

CLINICAL TRIAL TO ASSESS KANTAKARI GHRUTA IN PROTEIN ENERGY MALNUTRITION (BALASHOSHA) IN CHILDREN

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ABSTRACT

Introduction: According to United Nations International Children's Emergency Fund (UNICEF), in India, around 46 percent of all children below the age of three are too small, and 35.7% are underweight and come under MAM (Moderate Acute Malnutrition). Protein Energy Malnutrition (PEM) can be correlated with Karshya, Balashosha, Phakka, Parigarbhika, Sushka Revati, and Apatarpanjanya Vyadhi based on similar clinical features. Research indicates significant biochemical abnormalities in children with PEM, including low levels of iron, immunoglobulins, and vitamin D. **Methodology:** Kantakari Ghrita,¹ an Ayurvedic formulation, shows promise in addressing Protein Energy Malnutrition (PEM) through its nutritional and therapeutic properties. This remedy is particularly beneficial due to its ability to enhance digestion, improve nutrient absorption, and support overall health in children suffering from malnutrition. Kantakari ghrita was administered in a clinical trial for PEM, and standard care was given in the control group. **Results:** The clinical assessment of Kantakari ghrita in children aged from 0 to 3 years was conducted, and it was observed that PEM is present in the lower socioeconomic class, and children who are more dependent on their mother's milk are more likely to suffer. **Discussion and Conclusion:** Administration of Kantakari Ghrita showed statistically significant results and was also clinically significant in managing PEM (Balashosha)

KEYWORDS: Protein energy malnutrition, *Balashosha*, Ayurveda, *Kantakari ghrita*

INTRODUCTION

Protein Energy Malnutrition (PEM) is a critical health issue affecting children, particularly in developing countries. It manifests primarily as Marasmus and Kwashiorkor, leading to severe health complications and increased mortality rates.² The prevalence of PEM varies significantly across regions, influenced by socio-economic factors, dietary habits, and healthcare access. Understanding these dynamics is essential for effective intervention strategies. A study

in, India, found a staggering 67.7% prevalence, with rural children being more affected than urban counterparts. Research indicates significant biochemical abnormalities in children with PEM, including low levels of iron, immunoglobulins, and vitamin D. These deficiencies correlate with developmental stages and can exacerbate health issues, necessitating targeted nutritional interventions. Factors such as low family income, parental education, and large family

size are strongly associated with higher rates of PEM. Inadequate dietary intake, particularly of proteins and carbohydrates, further compounds the risk of malnutrition. The name *Balasosha* is composed of the syllables "*Bala*" and "*Shosha*," which together imply "child emaciation." According to descriptions found in Ayurvedic scriptures, children's nutritional deficiencies—known in modern science as protein energy malnutrition—are the cause of this emaciation. Ayurveda is based on curative as well as preventive measures. Ayurvedic approach is the prevention and treatment of *Balasosha* involve enhancing a child's Agni and immune system through a healthy diet and the use of herbal remedies.³ Administration of medicine is of utmost importance as the administration is very easy and also effective. Kantakari Ghruta is one such herbal combination mentioned in Charaka Samhita [6]. By looking at the individual herbal constituents of Kantakari Ghruta, it appears that this combination should be very effective in combating the signs and symptoms associated⁴.

OBJECTIVES

To assess the efficacy of Kantakari Ghruta in Protein energy Malnutrition

METHODOLOGY

The present clinical study entitled "Effect of Kantakari Ghruta in the management of *Balashosha*" was carried out with the following objectives. 1. To evaluate the effect *Kantakari Ghruta* in Protein energy malnutrition (*Balashosha*).

Ingredients of *Kantakari ghruta* ⁵

Goghrita	4 parts
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Swarasa /Drava Dravya-Together 16 parts

Kantakari

Brihati

Bharangi

Vasa

Ajadugdha

Kalka Dravya-1 part

Gajapippali

Pippali

Maricha

Yastimadhu

Vacha

Pippalimoola

Jatamansi

Ajwain

Jeera

Sugandhi vala

Sunthi

Manuka

Dadima

Devdaru

Method of preparation:

Fine powder of the *kalka* drugs was taken, *Kalka* was made and to it 16 parts of

Swarasa and Ajadugdha were added, Goghrita was added and heated on mandagni and boiled to madhyamapaka. Lastly it was filtered and sealed in 150ml bottles.

