



## Research Article

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### A COMPARATIVE CLINICAL TRIAL ON EGG YOLK BASTI & VIDARIKANDADI GRANULES IN CHILDHOOD KARSHYA

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#### ABSTRACT

In this modern era of changing lifestyles, people and children cannot follow the rules of Dincharya and Ritucharya. Children have insufficient nutrients due to irregular food habits, which are triggering factors that cause childhood Karshya, resulting in mental and physical conditions that will not adequately develop. Biological and mentally healthy children are vital parts of a well-developed Nation, and this can be done by supplying nutritional requirements. The research was conducted in Bal Rog OPD, SAC and Hospital Lucknow. In this clinical trial total of 50 patients were selected and divided into group A and group B, having 25 in each group. Group A was treated with Egg Yolk Basti, and group B was treated with Vidarikandadi Granules for three months. In group A, 14 (56%) patients were relieved, 7 (28.0%) patients were moderately improved, 3 (12.0%) patients were mildly improved, and one patient did not show any response. In group B, 13 (52%) patients were relieved, 8 (32.0%) patients were moderately improved, 3 (12.0%) patients were mildly improved, and one patient did not show any response. This study indicates that Egg Yolk Basti and Vidarikandadi Granules can be effective in childhood Karshya.

**Keywords:** Egg Yolk Basti, Vidarikandadi Granules, Childhood Karshya.

#### INTRODUCTION

Nutrition, also called nourishment, is one pillar among three Upastambh such as Ahara, Nidra and Bramhacharya<sup>1</sup>. According to Acharya Kashyapa, proper ahara helps to improve Kanti, Bala, Smriti, Medha, Satwasthiti (stability) and Angavridhdha<sup>2</sup>. Lack of sufficient food intake leads to conditions like nutritional deficiency termed malnutrition (Kuposhanjanya vyadhi). According to Ayurveda, diseases included in malnutrition are Karshya, Phakka, Balshosha and Parigarbhika. The childhood period is the most critical formative period for expecting healthy adulthood. The nutritional requirements of growing children are more since this energy requirement is high due to the fast tissue growth at an early age<sup>3</sup>. Many dietary requirements are described in the ancient text, including supplements related to carbohydrates and proteins. When the supply of these nutrients becomes more diminutive than their requirements, malnutrition (Karshya) occurs. Malnutrition is the 1<sup>st</sup> leading cause of child mortality<sup>3</sup>, present in half of all cases. Nutritional diseases are most common throughout the world. According to NFHS-4 (2015-2016), which is conducted by the Ministry of Health and Family Welfare, India has 38% stunted, 21% wasted, and 36% underweight children below five years Mortality due to malnutrition accounted for 58% of the total mortality in 2006 in the world approximately 62 million people, all causes of death combined, die each year. One in 12 people worldwide is malnourished and According to the save the children 2012 Report, one in 4 of the world's children are malnourished.<sup>4</sup>

Much research is conducted for better improvement in this burning problem. Vidarikand is best for karshya and well-established drug in Ayurveda. Vidarikand<sup>5</sup> is one such drug that can be very well used as Brimhana, other content such as Yava<sup>6</sup>, Godhuma<sup>7</sup> e.t.c are also helping to increase the efficacy. The egg

is the richest source of protein and other nutritious elements. Childhood Karshya puts children at greater risk of dying from common infections, increases the frequency and severity of such infections, and contributes to delayed recovery. The interaction between undernutrition and disease can create a potentially lethal cycle of worsening illness and deteriorating nutritional status. Poor nutrition in the first 1000 days of a child's life can also lead to stunted growth, associated with impaired cognitive ability and reduced school and work performance. So, considering all these facts, the present clinical study was planned to assess the clinical efficacy of Vidarikandadi Granules and egg yolk basti in the management of Karshya.

#### Aims and objectives

1. To establish the efficacy of Brimhana Basti (egg yolk) and Vidarikandadi granules in Childhood Karshya.
2. To observe the clinical improvement of the disease during the trial period.

Ethical Clearance: IEC/AYM/056/2016

#### MATERIALS AND METHODS

50 patients aged 3-12 years having Karshya were selected in Bal Rog OPD, SAC and Hospital Lucknow by simple random sampling method irrespective of sex, religion and socio-economic status.

