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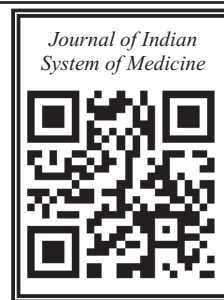
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# Efficacy of *Suvarnaprashan* in Preterm infants- A Comparative Pilot study

Renu Rathi, Bharat Rathi



## Abstract:

*Suvarnaprashan* is thick syrup prepared with gold ash, honey, ghee and *Medhya* (brain stimulant) herbs which promote strength, boost IQ, digestive power and immunity opined by Acharyas. This article outlines the efficacy of *Suvarnaprashan* in preterm with reference to immunity, growth and development. Preterm means less than 37 weeks born, 0-3 years age group forty preterm were divided into 2 groups of 20 each. Trial group (A) were given four drops of *Suvarnaprash* monthly once on every *Pushyanakshatra* while control group B didn't receive any medicine. It was found that the number of mild infections occurred in A group were less as compared to B indicating its immunity enhancement action during 6 months of study. The mean duration of illness in control group was 3.9 days while in trial group it was 2.75 days, showing its positive effect in recovery of diseases. In group A recurrence of diseases was merely 10% as that of 25% in B group. The weight and height gain achieved in A group was in 25<sup>th</sup>-50<sup>th</sup> percentile range while it was in 3<sup>rd</sup>-25<sup>th</sup> in B group. The severity of sign and symptoms in B group was more as compare to A group. The gradation of total relief in % was excellent (60) in A group, in contrast to just 20 % of group B. These beneficial results indicate the need of further research with large sample size and duration.

**Keywords:** Development, growth, Immunity, preterm, *Suvarnaprash*.

## Introduction:

The healthy child is the future healthy youth as it is aptly said that the root cause of few adulthood diseases is lies in childhood but preterm is more susceptible for illness [1]. The rate of child morbidity and mortality reflects the standard of nation's health status. In today's scenario, in spite of latest health technologies, the disease occurring rate in preterm is still high; hence it is pretty worth to protect the health of preterm. It is well known fact that sufficient immunity could prevent diseases to occur. Therefore to improve the immunity and other benefits to child, *Suvarnaprashan* is beneficial. [2] and still practiced in India. Perhaps it also represents the quest of mankind for a 'Panacea', which could address a wide array of health issues from brain booster effect to common ailments such as common cold, cough, fever etc. *Suvarnaprashan* is one of the sixteen *Sanskaras* (rituals) described in Kashyap Samhita *Sutra Sthan, Lehadhyay* [3]. It is a mixture of Gold *Bhasma*, some herbs, cow ghee and honey [4]. *Suvarnaprash* is one of the most popular Ayurvedic rejuvenative preparations placed under '*Rasayana*' which is considered as the ultimate

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tonic preparations in Ayurveda. It was previously given in the form of pure rubbed gold. It enhances longevity, immunity and boosts the positive physical and mental health by decreasing the disease process [5]. Therefore the study was planned to evaluate the efficacy of *Suvarnaprashan* in newborn to 3 year's preterm group on immunity and growth parameters. There is no textual detail description on its contents, method of preparation, dose calculation, *Anupan*, and duration. Thorough research is needed to come it again on limelight with many evidences to benefit the child mass population.

**Aim and Objectives:** The aim of the present study was to evaluate the effect of *Suvarnaprashan* in preterm (<37 wks born) of newborn to 3 yrs up to 6 months on every *Pushyanakshatra* day. The objectives were to study the detail data of preterm babies of both groups for nature of illness, duration, severity and its recurrence in 6 months. The objective was to evaluate the growth and developmental preterm by anthropometry and gross motor milestones with assessment of the consistency in general health of both groups up to 6 months of age.

#### **Materials and Methods:**

**Place of the study-** The study has been conducted at Mahatma Gandhi Ayurved College Hospital and Research Centre, Salod (H), Wardha.

**Study design-** It was a randomized parallel group, comparative, pilot and observational study with 1:1 allocation ratio as per lottery method. A control group (B) of 20 preterm babies was observed for immunity, growth and developmental milestones assessment without any treatment. They were keenly observed for objective criteria such as nature of illness, heart rate, duration, severity, recurrence of illness in 6 months.

#### **Grouping and Posology-**

It was divided into 2 groups of 20 preterm babies each. Group A (Trial) had received 4 drops of *Suvarnaprashan* monthly once on every *Pushyanakshatra* day while B/control group had not received any medicine and remained for observation and comparisons up to six months. Follow up was taken once in a month for another three months after main treatment duration. The posology of advised treatment is depicted in table no. 1

#### **Study Participants and Eligibility Criteria**

The consent was received from all informers before enrollment as study participants who were matched

the below inclusion criteria.

