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Evaluation of Kushmand Khand and Ashwagandha Rasayan in Lowering down the Morbidity Pattern in Children

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ABSTRACT

A child who enjoys a better state of health during childhood will become a healthy adult. About 5 million children die every year in childhood due to contagious diseases due to lack of immunity. Therefore there is need to develop such a therapy which can prevent the occurrence of disease and enhance the immunity. Keeping these in mind the present study ***"A Comparative Clinical Study to Evaluate the Immunomodulatory Effect of Kushmand Khand and Ashwagandha Rasayan in Lowering down the Morbidity Pattern in Children"*** was designed. Study was done in three groups with 15 patients in each. Both group with research drugs shows marked improvement whereas group with no drug shows no improvement.

Key words: *Kushmand Khand, Ashwagandha Rasayan*, immunity

INTRODUCTION

The early childhood years are a period of great opportunity but also great vulnerability. According to a WHO data, 5.3 million children under five years of age died in 2018 worldwide. Six conditions account for about 70% of all child deaths: acute lower respiratory infections, mostly Pneumonia (19%), Diarrhoea (18%), Malaria (8%), Measles (4%), HIV/AIDS (3%) and neonatal conditions, mainly pre-term birth, birth asphyxia and infections (37%). In developing countries infectious diseases are still responsible for much of the mortality.

Immune system acts as a protecting shield, which protect the body from various pathogenic microbes like bacteria, virus, fungi and some free radicals. So, in a healthy body, the immunity has to be in perfect condition. There are varieties of factors around us; those are constantly manipulating our immune system at large or silently. These factors can either stimulate or suppress our defense system. This may either plunge us to disease or save from the same. Perhaps the health is an example of the perfect balance between these two forces acting in opposite direction.

As children have a less developed immune system, they are more prone to various infections and often more frequently than adults. Frequent infections in childhood can also lead to impaired growth and development which may have devastating consequences later on. In this regard immunization have efficacy to the limited disease and for recurrent infections rational use of antibiotics is the need of today.

In present scenario, there are ongoing trends of immunomodulation to combat a vast range of human and animal diseases including the incurable diseases like viral diseases, cancers, autoimmune diseases and inflammatory conditions. Immunomodulatory drugs modify the response of the immune system by increasing (immunostimulators) or decreasing

(immunosuppressives) the production of serum antibodies[3]. Immunostimulators are prescribed to enhance the immune response against infectious diseases, tumors, primary or secondary immunodeficiency, and alterations in antibody transfer, among others. Immunosuppressive drugs are used to reduce the immune response against transplanted organs and to treat autoimmune diseases such as pemphigus, lupus, or allergies.

In *Ayurvedic* text the term *Vyadhikshamatva* describe body resistance against disease which is achieved by the superior vital essence of all bodily tissues, called *Oja*. *Oja* is also synonymous to *Prakrita Shleshma* and *Bala*. There are various immunomodulatory drugs described under the categories of *Rasayan, Balya* and *Ojovridhikara* drugs which are reputed to promote physical and mental health, improve defense mechanism of the body and enhance longevity. A number of plant based principles have been isolated with potential immunomodulatory activity that can explain and justify their use in traditional medicine in the past and can form the basis for further research in the future as well. Keeping these in mind this study is planned to evaluate the effect of *Kushmand Khand* and *Ashwagandha Rasayan* as immunomodulators in lowering down the morbidity pattern in children.

AIMS AND OBJECTIVES:

- To study the efficacy of both trial drugs in lowering down the morbidity in children.
- To compare the efficacy of both drugs.
- To evaluate the safety of both the drugs in children.

MATERIALS AND METHODS:

1. Screening
2. Enrollment

A. Screening:

The patients attending the departmental OPD or admitted in IPD, who fulfill the inclusion and exclusion criteria, were included in the study.

B. Enrollment:

Selection of patients

Total 45 patients were registered from the *Kaumarbhritya/Balrog* OPD/IPD, R G G PG *Ayurvedic* College & Hospital, Paprola, randomly fulfilling the criteria of this study. A case proforma was filled with the data obtained by interrogation, physical examination and collection of details of each child.

