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Research Article

CLINICAL STUDY TO EVALUATE THE EFFICACY OF SUVARNAPRASHANA ON GROWTH AND DEVELOPMENT AND NUTRITION ALONG WITH ITS EFFECT ON MORBIDITY STATUS IN 0-5 YEAR AGE CHILDREN

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ABSTRACT

Background: Suvarnaprashana is indeed a traditional Ayurvedic practice that involves the oral administration of Gold, typically in the form of Gold Bhasma (gold nanoparticle) mixed with Ghrita and honey. This practice is primarily recommended for infants and young children and is believed to have several health benefits, including immune system support, cognitive development, and overall well-being. Aims: To evaluate the efficacy of suvarnaprashana on growth & development and nutrition along with its effect on morbidity status in 0–5-year age children. Methodology: 200 children were randomly selected under this project which was carried out in different places of Jodhpur district. The dose of Suvarnaprashana was calculated by Young's formula. The assessment in this study focused on evaluating the impact of Suvarnaprashana on the growth & development and nutrition along with morbidity status. Result: Suvarnaprashana showed mean value for growth & development and nutrition along with its effect on morbidity status which marked an increase to 41.70% after treatment with an improvement of about 68.68 % showing a significant change in the parameter (P-Value < 0.05).

Keywords: Ayurveda**,** Development, Growth, Morbidity status, Nutritional status, Suvarnaprashana

INTRODUCTION

Childhood is the most crucial time of life. The foundation of adult health and wellbeing depends on health status in childhood. High rates of both physical and mental growth and development are seen throughout this time. Children nowadays are more susceptible to illnesses including pneumonia, recurring upper respiratory tract infections, GIT infection etc due to exposure to polluted air, food, and water. Children's mental and physical development is hampered by the recurrence of chronic diseases, which are also the most prevalent cause of immune decline in most kids. Ayurveda has advocated us various immunomodulatory medicines like Suvarnaprashana in our ancient literature not only protect children from these types of diseases but to promote their physical and mental development too.[1,2]

The under-five mortality rate for the world is 40.8 deaths according to the World Bank and the world health organization.[3,4,5] The leading cause of death of children under five include preterm birth complication 18% , pneumonia 16%, neonatal sepsis 7% , diarrhoea 8%, malaria 5% and malnutrition and under nutrition[1]. About 6, 05,000 neonatal deaths were reported in India in 2017, while the number of deaths among children aged 5-14 year was 1,52,000.[7] Parents reported symptoms suggestive of a history of eczema in 10.3%, rhinitis in 24.2% and asthma in 23.6% of children. Overall, 41.7% of children had symptoms suggestive of at least one allergic disorder, with a substantial minor manifesting symptom indicative of co-morbid allergic disease.[8]

These data show that children are vulnerable to infections because their immune system is less developed. The global burden of child death is a call for urgent and concerted action to further improve the survival chances of the world's children. As like immunity, childhood growth and development are also an important factor for a child. Early childhood development is multi-dimensional, encompassing like physical, social, emotional and mental.[9] In general, development takes place in a series of predictable and common stages; child becomes progressively more independent and learns increasingly advanced skills and capacities, as they grow older. There are several factors influencing child growth and development like[10] – Genetic factors – Both chromosomal disorders and mutations, unspecific genes can affect growth chromosomal defects like turner syndrome and down syndrome manifest as growth retardation. Intrauterine growth restriction –

IUGR resulting in low birth weight (LBW) constitutes an important risk factor for postnatal malnutrition and poor growth, hormonal influence, nutrition, chemical agents, trauma and poverty.[11] Such situations during rapid growth period and critical period of development have a temporary or permanent delaying effect on the achievement of normal growth and development.

INTERVENTION

Oral administration of processed gold in children is a unique practice mentioned in Sushruta Samhita and Kashyapa Samhita as Suvarnaprashana.[12] Acharya Kashyapa has explained evidently the administration of Suvarnafor improving intellect, digestion and metabolism, physical strength and immunity.Suvarnaprashan is a unique combination of Suvarna along with Madhu & Brahmi Ghrita given in lick-able form to enhances Medha (intellect), Agni (digestive and metabolic power), Bala (strength), Aayushya (gives long life), Mangalam (auspicious), Punyam (virtuous), Vrishyam (aphrodisiac), Varnya (increases complexion) and Grahapaham (eliminates the evil effects of planets). Based on these virtues of Suvarnaprashan, a public health initiative was proposed.