**Grouping:** Selected 50 patients were equally divided into two groups-

**Group A:** Children having Karshya managed with Egg Yolk Basti were taken in group A.

**Group B:** Children having Karshya managed with Vidarikandadi Granules were taken in group B.

**Drugs**

**1. Egg Yolk Basti<sup>8,9</sup>** – Taken only yolk of egg [ yellow part] for Brimhana basti.

**2. Vidarikandadi Granules<sup>10</sup>** - Content of Granules are Vidarikand, Yava, Godhum, Sharkara, Ghrit, Madhu, 1 part each.

**Mode of Administration:** Granules administered orally for three months with Lukewarm milk and honey and Basti administered into the anus as Matra basti for three months followed by seven days gap.

**Dose**

**Egg Yolk Basti-** Based on classical references dose of Matra Basti is 1.5 pala, i.e. 75 ml approximately, on dividing this dose by average body weight The dose of basti per kg body weight was around 1.5 ml/kg.

**Vidarikandadi Granules:** The drug was given around 0.25gm per kg body weight per day in two divided doses.

**Follow up during Treatment:** For proper observation and evaluation, Periodic follow up of groups A and B was done every month for three months.

**Follow up after treatment:** To assess the efficacy of the trial drug, patients were advised to come one month after treatment.

**Duration of study:** Total duration of the clinical trial was four months, three months during trial and 1 Month after trial.

**Study Design:** Randomized parallel active control trial.

**Criteria of Inclusion:** Age: 3-12 years, Sex: Both males and females, Socioeconomic status - All

**Grading criteria according to IAP-**

Grade – I - 71 – 80% of normal weight

Grade – II - 61 – 70%

Grade- III - 51 – 60%

Grade- IV - < 50% (without any complications)

**Criteria of Exclusion**

1. Children suffering from congenital Malabsorption syndrome.
2. Children with celiac disease, food protein sensitivity, Bile duct atresia, cystic fibrosis.

**Informed consent:** Parents, the patients undergoing this study were informed about the same and consent of each patient/parent was taken.

**Criteria of Assessment:** The improvement was assessed mainly based on the relief in the signs and symptoms and gradation based on severity.

**Grading of symptoms:** The cases of Karshya was enrolled, and the effect of the trial drug was assessed in subjective parameters-

Emaciated buttocks	
Normal	0
Some loss of subcutaneous fat	1
Loss of subcutaneous fat with marked wrinkling	2
Complete loss of subcutaneous fat	3

Emaciated abdomen	
Normal	0
Some loss of subcutaneous fat	1
Loss of subcutaneous fat with marked wrinkling	2
Complete loss of subcutaneous fat	3

Emaciated neck	
Normal	0
Some loss of subcutaneous fat	1
Loss of subcutaneous fat with marked wrinkling	2
Complete loss of subcutaneous fat	3

Lean and thin	
Weight > 80%	0
Weight 71 - 80%	1
Weight 61 - 70%	2
Weight 51 - 60%	3

Thick joints nodes	
Normal	0
Bony prominence with the presence of subcutaneous fat	1
Bony prominence with moderate loss of subcutaneous fat	2
Bony prominence with complete loss of subcutaneous fat	3

Unable to pass stool, urine and flatus	
Able to pass stool, urine flatus	0
Able to pass stool, urine	1
Able to pass only urine	2
Unable to pass stool, urine flatus	3

**Objective parameters:** Weight, Height, Mid Arm Circumference, Mid- Thigh Circumference, Chest Circumference

**Laboratory Examination:** HB%, DLC, TLC, ESR

**OBSERVATIONS**

Majority of patients were found of age group 3-6 years (45%), 54% children were male and 58% were from Hindu religion. 70% were from lower class and 21% of patients from the lower middle class. 65% were on exclusive breastfeeding up to 6 months. 47% had regular bowel habits, and 23% had alternate diarrhea and constipation, and 25% of patients were suffering from constipation. 70% of patients were taking mixed diet, and 63% of patients were anemic, 44 patients 77% were Avar Aharashakti, and 53% were of Vata Pittaja Prakriti, 44% were of Vata Kapha Prakriti. 55% were Avar Satmya, 75% were Avar Samhanana, and 25% were Madhyam Samhanana. Out of 57 patients selected according to predetermined Criteria in which 100% patients showed Shushka Sphiga, 100% patients showed Shushka Udara, 100% patients showed Shushka Greeva, 100% Atikrishna, 100% Sthoola parva and 54% patients showed Badha Vinamutramaruta.