**a. Inclusion Criteria:** 1. Preterm < 37 wks born babies (either normal delivery/Caesarian) of 0-3 year's age

2. Normal, active babies

**b. Exclusion criteria:** i. Preterm babies who have discontinued the regular doses of *Suvarnaprashan*

ii. Preterm having major illness or past history of it, like Meningitis, epilepsy, cerebral palsy etc. before or after enrolled in study.

#### **c. Assessment Criteria**

Result in context to immunity and development was assessed in both the groups. The findings observed during the study were noted regularly under the following parameters during follow-up.

1. To assess anthropometrical measurements such as weight, height and gross motor milestones like sitting, standing, walking started at what age has been recorded

2. Historical response – regarding illness. Detailed history of any disease or infection, its nature, duration, severity and recurrence in 6 months to assess its immunity status were noted. These come under objective criteria. Monthly follow-ups on the basis of proforma prepared and clinical examination to evaluate the efficacy of *Suvarnaprashan* on these parameters were done.

**End outcome:** Subjective result has been divided into 3 categories as

a. Excellent outcome - No major illness with early appearance of milestones

b. Good outcome - Mild infection, once recurrence, with progressive milestones

c. Partial outcome – Infection >2 times, with slow appearance of milestones (delayed) were considered as partial end result.

**To record the severity of illness** it was divided into 3 categories

a. One + indicate mild infection which may subsided by home remedies.

b. Two + indicate moderate disease, required OPD t/t.

c. Three + indicate prompt care and management in IPD

#### ***Suvarnaprashan* Preparation:**

*Suvarnaprashan* was prepared, authenticated and standardized. *Suvarnaprashan* was prepared in

institute *Rasashala* (pharmacy) in the form of *Leha* which is easily licked by babies and helps for better absorption. The ingredients were given in table no. 2, which were mixed together with fine powder form of herbs and churned thoroughly in *leha*/ viscous syrup form. Then drop bottles were filled and labeled.

In Kashyap Samhita, importance of *lehan* (nutritive supplement) is mentioned in *Karshita* (delicate) and *Dushprajata* (delivered by difficult labor) babies hence this study was intended on emaciated babies [6].

**Observations and Results:**

Present study was matched the similarity in context of age, gender, gestational age, low income class. Maximum kids belonged to 1-2 years age and 57.5% preterm were female. Table no. 3, depicts age and gender with incidences in percentage.

Regarding preterm Incidences, both groups revealed that maximum kids belonged to 36 weeks. GA-gestational age (70 and 85%) followed by 35 and 34 weeks (Graph 1).

**Gross motor milestones development**

In trial group two babies achieved early milestones of standing and supportive walking. One baby had delayed crawling as compared to (B) control group, 0 and 4 respectively. (Graph 2)

**Nature of illness:** The number of mild infection

occurred in kids of trial group during 6 months of study were less as that of control group indicating its immunity enhancement. It was found that common mild infections such as fever, running nose, cough, upper respiratory infections, diarrhea, dysentery and skin infections were affected with less number of days and severity in approximately same environmental conditions, hygiene, dietary style which are other factors responsible for occurrences of diseases or remain healthy. (Graph 3)

**Duration of illness:** The mean duration of illness in control group was 3.9 days while in trial group it was 2.75 days showing faster recovery of diseases. (Graph 4)

