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Clinical Evaluation of the Effect of *Vidarikandadi Churna* in *Balshosh* w .s .r. to Protein Energy Malnutrition in Children"

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ABSTRACT

Many diseases are known to affect human being including infection, metabolic, genetic and nutritional deficiency disorders. Out of these nutritional diseases are by far most common throughout the world, among them malnutrition is the commonest one. In *Ayurvedic* text PEM can be correlate with *Balshosh*. Due to indulgence of *atyahaswapna, sheetambusevan, shlaishmikstanyasevan* causes vitiation of *shleshma*. This will lead to *mandagni.* As a result of *mandagni Balshosh* occurs. In the present study 49 patients fulfilling the diagnostic and inclusion criteria were randomly divided into 2 groups i.e. 25 patients in Group-A & 24 in Group-B. 9 patients discontinued the treatment. Group-A was treated with *vidarikandadichurna* (granules) & Group-B with Hyderabad mix (granules). Results obtained after the clinical trial were analyzed statistically. Overall assessment of both drugs was done for both subjective & objective parameters based on the significance of the statistical test. In Group-A, 10% patients had excellent improvement, 70% had marked improvement & 4% had mild improvement. In Group-B, 25% had excellent improvement, 75% had marked improvement. Present study reflects that both the drugs –*vidarikandadichurna* (granules) and Hyderabad mix (granules) have good outcome on anthropometric index of children but Hyderabad mix showed better improvement. As a result, both *vidarikandadichurna* (granules) and hyderabadmix (granules) can be adopted as treatment modalities in the management of *Balshosh*. The study should further be conducted in larger sample size.

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INTRODUCTION

Nutrition signifies the dynamic process in which the food is consumed, absorbed, metabolized and used for nourishing the body[1].Adequate food and nutrition are essential for proper growth, physical development, optimum work capacity, normal reproduction, adequate immunity and resistance to infections.

Term malnutrition means to both over nutrition as well as under nutrition. Occasionally, Protein Energy Malnutrition (PEM) & Malnutrition are often used interchangeably with Under nutrition.

There is no specific description and term found in our *Ayurvedic* text for PEM, but some diseases are described by our *Acharyas* that are symptomatically similar to PEM. *Balshosh* is one of them. First independent description of *Balshosh* is mentioned by *Acharya Vagbhata* in *Asthanga Sangraha* with its *Nidan, Samprapti, Lakshan*and *Chikitsa.[2]*As per *Acharya Vagbhata*nidan of *Balshosh* are *atyahadiwaswapna*, *sheetambusevan* and *shlaishmikstanyasevan*onidanas vitiation of *shleshma* occur. This *shleshma* cause obstruction in *rasvahistrotas* occur. As a result *mandagni* and *uttarotardhatukshaya* occur. This condition is seemed to be as *Balshosh*.

▪ We have selected the drug *vidarikandadichurna* (granules) to treat *Balshosh*. Constituents of *vidarikandadichurn*a (granules) is *vidarikand, godhum, yava, sharkara* and *ghrit*. Description of *vidarikandadichurna (granules)* is mentioned in *ayurvedic* text *Yoga Ratnakar* in *balrogaadhikar*. This medicine is cost effective, easily available and best suitable for malnourished children.

AIMS & OBJECTIVES

1) To assess the efficacy of *vidarikandadichurna* (granules) on *Balshosh.*

2) To draw a comparison of results between the effect of *vidarikandadichurna* (granules) and hyderabadmix (granules) in *Balshosh* .

MATERIALS & METHODS

CTRI/2018/07/014702 [Registered on: 02/07/2018] - Trial Registered Prospectively

PLAN OF STUDY:

(A) Selection of Patients

Source

For the study, *Balshosh* affected children were screened out clinically from O.P.D. and I.P.D. of P.G. Department of

Kaumarbhritya, Gurukul Campus, UAU, Haridwar.

- **Age Group**

Children between 1-6 years were selected for the study.

- **Number of Cases**

Total 49 patients of *Balshosh*were registered out of which 40 patients completed the study while 9 cases discontinued at various stages of the study.

- **Grouping of Patients**

The cases registered for the study were divided into two groups. Group-A comprising of 25 and Group-B of 24 children. 5 patients of Group-A and 4 patients of Group-B discontinued.

- **Group- A**

In this group, trial drug *vidarikandadichurna* in granules form was administered to the patients with standard diet.

- **Group- B**

This group of patients were given controlled and standard drug, hyderabadmix, in granules form with standard diet.