**Table 1: Intergroup Comparison of drugs between Groups A & B**

Time interval	Group A		Group B		Mann Whitney z-value	p-value
	Mean	SD	Mean	SD		
BT	1.32	0.63	1.16	0.37	-0.809	0.419
1 Month	1.28	0.68	1.08	0.40	-1.047	0.295
2 Month	0.80	0.91	0.64	0.49	-0.152	0.879
3 Month	0.44	0.77	0.20	0.41	-1.079	0.281
AT	0.32	0.69	0.12	0.33	-1.135	0.256

BT: Before Treatment, AT: After Treatment

Table 2: Intergroup Comparison of drugs between Groups A &amp; B

Time interval	Group A		Group B		Mann Whitney z-value	p-value
	Mean	SD	Mean	SD		
BT	1.24	0.60	1.16	0.37	-0.122	0.903
1 Month	1.00	0.71	1.00	0.41	-0.265	0.791
2 Month	0.72	0.84	0.60	0.50	-0.108	0.914
3 Month	0.36	0.76	0.16	0.37	-0.809	0.419
AT	0.28	0.68	0.16	0.37	-0.422	0.673

BT: Before Treatment, AT: After Treatment

Table 3: Intergroup Comparison of drugs between Groups A &amp; B

Time interval	Group A		Group B		Mann Whitney z-value	p-value
	Mean	SD	Mean	SD		
BT	1.36	0.64	1.28	0.46	-0.173	0.862
1 Month	1.16	0.69	0.96	0.54	-1.036	0.300
2 Month	0.76	0.93	0.48	0.51	-0.775	0.438
3 Month	0.40	0.82	0.16	0.37	-0.863	0.388
AT	0.36	0.76	0.08	0.28	-1.584	0.113

BT: Before Treatment, AT: After Treatment

Table 4: Intergroup Comparison of drugs between Groups A &amp; B

Time interval	Group A		Group B		Mann Whitney z-value	p-value
	Mean	SD	Mean	SD		
BT	1.84	0.90	1.68	0.69	-0.472	0.637
1 Month	1.36	0.91	1.32	0.63	-0.022	0.983
2 Month	1.00	1.04	1.12	0.73	-0.791	0.429
3 Month	0.88	1.05	0.80	0.76	-0.052	0.959
AT	0.64	0.99	0.68	0.75	-0.635	0.526

BT: Before Treatment, AT: After Treatment

Table 5: Intergroup Comparison of drugs between Groups A &amp; B

Time interval	Group A		Group B		Mann Whitney z-value	p-value
	Mean	SD	Mean	SD		
BT	2.00	0.58	2.04	0.45	-0.265	0.791
1 Month	1.72	0.74	1.92	0.49	-1.118	0.264
2 Month	1.24	0.66	1.44	0.51	-1.315	0.188
3 Month	0.88	0.83	1.08	0.49	-1.327	0.184
AT	0.64	0.81	0.84	0.47	-1.661	0.097

BT: Before Treatment, AT: After Treatment

Table 6: Intergroup Comparison of drugs between Groups A &amp; B

Time interval	Group A		Group B		Mann Whitney z-value	p-value
	Mean	SD	Mean	SD		
BT	0.56	0.51	0.56	0.58	-0.122	0.903
1 Month	0.48	0.51	0.52	0.59	-0.133	0.894
2 Month	0.40	0.50	0.40	0.58	-0.172	0.863
3 Month	0.12	0.33	0.16	0.37	-0.403	0.687
AT	0.12	0.33	0.04	0.20	-1.032	0.302

BT: Before Treatment, AT: After Treatment

Table 7: Overall assessment of patients after treatment

Group	Relieved $\geq 75\%$		Improved				Unchanged $< 25\%$	
			Moderate Improved		Mild Improved 49-25%		N	%
	N	%	N	%	N	%		
Group A	14	56.0	7	28.0	3	12.0	1	4.0
Group B	13	52.0	8	32.0	3	12.0	1	4.0

N: Number of patients

## RESULTS

### Improvement wise distribution

**Shushksphiga [Emaciated buttocks]:** In the group, A Significant improvement was seen after the 2<sup>nd</sup> month ( $p<0.001$ ) and onwards and finally after trial ( $p<0.001$ ). In group B, Significant improvement was seen after the 2<sup>nd</sup> month ( $p<0.001$ ) and onwards and finally after trial ( $p<0.001$ ). (Table 1)

No Significant differences in mean grades between the groups were found at BT ( $p=0.419$ ), 1 month ( $p=0.295$ ), 2 month ( $p=0.879$ ) 3 month ( $p=0.281$ ) and after trial ( $p=0.256$ ).