Diagnostic criteria

1. Aruchi 2. Pratishyaya 3. Jwara 4. Kasa 5. Shosha 6. Snigdha, shukla mukhekshana

Inclusion criteria

1. Children of age group of 0-3 years.
2. Weight less than average over one month
3. Showing signs and symptoms of Balashosha.

Exclusion criteria K/C/O Congenital metabolic diseases

Severe Dehydration

Severe Anemia

Respiratory Distress: High respiratory rate or chest indrawing.

Sampling The patients of either gender of 0-3 years age were randomly divided in two groups each containing 20 patients.

Group-A: 20 diagnosed cases of Balashosha in the age group of 0-3 yrs were selected. Age wise classification

Serial number	Age in months	Trial group	trial group	control group	control group	Total	total
1	0 -6	0	0%	0	0%	0	0%
2	6.1 -12	2	10%	3	15%	5	12.5%
3	12 -18	2	10%	4	20%	6	15%
4	18.1 -24	5	25%	8	40%	13	32.5%
5	24.1 - 30	7	35%	2	10%	9	22.5%
6	30.1-36	4	20%	3	15%	7	17.5%

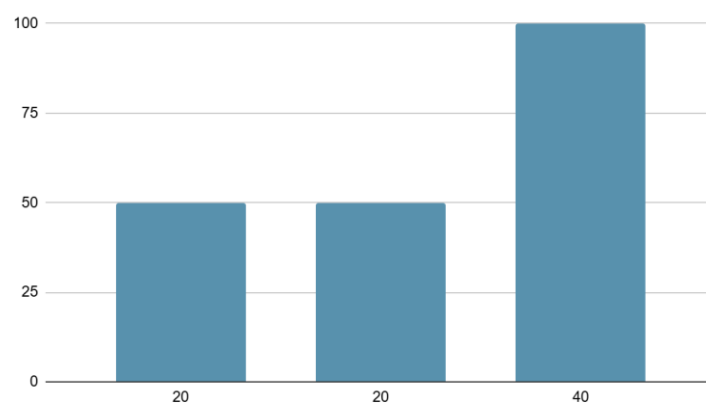
The dose Kantakari Ghruta was 2.5 ml for children of 0-3 yrs It was given every 12 hrly with hot water for 30 days.

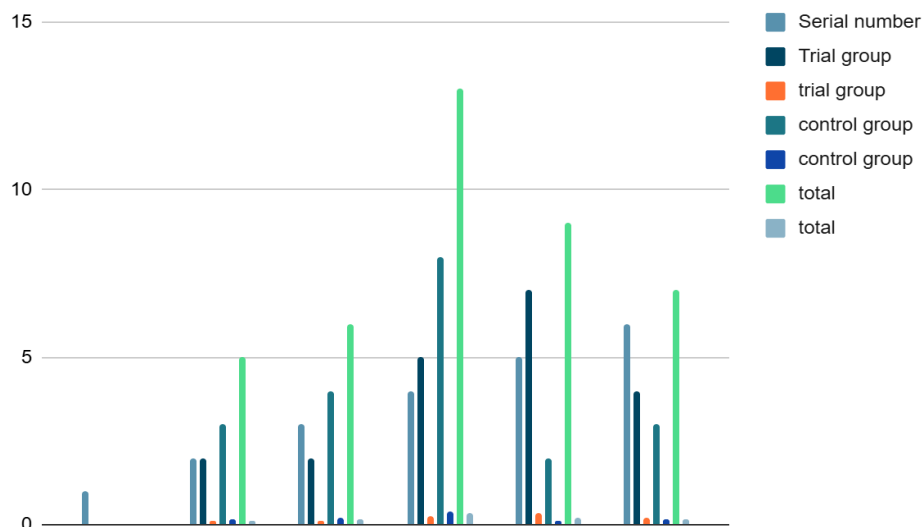
Group-B: 20 diagnosed cases of Balashosha in the age group of 0-3 yrs were included in this group. The patients of this group received standard care.