Contents of *VidarikandadiChurna* (granules)[9]-[3]

Contents of *VidarikandadiChurna* are *vidarikanda, godhum,yava, Sharkara, ghrit.* **(Table No, 1)**

Table 1 Contents of *Vidarikandadi Churna*

Content	Proportion	Part Used
Vidarikandadi	2	Tuber
Godhum	2	Seed
Yava	2	Seed
Sharkara	6	
Ghrit	1	
Water	QS	

Contents of Hyderabad Mix (granules)

National Institute of Nutrition- Hyderabad

It contains wheat, Groundnut, Bengal Gram and Jaggery[4] **(As shown in Table No,-2)**

Table 2 Contents of Hyderabad Mix (granules)

Content	Quantity	Part Used
Roasted Wheat	40gm	Seed
Roasted Ground Nut	10gm	Seed
Roasted Bengal Gram	16gm	Seed
Jaggery	20gm	Q.s.

Dose of Drug-1gm/year/day (1gm each year and increased 1 gm every year up to 6 year)[5] **(Table No.-3)**

Table 3 Dose of Drug

Year	Dose
1 to < 2	1gm
2 to < 3	2gm
3 to < 4	3gm
4 to < 5	4gm
5 to < 6	5gm
6 to < 7	6gm

- Standard diet was advised to both groups according to the present and expected body weight for age group with due recommendation to fulfil energy and protein requirements.

***Aushadh Seven Kala** –Adhobhakt (Bhojnouttara)*

Route of Administration-Oral

Anupaan- Milk

Type of Study- Single Blind, Controlled

Duration of Study- 90 days

Follow up- The follow up of the patients will be done at the interval of 30 days.

Inclusion Criteria

- Age between 1-6years.
- Grade 1 to 3 of malnutrition.(I.A.P. Classification) [6]
- Signs and symptoms of *Balshosh* as per *ayurvedic* literature.

Exclusion Criteria

- Exclusion Criteria
- Patients with the evidence of Krimi & Grahanidosha will treated with medicine first and then, they will be included in this study.
- Congenital anomalies.
- According to IAP classification, more than 80% of expected body weight (normal) and less than 50% weight for age (PEM grade IV) will be excluded.
- Chronic diarrhea / malabsorption syndrome.
- Patients having systemic disorders, neurological disorders, endocrinal disorders& anatomical defects were excluded.
- Juvenile Diabetes Mellitus.
- Patients of Tuberculosis.

Discontinuation Criteria

- Patients not willing to continue.
- Appearance of any severe complication.
- Any other severe acute illness.
- Leave against medical advice.

CRITERIA FOR ASSESSMENT

The assessment of the trial will be done on the basis of following parameters.
(1)Subjective
(2)Objective

(1) Subjective Parameters- It included assessment of clinical features of *Balshosh, Karshya* as per ayurvedic text-

- *Arochaka*(loss of appetite)
- *Pratishyaya*(Rhinitis)
- *Jwar*(Fever)
- *Kasa*(Cough)
- *Shushyati*(Poor weight gain)
- *Shukla MukhaAkshi*(pallor)
- *SnigdhMukhAkshi*
- Shushkta in Gluteal, Abdominal and Neck region
- *DhamniJalDarshan*
- Appearance

(2) Objective Parameters- The objective assessment will be done on the basis of anthropometric parameters, hemato logical parameters and biochemical parameters.

(A) Anthropometric Parameters-

▪ Weight in kg

▪ Height in cm

▪ Chest circumference

▪ Abdominal circumference

▪ Mid upper arm circumference

▪ Mid calf circumference

▪ Head circumference

(B)Hematological Parameters

▪ Hb%, TLC, DLC, ESR, Mountoux test if necessary.

(C)Biochemical Parameters-

▪ Urine (routine/microscopic)

▪ Stool examination (routine/microscopic)

Observation-

The observations of patients were done before, during and after completion of treatment.

Statistical Analysis

➢ Statistical calculation was done by the **SIGMA STAT software** and **GRAPH PAD software.**

➢ **Wilcox on Signed Ranked Test** was applied to test the statistical significance difference between the median of subjective parameters within the group.

➢ **Paired t-Test** was applied to test the significance difference between the median of objective parameters within the group.

➢ **Mann Whitney Rank Sum Test** was applied to test the significance difference between the mean of subjective parameters of both the group.

➢ **Unpaired t-Test** was applied to test the significance difference between the mean of objective parameters of both the group.

OBSERVATIONS

➢ In the present study total 49 patients were registered. Among them, 25 were in Group-A and 24 were in Group-B. In Group-A, 5 patients Left Against Medical Advice (LAMA). Whereas in Group –B, 4 patients LAMA. Hence, a total 40 patients were registered.85% patients were *Annad* from Group-A and 100% were from Group-B whereas 15% were *Ksheerannad* from Group-A and nothing was found in Group-B. Sex wise distribution showed that in Group A 55% were male 45% females from Group-A & 50% from Group-B whereas patients were from Group-A& 50% were female patients from Group-B.