**Shushk Udar [Emaciated abdomen]:** In the group, A Significant improvement was seen after 1<sup>st</sup> month ( $p=0.010$ ) and onwards and finally after trial ( $p<0.001$ ). In group B, Significant improvement was seen after 1<sup>st</sup> month ( $p=0.049$ ) and forward and eventually after trial ( $p<0.001$ ). (Table 2)

No Significant differences in mean grades between the groups were found at BT ( $p=0.903$ ), 1 month ( $p=0.791$ ), 2 month ( $p=0.914$ ) 3 month ( $p=0.419$ ) and after trial ( $p=0.673$ ).

**Shushka Greeva [Emaciated neck]:** In the group, A Significant improvement was seen after 1<sup>st</sup> month ( $p=0.030$ ) and onwards and finally after trial ( $p<0.001$ ). In group B, Significant improvement was seen after 1<sup>st</sup> month ( $p=0.010$ ) and forward and eventually after trial ( $p<0.001$ ). (Table 3)

No Significant differences in mean grades between the groups were found at BT ( $p=0.862$ ), 1 month ( $p=0.300$ ), 2 month ( $p=0.438$ ) 3 month ( $p=0.388$ ) and after trial ( $p=0.113$ ).

**Atikrisha [Lean and Thin]:** In the group, A Significant improvement was seen after 1<sup>st</sup> month ( $p=0.001$ ) and onwards and finally after trial ( $p<0.001$ ). In group B, Significant improvement was seen after 1<sup>st</sup> month ( $p=0.003$ ) and forward and eventually after trial ( $p<0.001$ ). (Table 4)

No Significant differences in mean grades between the groups were found at BT ( $p=0.637$ ), 1 month ( $p=0.983$ ), 2 month ( $p=0.429$ ) 3 month ( $p=0.959$ ) and after trial ( $p=0.526$ ).

**Sthool Parva [Thick joints nodes]:** In the group, A Significant improvement was seen after 1<sup>st</sup> month ( $p=0.008$ ) and onwards and finally after trial ( $p<0.001$ ). In group B, Significant improvement was seen after the 2<sup>nd</sup> month ( $p<0.001$ ) and onwards and finally after trial ( $p<0.001$ ). (Table 5)

No Significant differences in mean grades between the groups were found at BT ( $p=0.791$ ), 1 month ( $p=0.264$ ), 2 month ( $p=0.188$ ) 3 month ( $p=0.184$ ) and after trial ( $p=0.097$ ).

**Baddha-Vinamutramaruta [Unable to pass stool, urine and flatus]:** In the group, A Significant improvement was seen after the 2<sup>nd</sup> month ( $p=0.046$ ) and onwards and finally after trial ( $p=0.001$ ). In group B, Significant improvement was seen after the 2<sup>nd</sup> month ( $p=0.046$ ) and forward and eventually after trial ( $p<0.001$ ). (Table 6)

No Significant differences in mean grades between the groups were found at BT ( $p=0.903$ ), 1 month ( $p=0.894$ ), 2 month ( $p=0.863$ ) 3 month ( $p=0.687$ ) and after trial ( $p=0.302$ ).

**Weight:** In the group, A Significant improvement was seen after the 2<sup>nd</sup> month ( $p=0.029$ ) and onwards and finally after trial ( $p=0.003$ ). In group B, Significant improvement was seen after 1<sup>st</sup>

month ( $p<0.001$ ) and onwards and finally after trial ( $p<0.001$ ). Significant differences in mean values between the groups were found at BT ( $p=0.005$ ), 1 month ( $p=0.003$ ), 2 month ( $p=0.002$ ) 3 month ( $p=0.002$ ) and after trial ( $p=0.002$ ).

**Height:** In the group, A Significant improvement was seen after the 3<sup>rd</sup> month ( $p=0.030$ ) and onwards and finally after trial ( $p=0.006$ ). In group B, Significant improvement was seen after 1<sup>st</sup> month ( $p<0.001$ ) and onwards and finally after trial ( $p<0.001$ ). Intergroup Comparison of drugs between groups Significant differences in mean values between the groups were found at BT ( $p=0.006$ ), 1 month ( $p=0.007$ ), 2 month ( $p=0.007$ ) 3 month ( $p=0.007$ ) and after trial ( $p=0.007$ ).