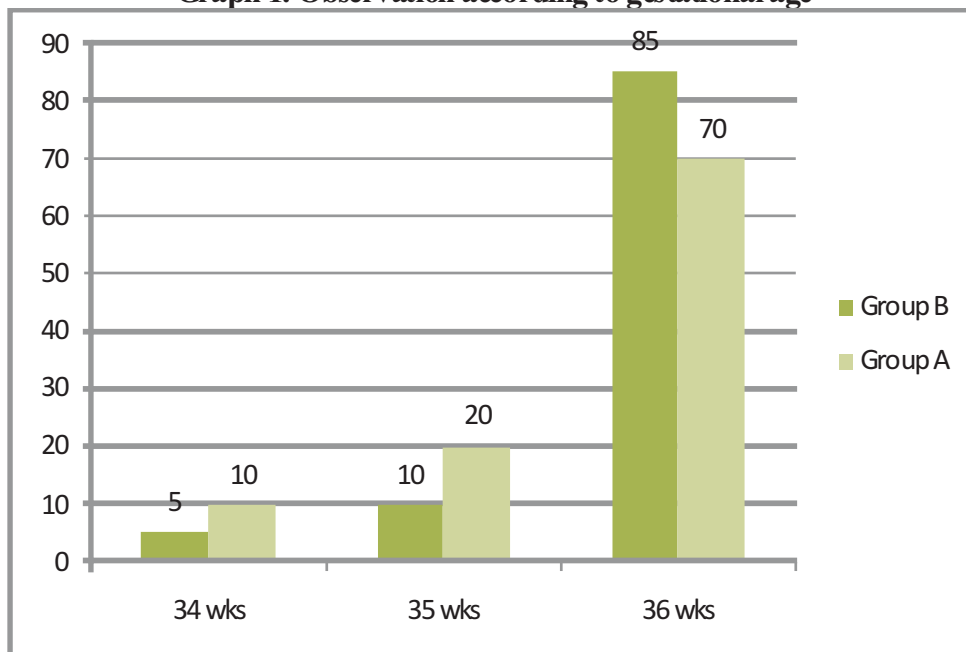
**Recurrence:** The mean recurrence of illness in control group was 25% while it was just 10% in trial group.

**Height and weight development:** The weight gain in trial group was in 25-50 percentile while it was in 3rd-25th percentile in control group. (Graph 5)

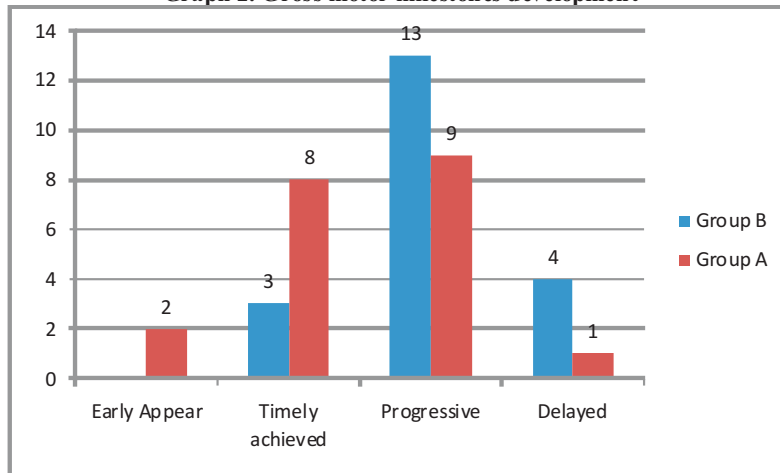
**Severity of sign and symptoms in both groups:** In trial group, it was mild in maximum preterm, only 2(10%) babies required IPD treatment while in control group, 65% moderate and severe illness was 25%. (Graph 6)

**End outcome:** Excellent response rate was high i.e. 60% in trial group as compare to control 20%.

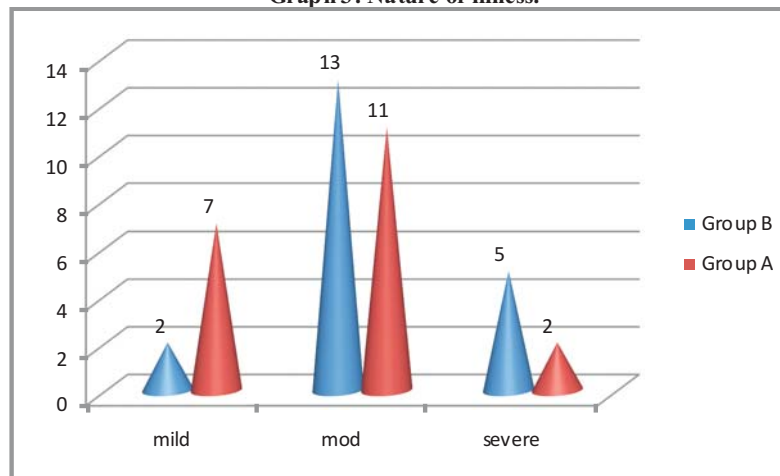
**Graph 1: Observation according to gestational age**



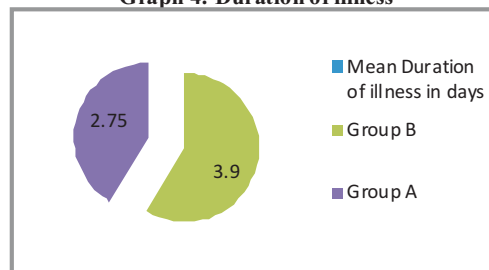
**Graph 2: Gross motor milestones development**