➢Economic status wise distribution showed 60% were from Low Economic Status, 25% were from Medium Economic status and 15% were from High Economic status were belongs to Group-A whereas 35% were from Low Economic Status, 45% were from Medium Economic status and 20% were

from Low Economic status belongs to Group-B.

➢ Religion wise distribution reveals that 65% Muslim Community belonged to Group-A and 55% Muslim Community belonged to Group-B whereas 35% Hindu Community belonged to Group-A and 45% Hindu Community belonged to Group-B. Habitat wise distribution showed that 55% patients of Group-A & 25% patients of Group-B belonged to Rural area whereas 45% patients of Group-A and 75% patients of Group-B belonged to Urban area.

➢ Appetite wise distribution showed that 75% patients of Group-A & 85% patients of Group-B had reduced appetite whereas 25% patients of Group-A and 15% patients of Group-B had normal appetite. Diet wise distribution showed that 75% patients of Group-A& 60% patients of Group-B had mixed habit whereas 25% patients Group-A and 40% patients of Group-B had vegetarian habit.

➢ Dietary Habit wise distribution showed that 90% patients of Group-A & 85% patients of Group-B had *vishmashan* habit whereas 10% patients of Group-A and 15% patients of Group-B had *viruddhashan*ha bit.

➢ Agni wise distribution showed that 60% patients of Group-A & 50% patients of Group-B had *mandagni* whereas 40%

patients of Group-A and 50% patients of Group-B had *vishmagni.*

➢ Bowel Habit wise distribution showed that 40% patients of Group-A & 65% patients of Group-B had Constipation habit, 35% patients of Group-A and 25% patients of Group-B had Irregular bowel habit whereas 25% patients of Group-A and 10% patients of Group-B had regular bowel habit. Sleep wise distribution showed that 75% patients of Group-A & 70% patients of Group-B had disturbed sleep whereas 25% patients of Group-A and 30% patients of Group-B had Sound Sleep.

➢ *Prakriti* wise Distribution showed that maximum number of patients in Group-A belonged to *vatikprakriti* whereas in Group-B maximum number of patients belonged to *vatapaitikaprakriti.vikriti* wise distribution showed that 55% patients in Group-A & 65% patients in Group-B had *tridoshajvikriti* whereas 45% patients in Group-A and 35% patients in Group-B had *vatakaphajavikriti*.

➢*Sara* wise distribution showed that 65% patients of Group-A & 75% patients of Group-B had *avarsara* whereas 35% patients of Group-A and 25% patients of Group-B had *madhyamsara*.

➢ *Praman* wise distribution showed that 60% patients of Group-A & 60% patients

of Group-B had *heenapraman* whereas 40% patients of Group-A and 25% patients of Group-B had *madhyamsara* and 15% patients of Group-B had *samapraman.* *satva* wise distribution showed that 5 % patients of Group-A & 25% patients of Group-B had *avarsatva* where as 25% patients of Group-A and 75% patients of Group-B had *madhyasatva.*

➢ Grad ewise distribution showed that 30% patients of Group-A & 40% patients of Group-B had Grade-1, 50% patients of Group-A and 40% patients of Group-B had Grade-2 whereas 20% patients of Group-A and 20% patients of Group-B had Grade-3.

RESULTS

After three months treatment overall effect of therapy shows in Figure No.1that 10% patients of Group-A and 25% of Group-B showed Excellent Improvement, 70% patients of Group-A and 75% patients of Group-B showed Marked Improvement, 20% patients of Group-A and none of the patients in Group-B showed Mild Improvement.
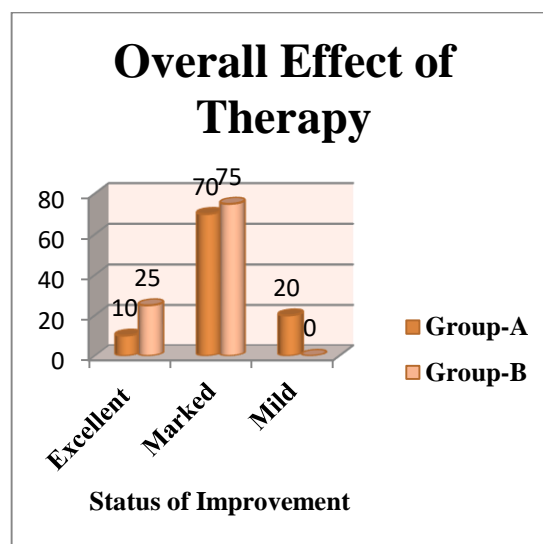

Figure 1 Overall Effect of Therapy

Table No.4 group-A on subjective parameters show significant results found in 9 symptoms out of 10.

