Research Article

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EFFECT OF ASHWAGANDHAGHRITA ON KARSHYA (UNDERWEIGHT): AN EXPLORATIVE STUDY

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ABSTRACT

Karshya (Underweight) is one of the common problems in Indian preschool children & 43% Indian preschool children are Underweight. One of important factor for Karshya is Hina Matra Ahara (inadequate quantity of food). A child suffering from Karshya may not tolerate thirst, excessive cold & heat, invasion of any disease, if he/she is not treated in proper time complications like Shwasa, Kasa, Gulma, Pliha, Kshaya, Arsha, Udararoga, Grahaniroga may occur. This grievous condition especially in children requires immediate medical attention. In this study 20 children diagnosed as underweight were given Ashwagandha Ghrita and were compared with control group who were on regular Balwadi nutrition programme. Both group were assessed before, after 45 days and follow up after 30day Considering the overall effect of therapy, treatment with Ashwagandha Ghrita showed significant result on all subjective parameter overall assessment. The mean weight gain in study group was 0.510 gm and 0.243 in control group. Throughout the study no adverse reaction was recorded. Ashwagandha Ghrita is effective in enhancing weight gain underweight children

Keywords: Ayurveda, Karshya, Ashwagandha Ghrita, underweight children.

INTRODUCTION

Karshya means emaciation.¹ It is one among disorder of improper nutrition (Aptarpanjanyavyadhi). It results from less intake of food, Rukshaannapana (Nutritionally deficient food), langhana (fasting), pramitashana (intake of nutritionally deficient food), shoka (psychological disturbances), by nature in vataja prakriti, excessive drastic purifactory measures and other reasons like nidra (sleep) vega dharana (excessive awakening in the night), suppression of urges, excess physical activity and so on which leads to vitiation of vata³. Karshya can be apparently correlated with underweight.

Recent studies show that in India underweight amounts to 43% in under five children⁴. Under nutrition or underweight are those who have their expected weight for age to be between (-2) to (-3) SD in growth chart⁵. Annually under nutrition kills or disable millions of children. It often causes disease and disability in the survivors and prevents millions more from reaching their full intellectual and productive potential. Maternal and child under nutrition is the underlying cause of 3-5 million deaths, and 35% of disease burden in children younger than 5 years.⁶

Chronic malnutrition hampers immunity & makes the child susceptible to various infections. Adding to school absenteeism and poor academic performance, even after different national programme like Balawadi nutrition programme, Mid-day meal scheme, Special nutrition programme, the condition is still prevalent. It mandates medical fraternity for exploration of more acceptable treatments for better compliance. Based on the concepts of Ayurveda, one can conclude that nutritional disorders are either due to Agnimandya and Dhatukshaya. Hence principles of treatment shall be on the lines of Agnidipana, Brimhana, Dhatusaravardhana.⁷ Rasayana therapy is best to achieve dhatusaravardhana. Rasayana means therapeutic procedure or preparation that on regular practice will boost nourishment, health, memory, intellect, immunity and hence

longevity.⁸ Many interventions explained in this context include Navaanna-paana, Sukhshayya, Mamsa rasa, Dadhi (curd), Sarpi, Guda preparation therapy.⁹ Among rasayana preparations, Aswagandhaghrita has been specially mentioned for karshya¹⁰. Aswagandha has Madhura, Kashaya, tikta rasa and Kapha-vatshamak, Brimhana, Balya, Rasayana property¹¹. More content of protein is found in Ghrita preparation with alkaloids.

MATERIALS AND METHODS

Study Population

Children attending Kaumarabhritya OPD & IPD of S.D.M.C.A & H, Hassan diagnosed with karshya (underweight) weight for age between 60-80% of ideal weight for age.

Reference Population

Children between age group 3-5 year in and around Hassan

Sampling Method

1. Simple random sampling method
2. Sample Size :20

Diagnostic Criteria

1. Children with weight for age between 60-80% of ideal weight for age.
2. Weight for Age = (Age² × 8) + 8 = Ideal weight for age

Inclusion Criteria

1. Children in the age group 3-5 years were selected irrespective of Gender, caste & religion and socio economic status.
2. Children with weight for age between 60-80% of ideal weight for age.

Exclusion Criteria

1. Infectious diseases like Tuberculosis
2. Systemic diseases
3. Congenital problems
4. Malignancies
5. Mal- absorption syndrome
6. Inborn error of Metabolism
7. Children less than 60% of Ideal weight for age

Assessment Criteria

Objective

Anthropometry

1. Height
2. Weight
3. Chest Circumference

4. Mid arm circumference
5. Skin fold thickness

Biochemical Assay

1. Hb%
2. Serum protein
3. Serum Albumin

Subjective Parameters

1. Dourbalya (General weakness)
2. Kshudha (Hunger)
3. Chesta (Activity)
4. Sleep (Nidra)
5. Measures of Morbidity

RESULTS

Table 1: Results of improvement in Karshya (underweight) children on based on Objective Assessment criteria within group (Paired T-Test)

