prashana* is same as of modern vaccination to prevent disease by building immunity, it improve overall immunity and also helpful in proper brain development. *Suvarnaprashana* therapy is administered in the *Pushya nakshatra* of every month at Ayurveda centres across India. So it is need of time to include *Suvarnaprashana* in Indian immunization schedule.

Key words: Gold, *Suvarna Prashana*, *Suvarna Bhasma*, Immunization.

INTRODUCTION: In recent few years, system of medicine *Suvarnaprashana* is India has attained impressive achievements, one of the sixteen ‘*Samskara*’ (rituals) described in child survival. A fast decline in Infant mortality rate (IMR) of country has been observed. The IMR has dropped by an average rate of 4.56% per year over last five years. However, at the current pace, the country will miss the target to achieve the fourth Millennium Development Goal (MDG-4), which aims to reduce under-five mortality rate and IMR by two-thirds between 1990 and 2015^[1]. So there is need of improvement in current immunization schedule. *Suvarnaprashana* is an Ayurvedic immuno-modulatory technique used in Indian medicine for children. *Swarna* is used in *rajayakshma* (tuberculosis), as a *rasayana* (tonic, immunobooster), *hridaya* (cardiotonic) and *mastishka poshaka* (nervine tonic)^[2]. In Ayurvedic *Suvarnaprashana* is a mixture of micro fine particles of Gold and calcined gold particles (*Suvarna bhasma*), Ayurvedic herbs, cow ghee and honey administered at a specific time i.e., *Pushya-Nakshatra*. *Suvarnaprashana* is given to children up to sixteen years of age including newborns. As per modern science Brain development occurs shortly after conception and progresses at a very rapid pace in the first few years of life, where neurons form new connections at the astounding rate of 700-1000 per second.^[3] *Suvarna Bhasma* also improve *Vyadhikshamata*. The word *Vyadhikshamatva* is used by *Charaka* for the first time while explaining about the

causation of diseases. The power of the body which prevents the development of a disease or resists a developed disease is called Vyadhikshamatva^[4].

Suvarnaprashana in Ayurvedic Samhitas: The procedure to *Swarna Lehan*, is described in Kashyap Samhita. Metallic gold- rubbed on a clean rubbing stone with water, these fine gold particles mixed with fine powder of *Medhya Rasayana* herbs, ghee and honey is given to the newborn. Kashyapa opines that licking of gold increases *Medha Agni Bala Vardhanam* (improvement of intellect, digestion, metabolism, immunity, and physical strength), *Ayushyam* (promoting lifespan), *Mangalam* (auspicious), *Punyam* (righteous), *Vrushyam* (aphrodisiac), *Varnyam* (enhancement of color and complexion), and *Grahapaham* (protection from evil spirits and microorganisms). *Suvarna prashana* administered for 1 month, the baby will become *Parama Medhavi* (highly intelligent) and *Vyadhibhir Na Cha Drusyate* (will not be affected by any disease) and if administered for 6 months, the baby will become *Srutadhara* (will be able to remember the things, which are just heard)^[5]. Sushruta and Vagbhata have prescribed gold along with various drugs to the newborn child immediately after birth.

Acharya Sushruta Gold - drug combinations :^[6]

1. *Swarna churna* , *kustha* (*Saussuria lappa*), honey, ghee, *vacha* (*Acorus calamus*)
2. *Matsyaksha*, *sankhpushpi* (*Convolvulus pluricaulis*), honey, ghee and gold
3. *Arkapushpi* (*Hibiscus hirtus*), honey, ghee, gold, *vacha* (*Acorus calamus*)
4. Gold, *kaidarya*, *shwetadoorva* (*Cynodon dactylon*), ghee.

These drugs support physical health, intellect, strength and intelligence.

Acharya Vagbhata gold- drug combinations :^[7]

1. Hema (gold), *sweta vacha* (*Acorus calamus*), *kushta* (*Saussuria lappa*).
2. *Arkapushpi*, *kanchan* (gold).
3. *Hema* (gold), *matsyaksha*, *sankha*.
4. *Kaidarya*, *kanaka* (gold), *vacha*.