OBJECTIVES

Primary Objectives

- To evaluate the efficacy of Suvarnaprashana on growth and development in children
- To evaluate the efficacy of Suvarnaprashana on the morbidity status in children.

Secondary Objectives

- To minimize hospital visit.
- To improve the anthropometric measurement in children.

IEC REGISTRATION NO.: This study was approved by the institutional ethics committee, order no. DSRRAU/UPGIAS&R/IEC/21-22/441, dated January 21, 2023, and registered under the Clinical Trials Registry of India (CTRI) with a registration no. CTRI/2023/03/050249.

MATERIALS AND METHODS

Sources of children

There were 200 children had been covered under this project which was carried out in following four places of Jodhpur district, Rajasthan as Sanjeevani Ayurveda Hospital, Karwar, adopted village Gharav, Navjeevan Sansthan and Shanischar ji Ka Than, Jodhpur.

Inclusion Criteria

- Children of 0-5 year of age was selected in study
- Children showing sign of delayed growth & development was selected in the study.
- Children having recurrent episodes of fever, running nose, cold, cough, abdominal pain, nausea, vomiting, loose stools, abdominal distension and constipation was considered in the study.

Exclusion Criteria

- Children above 5 year of age was excluded.
- Children showing sign of delayed growth & development was selected in the study due to any organic lesion.
- Children having congenital malformation was excluded.
- Children having hypersensitivity to gold, honey & ghrita was excluded.

Discontinuation Criteria

- During the course of clinical trial, if a children develop any serious condition which requires urgent treatment.
- Patient or guardian her/his self wants to withdraw from the clinical trial.

INTERVENTION

Intervention	Form/Dose	Duration	Follow-up
Suvarnaprashana (Combination of Suvarna Bhasam+Honey+Brahmi Ghrita)	Drop Form	Every Pushya Nakshatra	As per mentioned in methodology

METHOD OF PREPARATION

Suvarnaprashana was prepared by following standard protocol in Nagarjuna Pharmacy of DSRRAU Jodhpur. It was mixed with Madhu and Ghrita taken in unequal quantity. Suvarna Bhasma was triturated with Madhu and Go-Ghrita for 8 hours until it becomes a homogenous mixture in a drop form.

Dose of Suvarna Bhasma –1/8 to ¼ Ratti (15-30 mg)[13] (According Rasa Tarangani)

By considering lower dose Suvarna Bhasma dose for children are calculated by Young Formula which is given below-

Child's Dose= Adult Dose X (Age* ÷ (Age*+12))

(*Age considered here in years)

Drug Doses

Table 1: Dose of Suvarnaprashana & Suvarna Bhasma as per Age

Age Group	Drops of Suvarnaprashana	Dose of gold	Duration of Drug
0-1 year	1 Drops	0.5 mg	6 months
1-2 year	2 Drops	1.0 mg	
2-3 year	3 Drops	1.5 mg	
3-4 year	3 Drops	1.5 mg	
4-5 year	4 Drops	2.0 mg	

Table 2: Grouping and Posology

Study Type	Interventional
Purpose	Improvement in Anthropometric measurement & reduce morbidity
Masking	Nil
Control	Non controlled
Timings	Prospective
Number of groups	One