Table 4 EFFICACY STUDY OF GROUP- A ON SUBJECTIVE PARAMETERS

Subjective Parameters	Median		Wilcoxon Signed Rank (W)	P- Value	% Effect	Result
	BT	AT				
Arochaka	2	1	210	<0.001	56.4	Highly Significant
Pratishyaya	2.5	1	55	< 0.05	88.0	Significant
Jwar	2	0.5	36	< 0.05	67.67	Significant
Kasa	2	1	21	< 0.05	57.89	Significant
Shushyati	2	1	55	< 0.05	32.4	Significant
SnigdhMukhAkshi	2	0.5	36	< 0.05	66.67	Significant
Shukla MukhAkshi	1.5	1	36	< 0.05	30.8	Significant
Skushkta in Gluteal, Abdominal & Neck Region	2	0	45	< 0.05	68.75	Significant
DhamniJalDarshan	2	1	21	< 0.05	50.0	Significant
Appearance	2	1	55	< 0.05	45.5	Significant

Table No.5 shows that highly significant results found in weight, significant results found in abdominal circumference, MUAC and calf circumference and insignificant results found in height, chest circumference and head circumference.

Table.5 EFFICACY STUDY OF GROUP A ON OBJECTIVE PARAMETERS

Objective Parameters	Mean		n	SD	SE	t-Value	P-Value	Result
Weight	**BT**	10.975	20	2.495	0.558	16.665	<.001	Highly Significant
	AT	12.000	20	2.566	0.574			
Height	**BT**	101.30	20	16.448	3.678	1.926	>0.05	In Significant
	AT	101.335	20	16.406	3.669			
Chest Circumference	**BT**	49.405	20	4.432	0.991	2.042	>0.05	In Significant
	AT	49.435	20	4.393	0.982			
Abdominal Circumference	**BT**	47.600	20	4.438	0.992	3.199	<0.05	Significant
	AT	47.635	20	4.403	0.984			
MUAC	**BT**	14.325	20	1.092	0.244	2.854	<0.05	Significant
	AT	14.355	20	1.054	0.236			
Calf Circumference	**BT**	18.250	20	2.431	0.544	2.990	<0.05	Significant
	AT	18.290	20	2.392	0.535			
Head Circumference	**BT**	48.875	20	2.454	0.549	1.751	>0.05	In Significant

Table No. 6 indicates that Group-A shows insignificant result in all biochemical parameters.

Table.6 EFFICACY STUDY OF GROUP-A ON BIOCHEMICAL PARAMETERS

Biochemical Parameters	Mean		n	SD	SE	t-Value	P-Value	Result
Hb%	**BT**	10.240	20	1.651	0.369	1.940	>0.05	Non Significant
	AT	10.635	20	1.411	0.319			
TLC	**BT**	8575	20	557.131	124.579	1.300	>0.05	Non Significant
	AT	8445	20	609.119	136.203			
ESR	**BT**	19.450	20	7.215	1.613	0.849	>0.05	Non Significant
	AT	18.600	20	4.070	0.910			

Table No.7 indicates that Statistically highly significant result was found in subjective parameters like *arochaka, shushyati*and*shuklamukhakshi*. Statistically significant result was found in parameters like *snigdhmukhakshi, shushkta*ingluteal, abdominal and neck regionand*dhamnijaldarshan*and*appearance* and non significant result was found in parameters like *pratishyaya,jwar and kasa.*

Table.7 EFFICACY STUDY OF GROUP-B ON SUBJECTIVE PARAMETERS

Subjective Parameters	Median		Wilcoxon Signed Rank (W)	P- Value	% Effect	Result
	BT	**AT**				
Arochaka	2	1	210	<0.001	67.4	Highly Significant
Pratishyaya	2.5	1	10	>0.05	60.00	Non Significant
Jwar	2	1	15	>0.05	55.56	Non Significant

Kasa	2	1	10	>0.05	50.0	Non Significant
Shushyati	2	1	171	<0.001	59.38	Highly Significant
SnigdhMukhAkshi	2	0	28	<0.05	74.9	Significant
Shukla MukhAkshi	2	1	120	<0.001	53.57	Highly Significant
Skushkta in Gluteal, Abdominal & Neck Region	2	0	28	<0.05	75.00	Significant
DhamniJalDarshan	2	0	28	<0.05	72.73	Significant
Appearance	2	1	36	<0.05	52.94	Significant

In objective parameters of Group-B statistically highly significant result was found in weight, significant result was found in height, abdominal circumference, chest circumference, MUAC, calf circumference. Non significant result was found inheadcircumference.As shown in Table No.8