Parameter	GROUP	Mean BT	Mean AT	Mean	t value	p value	Interpretation
WEIGHT	A	12.39	12.90	-0.510	-7.333	0.000	S
	B	12.60	12.84	-0.243	-2.417	0.026	S
HEIGHT	A	99.30	99.33	-0.035	-1.789	0.090	NS
	B	98.03	98.05	-0.025	-1.422	0.171	NS
HC	A	48.34	48.34	--	--	--	--
	B	46.5	46.5	--	--	--	--
CC	A	48.25	48.25	--	--	--	--
	B	46.85	46.85	--	--	--	--
MUAC	A	13.66	13.76	-0.099	-2.278	0.034	S
	B	13.53	13.57	-0.040	-2.027	0.057	NS
SFT	A	7.60	8.20	-0.60	-3.943	0.001	S
	B	7.80	7.87	-0.07	-1.377	0.185	NS
BMI	A	12.61	13.04	-0.422	-7.106	0.000	S
	B	13.13	13.29	-0.162	-3.891	0.001	S

S – Significant, NS – Not significant, BT – Before treatment, AT – After treatment, HC – Height circumference, CC – Chest circumference, MUAC – Mid Upper Arm Circumference, SFT – Skin fold thickness, BMI – Body mass index

Table 2: Results of improvement in Karshya (underweight) children on based on Subjective Assessment criteria within group (wilcoxon)

Parameter	Positive rank			Negative rank			TIE	Z value	P value	Remark
	N	MR	SR	N	MR	SR				
G.W Gr A	15	8.00	120.00	0	.00	.00	10	-3.626	0.000	S
G.W Gr B	10	5.50	55.00	0	.00	.00	0	-3.999	0.000	S
HUN Gr A	20	10.5	210.00	0	.00	.00	2	-3.841	0.000	S
HUN Gr B	18	9.50	171.00	0	.00	.00	11	-3.000	0.003	S
ACT Gr A	9	5.00	45.00	0	.00	.00	15	-2.236	0.025	S
ACT Gr B	5	3.00	15.00	0	.00	.00	12	-2.828	0.005	S
NID Gr A	8	4.50	36.00	0	.00	.00	19	-1.000	0.317	NS
NID Gr B	1	1.00	1.00	0	.00	.00	9	-3.207	0.001	S
MOM Gr A	11	6.00	66.00	0	.00	.00	15	-1.387	0.067	NS
MOM Gr B	5	5.50	49.50	0	.00	.00	5	-3.626	0.000	S

S – Significant, NS – Not significant, N – Number, MR – Mean rank, SR – Sum of rank, GrA – Group A, GrB – Group B, GW – General weakness, HUN – Hunger, ACT – Activity, NID – Nidra, MOM – Measures of morbidity

Table 3: Results of improvement in Karshya (underweight) children on based on objective Assessment criteria between groups (unpaired t-test)

Parameter	Mean AT-BT Gr A	Mean AT-BT Gr B	Mean diff.	t value	p value	Interpretation
Weight	0.510	0.243	0.266	2.177	0.036	S
Height	0.035	0.025	0.010	0.380	0.706	NS
H.C	0.000	0.000	--	--	--	--
C.C	0.000	0.000	--	--	--	--
M.U.A.C	0.099	0.040	0.59	1.240	0.223	NS
S.F.T	0.600	0.070	0.530	3.303	0.002	S
B.M.I	0.422	0.162	0.260	3.578	0.001	S

S – Significant, NS – Not significant, BT – Before treatment, AT – After treatment, HC – Height circumference, CC – Chest circumference, MUAC – Mid Upper Arm Circumference, SFT – Skin fold thickness, BMI – Body mass index

Table 4: Results of improvement in Karshya (underweight) children on based on Subjective Assessment criteria between groups (Mann-Whitney)

Parameter	N	MR	SR	Z value	p value	Interpretation
G.W Gr A	20	17.62	352.50	-1.737	0.082	NS
G.W GR B	20	23.38	467.50			
HUN GrA	20	14.55	291.00	-3.421	0.001	S
HUN GrB	20	26.45	529.00			
ACT GrA	20	18.50	370.00	-1.309	0.190	NS
ACT GrB	20	22.50	450.00			
NID GrA	20	17.00	340.00	-2.617	0.009	HS
NID GrB	20	24.00	480.00			
MOM GrA	20	18.58	371.50	-1.176	0.240	NS
MOM GrB	20	22.42	448.50			

S – Significant, NS – Not significant, N – Number, MR – Mean rank, SR – Sum of rank, GrA – Group A, GrB – Group B, GW – General weakness, HUN – Hunger, ACT – Activity, NID – Nidra, MOM – Measures of morbidity

Table 5: Effect of Therapy on weighth gain in karshya Patients in group A (ANNOVA test)

Parameter	N	Mean	GREENHOUSE – GEISSER				Greenhouse – geisser Error df	Remark
			Df	F value	P value	Size Effect		
BT of WT	20	12.390	1.81	44.156	0.000	0.699	34.387	S
WT 15		12.565						
WT 30		12.702						
WT 45		12.900						
WT 75		12.945						