ASSESSMENT PARAMETERS

Table 3: Subjective Parameters of Assessment

SNO.	Parameters	Grading
Fever		
1.	Episodes of fever Daily	3
2.	Episodes of fever on Alternate Day	2
3.	Episodes of fever weekly	1
4.	None of the above	0
Running Nose		
1.	Episodes of Running Nose Daily	3
2.	Episodes of Running Nose on Alternate Day	2
3.	Episodes of Running Nose weekly throughout	1
4.	None of the above	0
Nasal Blockage/ Stuff Nose		
1.	Episodes of Nasal Blockage Daily	3
2.	Episodes of Nasal Blockage on Alternate Day	2
3.	Episodes of Nasal Blockage throughout week	1
4.	None of the above	0
Breathlessness		
1.	Episodes of breathless whole day & night	3
2.	Episodes of breathlessness during night	2
3.	Episodes of exertional breathing during night	1
4.	None of the above	0
Wheezing Sound		
1.	Polyphonic wheezing in both lung	3
2.	Polyphonic wheezing in either one lung	2
3.	Monophonic wheezing	1
4.	None of the above	0
Cough		
1.	Dry, hacking & irritating cough with yellow / green sputum through day & night	3
2.	Dry, hacking & irritating cough with yellow / white sputum in day time	2
3.	Cough without sputum in day time since a week	1
4.	None of the above	0
Vomiting		
1.	Episodes of more than 2 vomiting in 12 hours	3
2.	Episodes of more than 1 vomiting in 24 hours	2
3.	Episodes of vomiting in 48 hours	1
4.	None of the above	0
Abdominal Distension		
1.	Abdominal distension for 24 hours	3
2.	Abdominal distension for 12 hours	2
3.	Abdominal discomfort but no distension	1
4.	None of the above	0
Loose Motion		
1.	More than 10 loose motions in last 24 hour	3
2.	More than 8 loose motions in last 24 hour	2
3.	More than 6 loose motions in last 48 hour	1
4.	None of the above	0
Constipation		
1.	Stony hard stool evacuated in more than 2 days	3
2.	Hard stool evacuated in every 48 hours	2
3.	Hard stool evacuated once in 24 hours	1
4.	None of the above	0
Appetite		
1.	Child does not take food considerably even by force	3
2.	Child does not ask but takes food considerably by force	2
3.	Child himself asks food but not take adequately	1
4.	Child himself asks foods & also take adequately	0

Objective Parameters: Weight for age, height for age, mid arm circumference (mac), chest circumference, head circumference and BMI were the objective parameters which were assessed before and after completion of trial. These parameters were

assessed through various instruments like- infant weighting machine, pediatric digital weighting machine, infantometer to measure length of infant, stedio-meter to measure height of children, Shakir tape to measure mac of children and inch tape to measure head circumference & chest circumference.

Adverse Events: All adverse events observed or reported by patients was recorded in the CRF with information about severity and possible relation to the study medication. Any serious adverse effects were notified immediately to the study monitor.

Statistical Methods: Clinical symptoms, subjective parameters and objective parameters was subjected to univariate and multivariate analysis using Statistical Package for Social Sciences (SPSS) 15.0 version with appropriate statistical methods.

RESULTS

Table 4: Demographic Data

Observation	Predominance	Percentages
Age group	4-5 year	47.50%
Sex	Female	52.50%
Religion	Hindu	75%
Mother education	Higher secondary	32.50%
Father education	Graduates	40%
Socio-economic status	Lower class	30%
Father's occupation	Skilled workers	27.50%
Mother's occupation	Houseworkers	40%
Region	Urban	52.50%
Addictions	No addiction	65%
Koshtha	Madhyam Kostha	57.50%
Agni	Vishmagani	35%
Nidra	Alpa nidra	35%
Dietary habit	Vishamasana	45%
Sharirika Prakrati	Vata kapha Prakriti	52.50%
Manasika Prakriti	Rajasika Tamasika	52.50%
Samhanana	Madhyama	65%
Pramana	Madhyama	77.50%
Sattva	Madhyama	52.50%
Satmya	Vyamishra Rasa	77.5%`
Ahara Shakti	Madhyama	57.5%)
Gross Motor Milestones	Normal	67.50%
Fine motor milestones	Normal	52.50%
Social milestones	Normal	62.50%
Language milestones	Normal	75%