RESULTS AND OBSERVATIONS:

Serial number	group name	number of patients	percentage
1	trial	20	50
2	control	20	50
	Total	40	100

Points scored

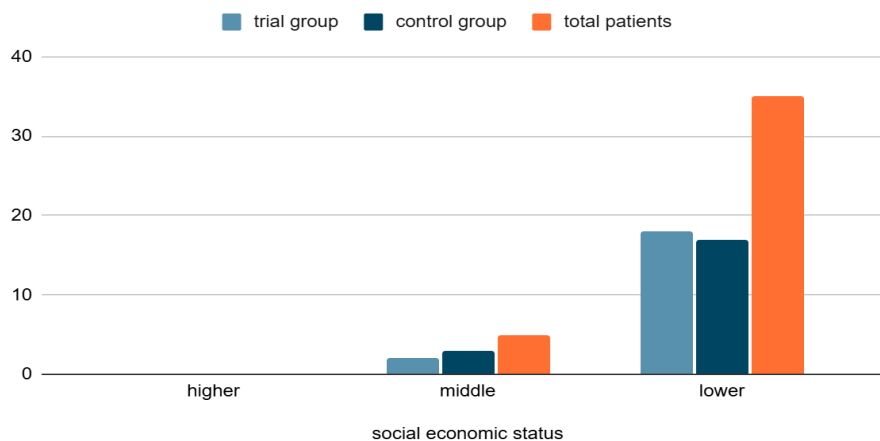




Classification according to social economics status

Serial number	social economic status	trial group	trial group percent	control group	control group percent	total patients	total percentage
1	higher	000	00	00	00	00	Zero
2	middle	2	10%	3	3:15 percent	5	12.5%
3	lower	18	90%	17	85%	35	87.5%

trial group, control group and total patients

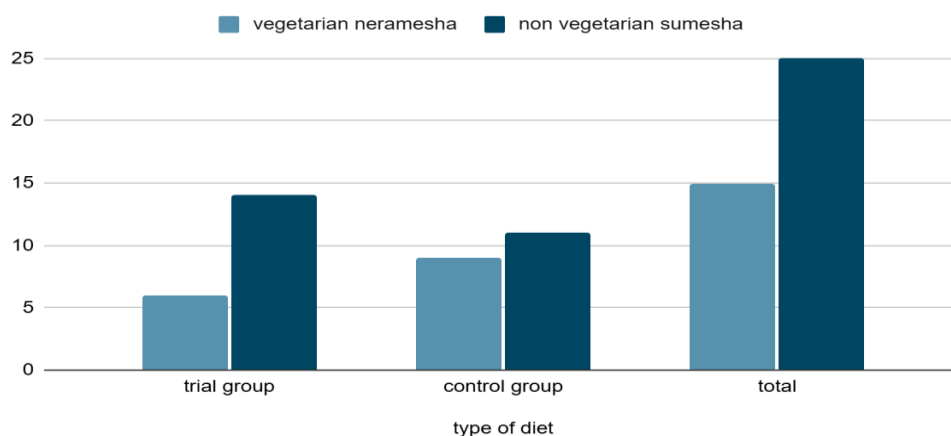


Classification according to Type of diet

Serial number	type of diet	trial group	trial percentage	control group	control percentage	total	percentage
1	vegetarian Niramisha	6	30%	9	:45 percent	15	37.5%

2	non vegetarian Samisha	14	70%	11	55	25	62.5%
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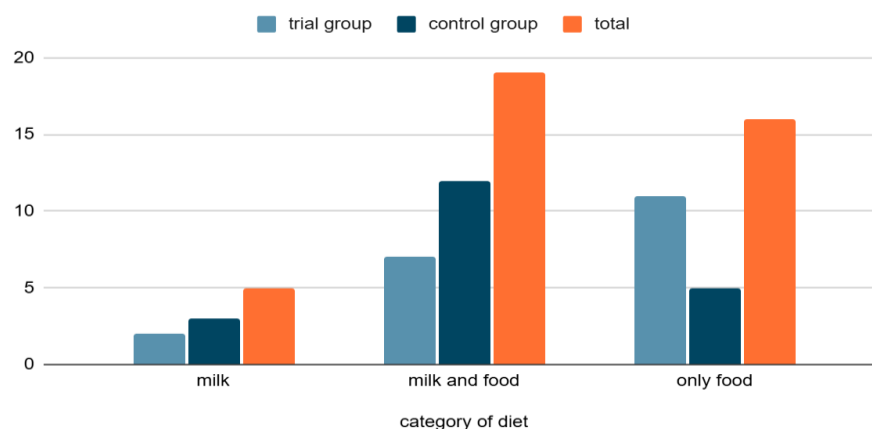
vegetarian neramesha and non vegetarian sumesha