These four groups of drugs when consumed mixed with honey and ghee, for a period of one year bestow good body growth, intelligence, strength, tones skin colour and beneficial as a whole.

Acharya Bhavaprakasha gold-drug combinations:^[8]

Bhavaprakasha uses *Suvarna Bhasma* with herbs, *madhu* and *ghrita* for *Lehana*.

1. *Swarna bhasma*, *Kustha* and *Vacha churna* (*Acorus calamus*),
2. *Swarna bhasma*, *Brahmi* (*Bacopa monnieri*) and *Shankhapushpi churna* (*Convolvulus pluricaulis*)
3. *Swarna bhasma*, *Arkapushpi* (*Hibiscus hirtus*), and *Vacha churna*
4. *Swarna bhasma*, *Kayaphala* and *Shwet durva* (*Cynodon dactylon*)

Now a days the basic concept of this gold licking is entirely different as it is used only once in *Jatakarma Samskara*, *Jatakarma* means a birth ceremony (licking of medicines to the tongue of newly born child thrice after appropriate prayers) performed just after birth.^[9] *Suvarnaprashana Suvarna Bhasma* is commonly used which is therapeutically safe than pure gold particles. The process of making *Bhasma* (calcination) involves controlled incineration of metals, non-metals, minerals and certain organic ingredients, to make them safer and biocompatible.

Absorption of gold particles in human body: Recent researches proved that Ayurvedic pharmaceutical procedures are

capable enough to convert raw materials of metallic origin into form of nano particles. Research studies on nanoparticles show that they can by-pass digestion and are directly absorbed via the sub-lingual route into the blood stream^[10]. The physico-chemical characterization of *Swarna Bhasma* contain 92 % gold. Same study has shown *Swarna Bhasma* principally constituted to globular gold particle of 56-57 nm. These results implicate that, particle size of gold in *Swarna Bhasma* is in nanometer dimension^[11]. In another study metallic colloidal gold particles following oral administration to mice show that particle uptake occurred in small intestine by persorption through holes created by extruding enterocytes. *Swarna Bhasma* principally constituted globular gold particle of 56-57 nm and thus it is possible that these particles would reach the target site of action through blood after gastrointestinal uptake.^[12] Colloidal gold possesses a negative charge at the surface of the particles and absorbs strongly to other molecules without changing their chemical and biological properties.

Suvarna Bhasma and Immunity: *Swarna Bhasman* is *Tridoshashamak* in action. It is used as *Ayushaya* (increases longevity of life), *Ojowardhana* (immune booster), *Sarvavishapaham* (detoxify toxins), *Garharam* (effective against environmental toxins) *Grahadi doshanashanam* (effective against pathogens) etc^[13]. Gold has also been reported to enhance certain immune reactions^[14]. Specific and nonspecific immune responses were modified in a positive manner in *Swarna Bhasma* treated mice, the doses were in the range of 12.5 to 50 mg/kg body weight. *Swarna Bhasma* having a stimulatory effect on peritoneal macrophages, which may be helpful to fight against infections. Which suggest

that macrophages achieved stimulation possibly due to presentation of the metal to cells in fine emulsified form^[15]. In another study Male mice were administered with the incremental doses of the drug orally for 10 days. Parameters of study included body weight, organ weight, peritoneal exudate cell (PEC) counts and phagocytic activity of PEC. *Suvarna Bhasma* significantly ($P < 0.001$) increased counts of peritoneal macrophages and stimulated phagocytic index of macrophages^[16]. The increase in the serum IgG level in the Gold compound group shows the immunological response of the rats against the antigenic material. IgG provides the majority of antibody-based immunity against invading pathogens^[17].

In one such research to study effect of gold on immune response, separate concurrent injection of organic gold compounds and antigen into mice resulted in immune-enhancement that could be measured by direct and indirect plaque-forming cells, rosette-forming cells, and serum antibody assays. Kinetics of the immune response showed variable effects through day 9 of the experiment. Studies with British anti-lewisite, a gold antagonist, showed that the gold must stay in the system 1 day to obtain immune-enhancement^[18].