BT – Before treatment, WT – Weight, N – Number, S - Significant

Table 6: Effect of Therapy on weighth gain in karshya Patients in group B

Parameter	N	Mean	GREENHOUSE – GEISSER				Greenhouse – geisser Error df	Remark
			Df	F value	P value	Size Effect		
BT of WT	20	12.601	1.043	5.236	0.032	0.216	19.810	S
WT 15		12.626						
WT 30		12.695						
WT 45		12.845						
WT 75		12.875						

BT – Before treatment, WT – Weight, N – Number, S - Significant

DISCUSSION

Growth and development are the most distinctive attributes of children, which distinguish them from adults. Diet in children requires equal emphasis on both quality and quantity.¹² Nutritional anthropometry occupies a central role in the assessment of the nutritional status of an individual or groups of children, particularly in developing countries. Anthropometry offers a reliable method to assess the nutritional status of the children.

From the 4 basic parameters, namely sex, age, weight, and height, three common indices can be derived. Namely weight for age, weight for height, and height for age. However, the traditional index for defining nutritional status of an individual child has been weight for age and depending upon cutoff points employed. A variety of classifications of malnutrition are proposed on weight for age.

Weight: It was noticed that in group A i.e. Ashwagandha Ghrita group showed significant weight gain with 3.95% with p value < 0.000 of improvement while in group B it was 1.86% with statistical significance with p value < 0.001. When group A and group B compared mean between BT & AT in group A was 0.510 gm and group B it is 0.243 gm. After comparing between the group, significance difference with p value < 0.036. It may be due to acceleration of the body growth as a result of Brimhana, Snigdha, Deepana and Anabolic effect of Ashwagandha. Ghrita contains fat which function as structural elements of the cell and it is major source of energy. Ghrita

contains medium chain triglycerides which are immediate source of energy. MCT improves the metabolic rate, spare the muscle glycogen and improves physical endurance performance¹³. When we compare the groups, Ashwagandha group shows more weight gain than the alone Diet Programme.

Height: An increase in height was not statistically significant. It may be due to short duration of the study and physiological growth of children as the patients belong to age group of 3-5years, to see the change in the height at least study should be conducted more than 6 months.

Skin fold thickness: In present study, Group A showed an increase in skin fold thickness which was statistically significant at p value 0.001. Whereas group B showed it is statistically not significant. When both the groups were compared, mean difference is 0.530 mm in the both the groups was statistically significant with p value 0.002, the difference could be due to the effect of study drug. but due to short duration it is difficult to comment, this could be due to Dhatuposhana effect of Ashwagandha Ghrita

Daurbalya: it is significant at p value 0.000 in group A and p value 0.002 in group B but when we compare both group there is no statistical significance, this may be attributed to Agnideepana and dhatuposhana effect of Ashwagandha Ghrita. Administration of drug in Ghrita form, it acts as agnideepamam and helpful in condition like durbalata.

Hunger: Kshudha is improved in both group, but Group A shows statistical improvement with p value 0.001 in mannwhitney test this may be due to as Ashwagandha is having

Tikta rasa Laghuguna, Ushnaveerya by virtue of this property it acts as agnideepana initially and Balya, Brimhana, Rasayana along with ghrita it acts agnivraddhaya as Ghrita is considered best among agnideepanadravya. Ghrita contains medium chain triglycerides which are immediate source of energy. MCT improves the metabolic rate, spare the muscle glycogen¹².

Activity: Here the activity is improved in both group with p value < 0.003 and <0.025 in group A & group B respectively, but when we compare the between the group no significant difference found. In Ashwagandha group improvement is seen because, Rasa-mala is Kapha if Rasa dhatu is properly formed the Shleshma will be in prakrutaavastha which is also known as bala, so activity is improved.

Nidra: Group A shows significant result with p value 0.005 & in group B nidra doesn't show significant result. This may be due to mastishka Shamaka, nidrajanana, Agnideepana property which corrects Rasa dhatu and uttaroter dhatuposhana. Ashwagandha has anxiolytic and hypnotic action through GABA transmitter which improve the sleep¹⁵.

Measures of morbidity: Group A shows statistical significance with p value 0.001 and in group B it was not significant. Ashwagandha has anti-bacterial¹⁶ activity, immunomodulatory action¹⁴. Herbal drugs have therapeutic strategy that enhances the overall resistance to the disease causing agent than directly neutralizing the agent itself¹⁷, medicine is given in the form of ghrita which act Rasayana and help in decreasing repeated infection.

CONCLUSION

The study group children improvement in various aspects like Weight gain, Skin fold thickness, B.M.I, Kshudha and Nidra was significant than control group. Based on study, the subjective parameters in study group like Nidra, Kshudha and measures of morbidity are statistically significant. In Objective parameters, weight gain and BMI were found to be statistically significant. The children from Group A had less attack of infection, thus drug is helped in reducing the frequency of attack. Weight gain in the study group is more than the control group was due to the effect of drug in formulation. Hence it can be concluded that Ashwagandha Ghrita can be used effectively for weight gain in children with karshya (underweight) as there is more improvement as compared with diet programme alone

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