According to Avastha category of Food

Serial number	category of diet	trial group	trial percentage	control group	control percentage	total	percentage
1	milk	2	10%	3	15%	5	12.5%
2	milk and food	7	35%	12	60%	19	47.5%
3	only food	11	55%	5	25%	16	40%

trial group, control group and total

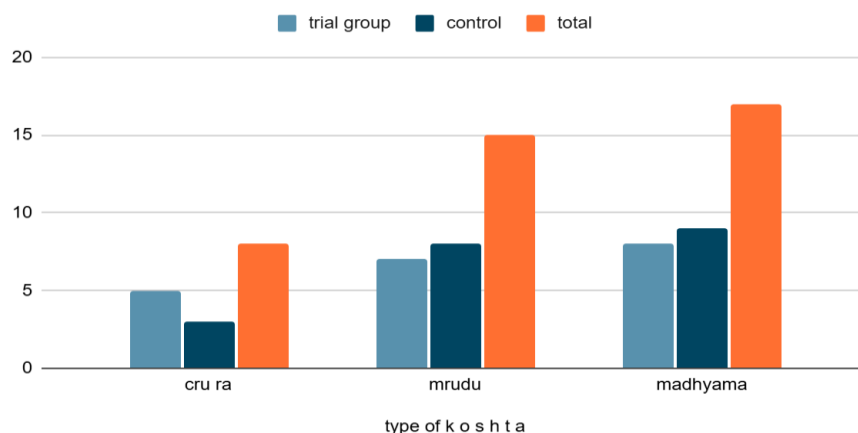


Classification according to type of koshta

Serial number	type of k o s h t a	trial group	12 trial percentage	Control	Control percentage	Total	%
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1	Krura	5	25%	3	15%	8	20%
2	Mrudu	7	35%	8	40%	15	37.5%
3	Mmadhyama	8	40	9	45	17	42.5%

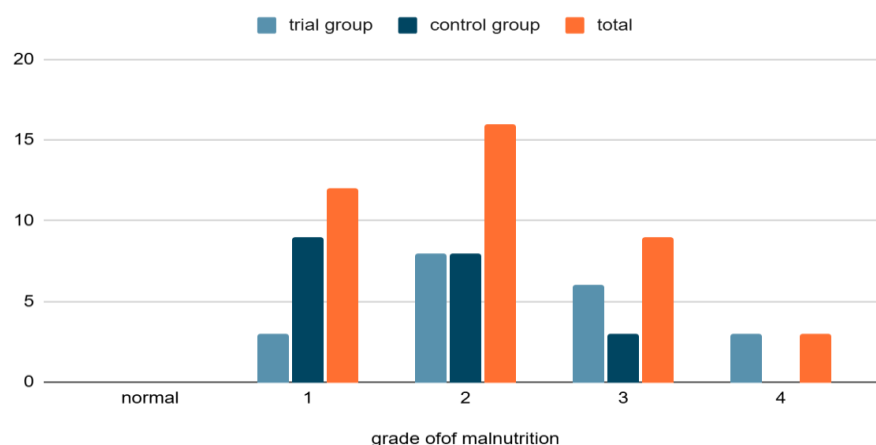
trial group, control and total



Classification of malnutrition according to the Indian Academy of Pediatrics

Serial number	grade of malnutrition	trial group	trial percentage	control group	control percentage	Total	percentage
1	normal	0	0%	0	0%	0	0%
2	1	3	15	9	45%	12	30%
3	2	8	40%	8	40%	16	40%
4	3	6	30%	3	15%	9	22.5%
5	4	3	15%	0	0%	3	7.5%

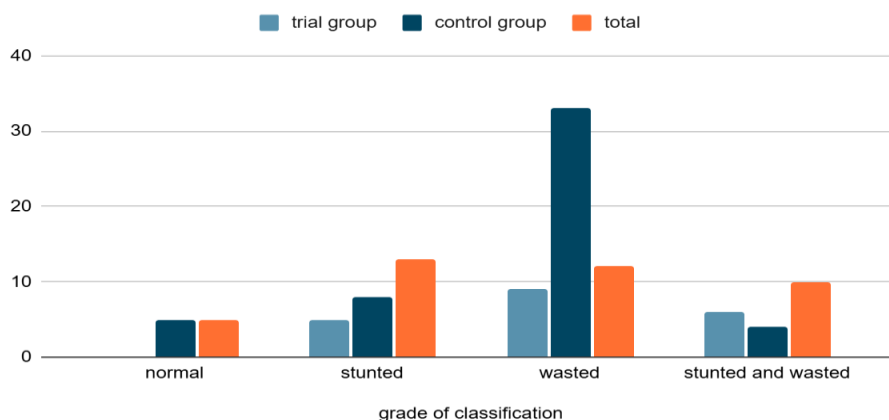
trial group, control group and total



Classification according to Waterloo grade of malnutrition

Serial number	grade of classification	trial group	trial percentage	control group	control percentage	total	percentage
1	normal	0	0%	5	42.5%	5	12.5%
2	stunted	5	25%	8	40%	13	32.5%
3	wasted	9	45%	33	15%	12	30%
4	stunted and wasted	6	30%	4	20%	10	25%