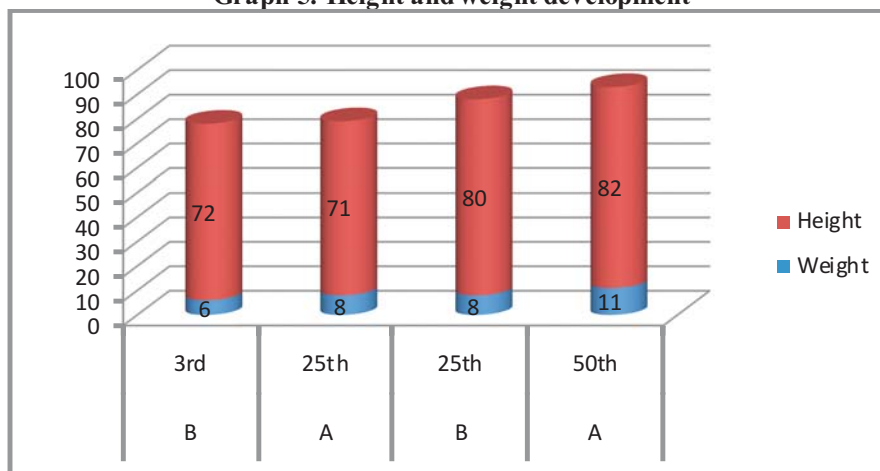
**Graph 3: Nature of illness.**

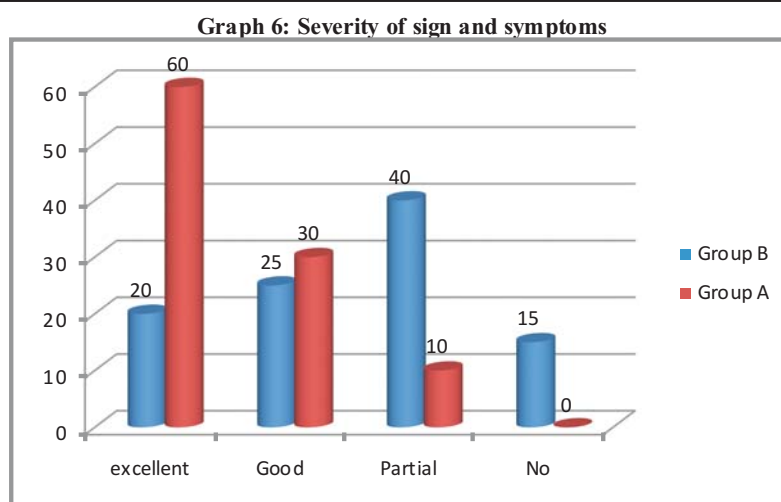


**Graph 4: Duration of illness**



**Graph 5: Height and weight development**





**Table no. 1 showing posology of both groups.**

SN	Groups	Dose	Duration
1	A (Suvarnaprashan Received)	4 drops, monthly once. No compulsion was kept to given on empty stomach or any Anupan.	6months. At every Pushya Nakshatra only
2	B (Suvarnaprashan not received)	No intervention	Remained for comparison and observation

**Table no.2: Ingredients of Suvarnaprashan per 10 gms**

Sr. No.	Sanskrit N	Botanical N	Quantity
1	Suvarna Bhasma	Aurum	2.5 mg
2	Go ghrit	Cow ghee	1.5 gm
3	Madhu	Honey	6. gm
4	Vacha	Acorus calamus (Linn)	0.6 gm
5	Bramhi	Centella asitica Linn	0.6 gm
6	Shankhpushpi	Convolvulus pluricaulis C. microphyllus	0.6 gm
7	Guduchi	Tinospora cordifolia Linn	0.6 gm

**Table no. 3 depicting age and gender with incidences in %**

NO	Age groups	No.of child	%
1	0-1	15	37.5
2	1-2	17	42.5
3	2-3	08	20
4	Male child	17	42.5
5	Female	23	57.5

**Table no.4, showing results of all parameters of both groups**

SR.	Criteria	Control	Trial
1	Milestones development	Early-0, progressive- 13, delayed-07	Early-1, Progressive- 14, delayed-5
2	Gain in ht, wt	3rd-25th percentile	25th-50th Percentile
3	Severity in s/s	Mild-10, sev.-25%	Mild-30, sev.-10%
4	Illness frequency	Mean_ + s.d.17.5	10
5	Duration	3.9 days	2.75 days
6	Recurrence	25%	10%
7	Relief	Ex.-20, Good-40 partial-40%	Excellent-60% Good30, partial-10%