Table 8 EFFICACY STUDY OF GROUP-B ON OBJECTIVE PARAMETERS

Objective Parameters		Mean	n	SD	SE	t-Value	P- Value	Result
Weight	**BT**	11.245	20	1.694	0.379	11.040	< 0.001	Highly Significant
	AT	12.805	20	1.775	0.397			
Height	**BT**	97.650	20	11.317	2.531	2.637	< 0.05	Significant
	AT	98.800	20	11.286	2.524			
Chest Circumference	**BT**	49.250	20	3.041	0..680	2.968	<0.05	Significant
	AT	49.376	20	3.059	0.684			
Abdominal Circumference	**BT**	46.980	20	3.25	0.727	4.684	<0.05	
	AT	47.095	20	3.251	0.727			Significant
MUAC	**BT**	14.65	20	3.214	0.727	3.708	< 0.05	Significant
	AT	14.50	20	1.280	0.719			
Calf Circumference	**BT**	18.075	20	1.859	0.416	2.666	<0.05	Significant
	AT	18.110	20	1.830	0.409			
Head Circumference	**BT**	48.125	20	1.529	0.342	1.831	>0.05	In Significant

As shown in Table No.9 in biochemical parameters, highly significant result was found in Hb%. Non significant result was found in TLC and ESR.

Table 9 EFFICACY STUDY OF GROUP B ON BIOCHEMICAL PARAMETERS

Biochemical Parameters		Mean	n	SD	SE	t-Value	P-Value	Result
Hb %	BT	10.070	20	1.493	0.334	5.727	<0.001	Highly Significant
	AT	10.555	20	1.262	0.282			
TLC	BT	8395	20	571.678	127.831	-0.204	>0.05	Non Significant
	AT	8345	20	1304.032	291.590			

ESR	BT	20.550	20	7.236	1.618	-0.125	>0.05	Non Significant
	AT	20.350	20	5.254	1.175			

Percentage relief in subjective parameters of Group-A like *arochaka, pratishyaya, jwar, kasa, shushyati, snigdhmukhakshi, shuklamukhakshi, shushkta* in gluteal, abdominal and neck region, *dhamnijaldarshan* and appearance was67.4%, 60%, 55.56%, 50%, 59.38%, 53.57%, 74.9%, 75%, 72.73% and 52.94% respectively. (Table No.10)

Percentage relief in subjective parameters of Group-B like *arochaka, pratishyaya, jwar, kasa, shushyati, snigdhmukhakshi, shuklamukhakshi, shushkta* in gluteal, abdominal and neck region, *dhamnijaldarshan* and appearance was 56.4%,88%, 66.67%, 57.89%, 32.4%, 66.67%, 30.8%, 68.75%, 58.33% and 44.45% respectively.

Table 10 COMPARATIVE ASSESSMENT OF % RELIEF ON VARIOUS SYMPTOMS

Symptoms	% Relief in Group A	% Relief in Group B
Arochaka	56.4	67.4
Pratishyaya	88	60
Jwar	66.67	55.56
Kasa	57.89	50
Shushyati	32.4	59.38
SnigdhMukhAkshi	66.67	74.9
Shukla MukhAkshi	30.8	53.57
Shushkta in Gluteal, Abdominal & Neck Region	68.75	75
DhamniJalDarshan	58.33	72.73
Appearance	45.45	52.94

Table No.11 shows that insignificant results found in all parameters except *Shukla MukhAkshi.*

Table 11 INTERGROUP COMPARISON OF SUBJECTIVE PARAMETERS

Subjective Parameters	Group	n	Mean	Sum of Ranks	Mann Whitney U	P- Value	Result
Arochaka	A	20	1.100	360	150	>0.05	Non Significant
	B	20	1.350	460			
Pratishyaya	A	10	2.200	87	8	>0.05	Non Significant
	B	4	1.500	18			
Jwar	A	8	1.250	57	19	>0.05	Non Significant
	B	5	1.200	34			
Kasa	A	9	1.222	76	14	>0.05	Non Significant
	B	5	0.800	29			
Shushyati	A	16	0.687	243	107	>0.05	Non Significant
	B	19	1.000	387			
Shukla MukhAkshi	A	16	0.50	208	72	<0.05	Significant
	B	16	0.936	320			
SnigdhMukhAkshi	A	8	1.250	63	27	>0.05	Non Significant
	B	7	1.286	57			

	Group	n	Mean			P-Value	Result
Shushkta in Gluteal, Abdominal & Neck Region	A	9	1.222	74.5	29.5	>0.05	Non Significant
	B	7	1.286	61.5			
DhamniJalDarshan	A	7	0.857	46	18	>0.05	Non Significant
	B	7	1.143	59			
Appearance	A	11	0.909	106.5	40.5	>0.05	Non Significant
	B	8	1.000	83.5			

Table No.12 shows in Inter group comparision between groups , significant results found in parameters like-weight and abdominal circumference and non Significantresults found in height, chest circumference, MUAC, calf circumference, head circumference, Hb%, TLC and ESR.