Table 5: Effect of Suvarnaprashana on Subjective Parameters

Subjective	Mean		Diff	Median		SD		Wilcoxon W	P-Value	% Effect	Result
	BT	AT		BT	AT	BT	AT				
Fever	1.53	0.26	1.28	1.00	0.00	0.92	0.44	-12.320[a]	0.000	83.33	Sig
Running Nose	1.40	0.51	0.88	1.00	0.00	0.87	0.53	-10.800[a]	0.000	63.11	Sig
Nasal Blockage	1.33	0.31	1.01	1.00	0.00	0.88	0.47	-11.106[a]	0.000	76.28	Sig
Breathlessness	0.69	0.29	0.41	1.00	0.00	0.77	0.51	-7.503[a]	0.000	58.90	Sig
Wheezing Sound	0.65	0.20	0.46	1.00	0.00	0.74	0.45	-8.162[a]	0.000	69.93	Sig
Cough	0.89	0.26	0.63	1.00	0.00	0.85	0.52	-9.619[a]	0.000	70.95	Sig
Vomiting	0.63	0.19	0.44	1.00	0.00	0.79	0.42	-7.843[a]	0.000	70.07	Sig
Abdominal Distension	0.66	0.19	0.47	1.00	0.00	0.77	0.42	-8.016[a]	0.000	71.43	Sig
Loose Motion	0.56	0.17	0.38	1.00	0.00	0.73	0.40	-7.299[a]	0.000	68.70	Sig
Constipation	0.81	0.26	0.55	1.00	0.00	0.91	0.52	-8.341[a]	0.000	67.54	Sig
Appetite	1.41	0.63	0.78	1.00	0.00	1.14	0.74	-9.710[a]	0.000	55.29	Sig

Table 6: Effect of Suvarnaprashana on Objective Parameters

Objective		Mean	Diff	N	SD	SE	t-Value	P-Value	% Change	Result
Weight	BT	11.52	3.71	235	3.88	0.25	-43.937	0.000	32.22	Sig
	AT	15.23		235	3.68	0.24				
Height	BT	85.21	3.19	235	16.49	1.08	-36.075	0.000	3.74	Sig
	AT	88.40		235	16.50	1.08				
MAC	BT	15.57	2.69	235	2.02	0.13	-19.537	0.000	17.27	Sig
	AT	18.26		235	2.94	0.19				
Head Circumference	BT	46.61	2.12	235	4.31	0.28	-17.061	0.000	4.54	Sig
	AT	48.73		235	3.82	0.25				
Chest circumference	BT	48.28	2.28	235	4.72	0.31	-13.564	0.000	4.71	Sig
	AT	50.55		235	5.30	0.35				

Since observations were on ordinal scale (gradations), Wilcoxon Signed Rank Test was used to test the efficacy of Suvarnaprashana. From above table, it can be interpretated that P-Value for all parameters were less than 0.05. Hence, it was concluded that effect observed in all parameters was significant.

Table 7: Effect of Suvarnaprashana on the Morbidity Status After Treatment

Parameter	% Effect
Fever	83.33
Running Nose	63.11
Nasal Blockage	76.28
Breathlessness	58.90
Wheezing Sound	69.93
Cough	70.95
Vomiting	70.07
Abdominal Distension	71.43
Loose Motion	68.70
Constipation	67.54
Appetite	55.29
Average % Effect	**68.68**

Table 8: Overall effect of Suvarnaprashana on Growth & Development and Morbidity Status After Treatment

Overall Effect	Frequency	Percentage
Marked Improvement	98	41.70%
Moderate Improvement	66	28.09%
Mild Improvement	37	15.74%
No Improvement	34	14.47%
Total	**235**	**100.00%**