trial group, control group and total



Change in the grade of Malnutrition

	sum	mean	standard deviation	Z	P value
Before treatment	49	2.45	0.94	not applicable	not applicable
first follow	41	2.05	0.94	2.828	0.005
second follow up	38	2.00	0.84	2.887	0.004
after treatment	27	1.69	0.87	3.494	0.000
before treatment	37	1.70	0.73	not applicable	not applicable
first follow	30	1.50	0.83	2.000	0.046
second follow	28	1.40	0.75	2.449	0.014
after treatment	25	1.25	0.91	3.000	0.003

Changes in symptoms before and after the treatment

Control Group							
Signs And Symptom	Before Treatment	Percentage	After Treatment	After Treatment First Follow	After Treatment Second Follow	Change	

Aruchi	20	100%	18	2	2	0
Pratishyaya	20	100%	16	2	1	0
Jwara	18	90	15	3	0	0
Kasa	16	80%	16	30	0	0
Shushkta	20	100%	8	8	2	2
Snigdha Shukla mukhya Lakshan	20	100	10	8	2	0
Trial Group						
Aruchi	20	100%	1	12	7	0
Pratiksha	20	100	12	7	1	0
Jwara	17	85%	13	4	0	0
Kasa	20	100%	12	8	0	0
Shushkta	20	100%	3	2	3	12
Snigdha Shukla mukhya Lakshan	20	100	38	2	9	3

40% of patients in trial group found full relief while 50% found medium relief or moderate relief and two persons 10% found less relief in the control group 20% found full relief 52.5% found medium relief or moderate relief while 27.5% people found less relief and both the groups 0 percentage people found no relief

DISCUSSION

Protein-energy malnutrition (PEM) in early childhood is closely associated with inadequate dietary intake and poor socio-economic conditions. In the present study, several contributing factors were identified. A notable proportion of children were reported to consume infected or poor-quality breast milk, and the majority were in the transitional phase of milk alone or milk-and-food diets, a stage where nutritional

deficiencies commonly develop when complementary feeding is inadequate. Children whose diets consisted predominantly of breast milk without adequate supplementary foods showed a higher incidence of malnutrition.⁶

A total of 40 patients were included in the study, with 20 in the trial group and 20 in the control group. The sample consisted of 13 boys and 27 girls. Most children belonged to the 18–25-month age group, followed by those aged 24–30 months, indicating that the most vulnerable period for PEM coincides with the weaning phase.

Socio-economic status played a significant role. The majority of affected children belonged to lower socio-economic groups, while only two children were from middle-income families and none from higher-income groups. This reinforces the well-

established association between poverty, food insecurity, and malnutrition. Interestingly, PEM was more prevalent among children of non-vegetarian households, possibly reflecting differences in food hygiene, feeding practices, or socio-economic factors rather than dietary type alone.⁷

Children who consumed both milk and complementary foods were more commonly affected than those who received only milk or only food, suggesting that improper weaning practices and poor dietary quality contribute significantly to nutritional deficits. According to Indian Academy of Pediatrics (IAP) classification, most children were categorized as Grade I or Grade II malnutrition. Using the Water low classification, the majority fell within the “stunted and wasted” category, reflecting both chronic and acute components of undernutrition.

Following treatment with Kantakari, substantial symptomatic improvement was observed. Relief was reported in loss of appetite (Aruchi) in 19 patients, Pratyusha in 17 patients, fever in 17 patients, and cough and cold in 20 patients. Anthropometric improvements were also noted, including 7.47% weight gain, a 2% increase in height, and a 10% increase in mid-arm circumference. These findings indicate that the therapeutic intervention played a meaningful role in improving both clinical symptoms and nutritional status.⁸

Statistical analysis of paired t test showed that the Kantakari group demonstrated a P-value < 0.01, indicating that the observed improvements were highly significant.

CONCLUSION

The main signs and symptoms of the disease of protein energy malnutrition were managed and relief was found by Kantakari ghruta. Large group studies need to be conducted to understand the mechanism of the drug and to popularize the drug as it is cost effective and less side effects than many other conventional medicines.

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