Table No.12-INTERGROUP COMPARISON OF OBJECTIVE PARAMETERS

Parameters	Group	n	Mean	SD	SE	t - Value	P- Value	Result
Weight	A	20	1.025	0.275	0.0615	3.471	< 0.05	Significant
	B	20	1.560	0.632	0.141			
Height	A	20	0.0350	0.0813	0.0182	1.925	>0.05	Non Significant
	B	20	0.150	0.254	0.0569			
CC	A	20	0.03	0.0657	0.0147	1.969	>0.05	Non Significant
	B	20	0.120	0.194	0.0433			
AC	A	20	0.035	0.0489	0.0109	2.433	<0.05	Significant
	B	20	0.115	0.139	0.0310			
MUAC	A	20	0.0150	0.0366	0.00819	1.463	>0.05	Non Significant
	B	20	0.0350	0.0489	0.0109			
Calf Circumference	A	20	0.0400	0.0598	0.0134	0.267	>0.05	Non Significant
	B	20	0.0350	0.0587	0.0131			
HC	A	20	0.0250	0.0639	0.0143	0.607	>0.05	Non Significant
	B	20	0.0150	0.0366	0.00819			
Hb %	A	20	0.395	0.910	0.204	0.408	>0.05	Non Significant
	B	20	0.485	0.379	0.0847			
TLC	A	20	130	447.331	100.026	0.679	>0.05	Non Significant
	B	20	50	1097.125	245.325			
ESR	A	20	0.850	4.475	1.001	0.555	>0.05	Non Significant
	B	20	0.200	7.172	1.604			

DISCUSSION

The whole research work is discussed under following headings-

Discussion on Demographic Profile

In the present study the data shows most of the patients from *Annad* group. This may be due to exposure to sunlight, much activeness, bad food habits such as intake of cold drinks, junk foods etc. Male and female are equally affected.Most of the patients belongedto low socio-economic status.As poor socio-economic status of family contributes a lot to the development of malnutrition the prevalence is high among children of socio-economically poor families. Srivastava V.K.1983 also reported higher incidence among the children of labour

class. Findings are in congruence to various previous studies (Majumdar A.K.et al 1993 and M.Owor et al 2000).In the present study, maximum number of patients belonged to Muslim. As we know nutritional status is adversely affected by the large size of the family.In the present study, most of the patients had *vishmashan*habit. It may be due to faulty food habit.In the present study, patients had equal percentage of *mandagni* and *vishmagni.mandagni* is the root cause of *Balshosh.*The predominance of malnutrition among *vata-pittaprakriti* may be due to catabolic properties of imbalanced *vata*and*pitta doshas.*In the present study, most of the patients had *avarsara.* As we know in *Balshoshsarvadhatukshaya* occur. So most of the patients had *avarsara.*Data indicates that most of the patients had *heenasamhanana* because in *Balshoshsarvadhatuksahya* occur so proper growth and development is checked.

Data indicates that most of the patients had heenapraman. In *Balshosh* due to *mandagniuttarotardhatukshaya* occur and proper nourishment to the body is hampered.So most of the patients had *heenapraman.*Most of the patients had *avarjaranshakti*because*jaranshakti*

depends upon *agni*. Due to *mandagni*, most of the patients had *avarjaranshakti.*

Discussion on the mode of action of Formulation-

1. Discussion on the basis of *Ras-*

➢ All the contents of *vidarikandadichurna*(Granules) have*madhurras*except that of *yava*, having both *madhur* and *kashayarasa*.

➢ As we know that*panchbhautik* composition of *madhurras* has predominance of *prithvi* and*jalmahabhoot*[137].*Prithvi* is also predominant in *mansadhatu*; *jal* is predominant in *ras* and *raktadhatu*. So all the *dravyas* which are predominant in *madhurras* will increase*ras, rakta*and*mansadhatu*. As *Acharya Charak* said similarity of all substances is always the cause of *vriddhi*[14].[8]

➢ Properties of *madhurras* are-*ajanmasatmya, dhatuprabalabalam*[159]*,prashastbrimhan, ras-rudhir-mansa-meda-asthi-majjavardhak,shadindriyaprasadan, balvarnakar,balya, jeevan, tarpan, brimhan, sthairyakar, ksheenakshthasandhankar* etc[16].[10]

➢ So from the above properties of *madhurras,* we can conclude that *madhurras*containing*dravyas* will be *brimhaniya* and exerts *brimhan*effect.

2. Discussion on the basis of *Guna-*

➢ *Guru* property is evident in all the three drugs i.e. *vidarikand, godhum* and *yava*, whereas *snigdha* properties mentioned for *vidarikand and godhum* whereas *yava*has*ruksha*property.