DISCUSSION

Vyadhikshamatwa in Ayurveda refers to immunity in children that is influenced by the Kaphadosha. The digestive and metabolic processes also influence immunity. The metabolic and digestive processes linked with Agni and Jatharagni are said to aid in the creation of nutrients that contribute to the quality of Dhatus, Mamsa, Rakta, Rasa, Shukra, and Majja, among other things. The high quality of these biological ingredients enhances Vyadhikshamatwa's balanced condition. This sort of immunity aids in the balance of Tridoshas constitution, offers immunity and strength, and thus aids in disease pathogenesis resistance. Oja and Bala are two more terms for disease resistance. Oja is the body's initial defense mechanism, present in Hridaya and disseminated throughout the body. Modern medical science has no proper management for, to prevent from this recurrence and to enhance the immune system. However, in our ancient literature, Acharya gave us some immunomodulatory recipes like Suvarnaprashana for to prevent children from such type of infections and enhance physical and mental growth of a child. In Kashyapa Samhita Suvarnaprashana has been mentioned as important prescription, for mental and physical growth and development for child. Kashyapa Samhita is an oldest textbook of Kaumarbhritya written by Vridhajeevaka. Kaumarbhritya is one of leading branch of Ayurved that dealing with mother and child health care. In Kashyapa Samhita there is first reference for given Suvarnaprashana as a therapy in children for physical growth and memory enhancement.[14] Acharya have mentioned many benefits of Suvarnaprashana. The majority of the drugs listed above aid in the acquisition of Vyadhikshamatva through their Deepana, Pachana, and Medhya effects;[12] also, the immune-booster properties of these drugs affect immunological response in disease conditions. Ksheerapa, Ksheerannada, and Annada-Awastha require a special formulation called Lehana. By combining Ayurvedic drugs in a semisolid form with honey, Lehana improves physical and mental wellness. Growth and development, nutrient absorption, and disease etiology resistance are all aided by ayurvedic treatments.

CONCLUSION

It was concluded from the present study that the Suvarnaprashana showed on growth & development and nutrition along with its effect on morbidity status which marked an increase to 41.70% after treatment with an improvement of about 68.68 % showing a significant change in the parameter (P-Value < 0.05). The intervention of Suvarnaprashana enhances every parameter of growth & development and nutrition along with its effect on morbidity status.

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REFERENCES

1. Singhal HK, et al. Suvarnaprashan: An Ayurvedic Immune Booster. Nat Ayurvedic Med 2021, 5(3):000325.
2. Pallavi Joshi, Prem Prakash Vyas and Harish Kumar Singhal (2024); Clinical Study on Medhya Effect of Suvarnaprashana on Intelligence Quotient (IQ) in School-Going Children Int. J. of Adv. Res. (Aug). 940-947, https://dx.doi.org/ 10.21474/IJAR01/19331
3. Mortality rate under five World Bank Data, World Development Indicator.
4. Under five mortality World Health Organization data 2023.
5. GHO (global health observatory), world health statistics data visualization dashboard.
6. UNICEF child mortality statistics" UNICEF Retrieved 4 April 2024.
7. A report of United Nations Inter –agency Group for Child Mortality Estimation (UNIGME) Oct 2024.
8. Mahmoud Nahhas, Raj Bhopal & Aziz Khan, Article on prevalence of allergic disorders among primary school-aged children, publish online on17 may 2024

9. Rakesh Kumar Meena1, Rani K, Harish Kumar S, Prem Prakash V. Clinical Study on Immunomodulatory Action of Suvarnprashan on Recurrent Upper Respiratory Tract Infection in Children – A Two-Arm Prospective Randomized Controlled Trial. Ortho & Rheum Open Access J. 2024; 23(1): 556103. DOI: 10.19080/OROAJ.2024.22.556103
10. Vinod K Paul and Arvind Bagga, Ghai essential pediatrics, 9th edition, published by CBS publishers & distributors pvt. ltd.
11. Nisha S, Prem Prakash V, Harish Kumar S. A Comparative Study of Swarnaprashan Prepared from Brahmi Ghrita and Panchgavya Ghrita on Immunomodulation & Physical Growth in Children. Ortho & Rheum Open Access J. 2025; 24(3): 556138. DOI: 10.19080/OROAJ.2025.24.556138
12. Pandit Hemaraja Sharma Kasyapa Samhita, Vriddha Jivakatantra, Vidhyotini Hindi commentary, Sutra Sthan Leha-Adhyay published by Chaukhambha Sanskrit Series, Varanasi, reprint 2018, p.6
13. Kashinath Shastri: Ras Tarangini Pranachary Shree Sadanand Sharma Virichita, 11th edition Reprint 2004, Motilal Banarasi Dass publication, Delhi, 15th Taranga, Verse no 81, page no379.
14. Pallavi Joshi, Prem Prakash Vyas and Harish Kumar Singhal. Acritical appraisal on Suvarna (Gold) bhasma. Int. J. Res. Ayurveda Pharm. 2023;14(5):58-63 DOI: http://dx.doi.org/10.7897/2277-4343.1405146

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