**Effect on HB %:** After treatment, the mean HB was changed significantly in group A ( $p<0.001$ ) and group B ( $p<0.001$ ). [Paired t test]. And before-after differences of HB values between the two groups was not significantly different. ( $p=0.298$  by unpaired t-test).

**Improvement Assessment in Groups A & B:** The efficacy of drugs was analyzed in four categories. (Table 7)

In group A, 14 (56%) patients were relieved, 7 (28.0%) patients were moderately improved, 3 (12.0%) patients were mildly improved, and one patient did not show any response. In group B, 13 (52%) patients were relieved, 8 (32.0%) patients were moderately improved, 3 (12.0%) patients were mildly improved, and one patient did not show any response.

## DISCUSSION

The effect of Brimhana can be understood in two types of diet, are Aahar and Aushadha. Being Veerya Pradhana Brimhana Aushadha causes quicker results than that of Brimhana Ahara. The aim of treating Karshya is to achieve proportionate body growth and development. Vidarikandadi Granules<sup>9</sup> and Egg yolk Basti<sup>8</sup> are procedures that offer strength and anabolic effects. Vidarikandadi Granules consists of Vidarikanda, Yava and Godhuma, sharkara and ghrita. The ingredients of Granules have the property of Srotoshodhana, Vatanulomana, Rasayana, Balya, Brimhana and Jivaniya and antioxidative [Vidarikand]<sup>10</sup>, which helps in maintaining an equilibrium of Dosha Dhatu and Malas. Egg yolk is an essential food and drug; it contains abundant proteins and minerals, especially Ca, P and Fe. All of them are involved in the conservation and maintenance of bones. Its high content in vitamin D also helps promote Ca's absorption. Egg Yolk Basti is an essential source of proteins, fat and other nutritional content such as vitamin A, B, D, and minerals that effectively treat childhood Karshya. In this study, both drugs are found compelling; in some symptoms, group A showed marked improvement such as Sthool parva, and in some other groups, B showed significant improvement such as Shushka Sphiga, Shushka Greeva. But overall, the effect of Egg Yolk Basti is slightly better than Vidarikandadi Granules.

On Shushka Sphiga, there was 75.76% relief in group A and 89.66% in group B. On Shushka Udara, the improvement was 75.42% in group A and 86.21% in group B. On Shushka Greeva was 73.53% relief in group A and 93.75% in group B. At Atikrisha, 65.22% improvement in group A and 59.52% in group B. On Sthoola parva, there was 68% relief in group A and 58.82% in group B. On Baddha Vinamutramaruta, the improvement was found in 78.57% in group A and 92.86% in group B. In group A, response on Weight showed a highly significant effect ( $p=0.003$ ). In group B the result was highly significant ( $p<0.001$ ). In group A, response on Height showed a highly significant effect ( $p=0.006$ ). In group B the outcome was highly significant

( $p < 0.001$ ). The group A response on Chest Circumference showed a highly significant effect ( $p < 0.001$ ). In group B the result was highly significant ( $p < 0.001$ ). In group A response on Mid Arm Circumference showed a highly significant effect ( $p < 0.001$ ). In group B the outcome was highly significant ( $p < 0.001$ ). Group A response on Mid-Thigh Circumference showed a highly significant effect ( $p < 0.001$ ). In group B the result was highly significant ( $p < 0.001$ ).

Therapeutic observations such as Shushka Sphiga, Shushka Greeva, and Shushka Udar are better improved in group B than group A. Still, there is a progressive change in appearance and subcutaneous fat in both groups. Sthoola parva, Atikrisha are better improved in group A, It may be due to in group A, efficiently and faster absorption of nutrients, and egg is rich sources of protein. In anthropometry, patients showed mild to moderate improvement in both groups such as weight, height, mid-arm circumference etc. In objective parameters such as Hb, TLC, DLC, no significant change was found, a mild improvement was seen in Hb%.

## CONCLUSION

Most developmental delays are observed due to nutritional deficiencies. Early diagnosis can help to improve these outcomes for children. In such cases of kuposhanajanya vyadhi, Ayurveda tells different treatment plans. With the help of Ayurvedic Sidhanta, a paediatrician can improve a child's health and give a better quality of life. An overview of the results suggests that the Ayurvedic treatment protocol employed effectively manages childhood Karshya, corresponding to the various degree of malnutrition.

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