➢ *Snigdhguna*ispredominantwith*jalam ahabhoot*[1711]and*guru Guna*is*prithvimahabhootpradhan*[18].[12]

➢ *AcharayaCharak* said *aushadhi* that is given to child should be *madhurraspradhan*since it is*guru, sheet* and *snigdhgunapradhan*[1913].

➢ *ParthivDravya*thatis predominant with*prithvimahabhoot*has the property like*sthool, sara, sandra, manda, sthir, khar, guru, kathingunas which results in-sthairyabalgauravsanghatoupchayakar*[20][14].

Sofrom the above we can say that almost all*parthivmahabhoot*containing*dravyas* have *brimhaniya* property.

➢ *Vidarikand*placed in *brimhaniya*[2115],*balya*[2216],*varnya*[2317], *kanthya*[2418], *purishsangrahaniya*[2519]and*angamardpra shamanmahakashya*[2620].

➢ *Brimhandravya* is the *dravya* which causes *vriddhi* by increasing *rasadidhatu.*These*dravyas* increase *mansadhatu*specially. As *Chakradutta* said *mansa* is *parthiv. brimhandravya* has the property like *guru, sheet, mridu,*

*snigdh, bahal, sthoola, pischhila, manda, sthir*and*shalakshan* means all *brimhaniyadravyas* have properties like *parthivmahabhoot*. So *vidarikand* has *brimhan*effect, because it has *guru, snigdh*and*sheet* property.

➢ *Vidarikandadi*is*balya*meansthat increase *prakritbala*of body that is *oja.*

➢ *Vidarikand*is*angamardprashamanm ahakashya.angamard*isthe property of*vayu*which is specially develop in the stage of *dhatukshya.*

➢ *Vidarikand* possesses growth hormone inducing and nootropic properties[2721]. By induction of growth hormone, *Vidarikand* may promote weight gain and physical strength of the body[2822].Flavone present in *Vidarikand* is a free radical scavenger and polyphenol modulate hepatic cholesterol metabolism and reduce inflammation in GIT[2923].

➢ Apart from above potential, *Vidarikand* and *Yava*has*immunomodulatory* and anti-oxidant properties too[3024]. Starch and Gluten in wheat provides heat and energy. Vitamins B and E, protein of wheat helps build and repair muscular tissues.

➢ As we know in *Balshosh –*by *nidanas* depression of *dhatu*formation occur as a result of *mandagni.AcharyaCharak*hassaid

importance of *agni*. He said which *anna* nourishes *sharir, dhatu, oja, bal* and *varna,agni* is responsible for this. Because *apakvaahar*does not nourish *rasadidhatu*. *Ghrit* is the best *aushadhi*for*deepan*which exerts theeffectof*amapachan*.

➤ The *srotoshodhaka* property of research drug improves the circulation by relieving *strotavrodh*, nourishment of *dhatus*which results into *uttarottardhatuposhana*.

V*atanulomaka*property of *yoga* helps in balance and maintenance of *agni* and ultimately causes *samyakaaharpaka*. *Vrishya* property helps in triglyceride synthesis which is *dehavridhikarabhava*. On the other hand, *Rasayana* property improves general health and immunity. *Jivaniya* property maintains equilibrium of *Dosha, Dhatu* and *Malas*.

➤ All the components of *Vidarikandadi Churna* have the properties like- *balya, brimhana, jivaniya, kshya, shosh, daurbalya, rasayana*, (*Vidarikand), santarpana (godhum*) and *sthairyakrita* (*Yava*) property. As far as *doshaghnata* is considered *Vidarikand* and *Godhum* are *Vata Pittahara*, whereas *Yava* is *pittakaphahara*.

➤ Hence, this drug was given to enhance the physical strength of children.

CONCLUSION

▪ Both *VidarikandadiChurna* (granules) and Hyderabad Mix (granules) can be adopted as treatment modalities in the management of *Balshosh*.

▪ Between both groups, Hyderabad Mix (standard control group) displayed better results when compared with *VidarikandadiChurna* (study group).

▪ No side effects were noted in both groups.

▪ The study should further be conducted in larger sample size.

REFERENCES

1. Piyush Gupta, PG text book of Pediatrics, Volume 1, Section22, Nutrition and Nutritional Disorders, Pageno.941. JP publication.2016.

2. *Acharya VriddhaVaghbhatta, AstangaSangraha, Uttar Tantra, Balamaya Pratisedha Adhyaya,* Chapter-2/63-64, edited by Prof. K. R. ShriKantha Murthy, 2nd edition, Chaukhambha Orientalia, p.26. 2000.

3. Vdhyalaxmi Pati Shastri. *Yoga Ratnakar*, verse-1, *BalrogaChikitsa, uttaradh. chaukhambha Sanskrit Sansthan*, Varanasi. Page-444.1973.