Role in Growth and Development: Study of 120 children age group ranging from 0 to 12 years, proved that *Suvarnaprashana* therapy significantly improve weight in both male and female children. It also affects overall body development process. *Suvarnaprashana* as trial drug and madhu jala as placebo was administered in children of trial group and control group respectively, for 14 times in duration of 1 year. Growth parameter weight and height was assessed on every visit of children. It

is found that *Suvarnaprashana* has significant ($p < 0.05$) result in weight gain. Suvarna is (cold) in *virya*, *madhura* (sweet) in *vipak* and *madhur* (sweet), *tikta* (bitter), *kashaya* (astringent) in *rasa*. It provides *bala* (strength) to the body. It shows *brumhana* karma (bulk promoting action), which is expected here, with the help of *madhur rasa* and *madhur vipaka* increase in the *rasadi dhatu* is possible and occurs gradually^[19].

Effect on Brain functions: Gold is one of the best and most efficient conductors of electrons. The brain and nervous system depend on the movement of electrons between cells to function and in the experience of many who have supplemented with gold; the electrolytic properties of gold are unparalleled in the enhancement of that function. It reduces the effects of depression, as well as to enhance the ability to focus^[20]. Colloid made from minute gold particles mixed with water which is helpful in brain cognition. In clinical study 30mg/day of colloidal gold over 4-week period demonstrated considerable improvements in IQ. Thus, individuals who wish to use colloidal gold for improved brain functioning are urged to consider long-term usage^[21]. Gold can have a balancing and harmonizing effect on the body particularly with regard to unstable mental and emotional states, such as depression. It is believed that the nanometre sized particles in colloidal Gold affect the electrical charges that are produced in neurons. It enhances the normal synaptic communication that takes place between the nerve cells. This enhancement is believed to be responsible for increased brain functions. Etherium Gold (Monatomic White Gold) which increases the amplitude of alpha waves in the brain. Alpha brain waves are associated with greater intelligence, en-

hanced creativity and learning ability, improved mind/body coordination. The most obvious and consistent results occurred in the EEG measurements after taking Etherium Gold. In 90% of the volunteers, brainwave frequencies tended to balance out and all frequency bands showed greater activation^[22].

Toxicological studies: Acute oral administration of *Swarnabhasma* showed no mortality in mice (up to 1 ml /20 g b.w. of *Swarnabhasma* suspension containing 1mg of drug). Chronic administration of *Suvarnabhasma* also showed no toxicity as judged by SGPT, SGOT, serum creatinine and serum urea level and histological studies. In an experimental animal model^[23], In a study of chronic toxicity of *Swarnabindu prashana* no cytotoxicity was observed^[24].

DISCUSSION: Though National Immunization Schedule is implemented mortality rate in India is still high. From the first day of life vaccination schedule is started but these all vaccines cannot able to protect the child from the diseases like major bacterial infections, viral infections and primary-secondary immunodeficiency syndromes are not preventable by specific vaccines. The vaccine takes almost, few months for activation of immune system and to produce the specific immunoglobulins against that specific antigen. Recent immunization data shows that vaccinations and immunization schedules are not sufficient to control the diseases. So these are the major lacunas that lead to increase in perinatal infections, hence it is the need of the society to make available a immunomodulatory agent which boost up the immune system of body and helps to the infant from recurrent infections. *Swarnaprashana* can be administered in all

children as it acts at the level of nutrition, metabolism, growth and development, physical strength, and immunity.^[25]

CONCLUSION: Pharmacological and clinical trials on *Suvarna Bhasma* proved that it helps to build immunity and cognition in children. Toxicological studies reveals that classical preparations are safe for long time use. Modern researches on gold and gold compounds also support the *Suvarnaprashana* concept of Ayurveda. So there is need of today to update the current immunization schedule with *Suvarnaprashana* in child.

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