**Discussion:**

The worldwide incidence of preterm is increasing, proved by systematic review [7]. Owing to advancements of sciences, there is increased survival rate of preterm but morbidity also raised with high cost of treatment [8]. It creates attention to look after these morbidities by safe, non-invasive way of modality. It is used to give on particular auspicious day i.e. *Pushya Nakshtra* to get more effectiveness because its positive effects on body through *panchamahabhutas* (basic 5 elements responsible for development of human being), *Gunas*, planets which represent energy [9]. There is no scientific data available to emphasis on *Pushya Nakshtra* day's importance. It is not feasible to give daily due to high cost but ideally it should be given daily as *Rasayan* as mentioned by *Acharya Kashyap* about the different varieties of significance when taken regularly up to 1 month to six months and one year continuously [2]. The action of nano particles size (55nm) of gold ash may fast disseminated by blood media to the targeted sites without digestion. It should be standardized prior to get maximum benefits and minimum to no side effects. It has also scavenging properties of free radicals, shown no toxicity judged by liver, kidney function, histo-pathological tests [10] It has established action in an experimental study of non-specific immunity augmentation [11] with good efficacy on motor neuron diseases [12]. Gold ash has a potent neuro-protective action. *Suvarnaprash* is the nutritious unique health supplement hence called as *Rasayan*. It may acts as energy booster, rejuvenator, health tonic, cognitive booster and many more. It is extremely effective in preventing gastric problems, common cold and cough. *Suvarnaprash* improves all aspects of health, when taken regularly [13]. *Suvarnaprash* nourishes the cells of brain, promotes coordination among various body parts [14]. It improves memory, and increases learning ability, storage, recall and intellect [15]. In a pharmacoclinical study, *Madhu Ghrita-Swarna-Vacha* combination given to neonates showed a significant effect of humoral antibody formation arise in the total protein and serum IgG level [16]. It has proven anti-stress, analgesic properties to reduce the augmented levels of 5HT, cortisone, nor-adrenaline and Dopamine [17]. Therefore Group A children had suffered from less numbers of days, severity of symptoms of fever, running nose, cough, upper

respiratory infections, diarrhea, dysentery and skin infections during six months of study period as compared to group B. Also the duration, frequency of getting infection or new ailment and recurrence of previous problems were less than group B, might be owing to immunity enhancing effect. As group B kids were only for observation and comparison, they were later treated by proper medication. *Suvarnaprashan* contains honey which has proven anti-allergic and immune-modulator activity, also act as *Yogvahi* (catalyst) and palatable [18]. Ghee is best antioxidant, rich in vitamin A, D, E and K, short chain fatty acid, lenoleic acid, provides more energy, also prevents and reduces oxidative stress. It carries the properties of other drugs without leaving its inherent properties. That is best characteristic of *ghee* [19]. It also acts as detoxifying agent [20]. *Vacha* has potent anti-convulsant, nootropic, speech enhancer action [21]. *Bramhi* has learning and memory enhancer action [22] while *Shankhpushpi* also has the same function [23]. *Guduchi* has proven neuro-protective action [24]. The combinations of all these ingredients make *Suvarnaprashan* as most potent having synergistic action with palatable effect. As preterm is more prone to develop above different problems which *Suvarnaprashan* already take care to prevent and reduce them. *Suvarnaprashan* empowered group A were not affected with delayed milestones rather one preterm had shown early gross motor development of standing and walking on the other hand control group had revealed no early development, progressive were 70 % and preterm who had delayed gross motor development were 30%.

The mean duration of illness in control group was 3.9 days while in trial group it was 2.75 days showing its positive effect in recovery of diseases with recurrence of merely 10% as that of 25% in control group. The weight and height gain achieved in treated group was in 25<sup>th</sup>- 50<sup>th</sup> percentile while it was in 3<sup>rd</sup> - 25<sup>th</sup> in control group as aptly mentioned the strength boosting effect in text regarding *Suvarnaprashan*. The severity of sign and symptoms in control group was more as compare to treated preterm group. The gradation of total relief was excellent 60 % in treated group while 20% in control group. It was a pilot study so the hematological tests like IgG , serum proteins were not done due to no sampling consent received by parents. Absence or

very low frequency of illness in *Suvarnaprashan* administered group indicates that it may have immunity augmenting effect. These encouraging results indicate the need of further research with large sample size and duration.

### Conclusion:

*Suvarnaprashan's* encouraging result indicates the need of further research with large sample and long term follow-up. The Immunity, growth and development parameters have shown good results in trial group than control group. Thus in the nutshell, *Suvarnaprashan* group had an edge over control group, which may prove as a new facet in child care.

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