4. Suraj Gupte. The Short Text Book of Pediatrics.12th edition. Page no.214, Chapter-13, Malnutrition.JP Publication.page-214, 2016.

5. Sharangdharsamhita by pt. Sarangadharacharya, edited by pt. Parasuramashastri,vidyasagar.chaukham bha orientalia,varanasi.6th edition in 2005,pratham khand ch-6/16,page no.-71.

6. The Short Textbook Of PEDIATRICS Suraj Gupta 12th edition JAYPEE.page no.-214

7. Kashi Nath Pandey, (Charaka Samhita, sutra sthana, Chapter 26, Atreyebhadrakapiyaadhyaya, verses 40, by Chaukhambha Sanskrit Sansthan.page-502, 2003.

8. Kashi Nath Pandey, (Charaka Samhita, sutrasthana, Chapter 1, Dheergajivitiyaadhyaya, verses 44, by Chaukhambha Sanskrit Sansthan.page-15, 2003.

9. Astanga Hridya, vaghbhata ,sarvangasundarivyakhya by ShriLalchandravaidhya, Motilal Banarasi Das Publishers, Delhi, Chapter-10, verses-8, page no-82. 1990.

10. Kashi Nath Pandey, (Charaka Samhita, sutra sthana, Chapter 26, Atreyebhadrakapiyaadhyaya, verses 43, by Chaukhambha Sanskrit Sansthan.page-503, 2003.

11. Dravya Guna Vigyan by Acharya Priya Vrit Sharma, Chapter- Guna Khand, Page no-140, Chaukhambha Bharti Acedemy, Varanasi, 2004.

12. Dravya Guna Vigyan by Acharya PriyaVrit Sharma, Chapter- GunaKhand, Page no-138, Chaukhambha Bharti Acedemy, Varanasi, 2004.

13. Kashi Nath Pandey, (Charaka Samhita, chikitsasthana, Chapter 30, Yonivyapattchikitsaadhyaya, verses 285, by Chaukhambha Sanskrit Sansthan.page-878, 2003.

14. Kashi Nath Pandey, (Charaka Samhita, sutrasthana, Chapter 26, Atreyebhadrakapiyaadhyaya, verses 10,

by Chaukhambha Sanskrit Sansthan.page-490, 2003.

15. Kashi Nath Pandey, *Charaka Samhita, Sutra sthana*, Chapter 4,verses-2.*Shadvirechanshatashritiyaadhyaya.*page-72, by Chaukhambha Sanskrit Sansthan.page-72.2003.

16. Kashi Nath Pandey, *Charaka Samhita, Sutra sthana*, Chapter 4, *Shadvirechanshatashritiyaadhyaya.* page-77,verses 7, by Chaukhambha Sanskrit Sansthan.page-77, 2003.

17. Kashi Nath Pandey, *Charaka Samhita, Sutra sthana*, Chapter 4, *Shadvirechanshatashritiyaadhyaya*, verses 8, by Chaukhambha Sanskrit Sansthan.page-78, 2003.

18. Kashi Nath Pandey, *Charaka Samhita, Sutra sthana,*Chapter 4, *Shadvirechanshatashritiyaadhyaya*, verses 9, by Chaukhambha Sanskrit Sansthan, page-78, 2003.

19. Kashi Nath Pandey, *Charaka Samhita, Sutra sthana*, Chapter 4, *Shadvirechanshatashritiyaadhyay*a, verses 32, by Chaukhambha Sanskrit Sansthan.page-88, 2003.

20.

21. Kashi Nath Pandey, *Charaka Samhita*, *Sutra sthana*, Chapter 4, *Shadvirechanshatashritiyaadhyaya*, verses 44, by Chaukhambha Sanskrit Sansthan.page-94, 2003.

22. Rao NV, Pujar B, Nimbal SK, Shantakumar SM, Satyanarayana, S. Nootropic activity of tuber extract of *Puerariatuberosa* (roxb) *Indian Journal of Experimental Biology*. ;46(8):591–598,2008.

23. Pandey N, Chaurasia JK, Tiwari OP, Tripathi YB. Antioxidant properties of different fractions of tubers from *Puerariatuberosa* Linn. *Food Chemistry*. ;105(1):219–222.2007.

24. Verdrengh M., Jonsson I.M., Holmdahl R., Tarkowski A. Genistein as an anti-inflammatory agent. Inflamm. Res. Off. J. Eur. Histamine Res. Soc. ;52:341–346. 2003.

25. Wagner, Eugene S, Raman Mocharla. Washington D.C:Feb 16, "Immune System Components Altered by a Food Supplement". Paper presented at the 1991 Annual Meeting of the American Association for the Advancement of Science.1991.