Inclusion criteria:

- Age eligibility – 3 to 12 years.
- Gender eligibility – Both male and female.
- Patients who are suffering from recurrent GIT, Respiratory tract infections.
- Patients who are willing to participate in the trial.
- Patients whose parents will give their written informed consent.

Exclusion criteria:

- The patient who is suffering with any congenital, hereditary or acute systemic illness.
- Patients who do not fulfill the above mentioned criteria.
- Patient who has been dropped on subsequent follow up.
- Whose parents have refused to participate in the study.

TRIAL DRUG :

The drugs were prepared in the ***Charak Ayurveda*** **Pharmacy, Paprola** under the supervision of Department of *Rasa-Shastra* and *Bhaishajya-Kalpnana***.**

- ***Kushmand Khand***

Drug Reference: *Bhaishajya Ratnavali Raktpitta Chikitsa Prakaran 13/95-101*

- ***Ashwagandha Rasayan***

Drug Reference: *Bhaishajya Ratnavali Rasayan Prakran 73/10*

PROTOCOL OF RESEARCH:

Grouping of the patients:

Study was conducted on 45 selected patients in three groups:

- GROUP - A – 15 patients in this group were given *Kushmand Khand.*
- GROUP - B –In this group 15 patients were given the trial drug *Ashwagandha Rasayan*.
- GROUP - C – No medication were given to the 15 patients of this group.

The proposed work was an open-label clinical trial.

Duration of the intervention: 30 days

Duration of the trial: 3 months

Mode of intervention: orally

Drug dosage:

- ***Kushmand Khand*** - 250-500mg/kg/day in two divided doses with ***milk***.
- ***Ashwagandha Rasayan*** - 250-500mg/kg/day in two divided doses with milk.

Follow up: 3 follow ups at 4, 8, 12 weeks

Assessment criteria:

A. Subjective criteria:

Illness		**Grade**
Fever	**Severity**	
	Nil	0
	Slight fever and/or some aches	1
	Definite elevation of temperature, moderate aches, headache	2
	Severely incapacitated by general symptoms	3
	Frequency	
	Nil	0
	1 episode in last 3 months	1
	2 episodes in last 3 months	2

	≥3 episodes in last 3 months	3
Running Nose	**Severity**	
	Nil	0
	Mild discharge, stuffiness, sneezing	1
	Heavy, clear discharge and/or stuffiness	2
	Yellow or green nasal discharge	3
	Frequency	
	Nil	0
	1 episode in last 3 months	1
	2 episodes in last 3 months	2
	≥3 episodes in last 3 months	3
Cough	**Severity**	
	No Cough	0
	Mild, isolated cough, without additional symptoms	1
	Moderate, paroxysmal cough, without additional symptoms	2
	Severe, strenuous cough, accompanied by chest discomfort	3
	Frequency	
	Nil	0
	1 episode in last 3 months	1
	2 episodes in last 3 months	2
	≥3 episodes in last 3 months	3
Sore throat	**Severity**	
	Normal	0
	Throat discomfort	1
	Pain in throat with difficulty in swallowing of food	2
	Pain in throat and difficulty in swallowing even saliva	3
	Frequency	
	Nil	0
	1 episode in last 3 months	1
	2 episodes in last 3 months	2
	≥3 episodes in last 3 months	3
Tonsils	**Severity**	
	Normal	0
	Enlarged without inflammation	1
	Enlarged with inflammation	2
	Yellowish spot on tonsils	3
	Frequency	
	Nil	0
	1 episode in last 3 months	1
	2 episodes in last 3 months	2
	≥3 episodes in last 3 months	3
Pain abdomen	**Severity**	
	No pain	0

	Mild Pain (Nagging, annoying, interfering little with ADLs)	1
	Moderate pain (interferes significantly with ADLs)	2
	Severe pain (Disabling, unable to perform ADLs)	3
	Frequency	
	Nil	0
	1 episode in last 3 months	1
	2 episodes in last 3 months	2
	≥3 episodes in last 3 months	3
Diarrhoea	**Severity**	
	Nil	0
	2-3 stools above normal per day	1
	4-6 stools above normal per day	2
	≥7 stools above normal per day	3
	Frequency	
	Nil	0
	1 episode in last 3 months	1
	2 episodes in last 3 months	2
	≥3 episodes in last 3 months	3

B. Objective criteria:

Laboratory investigation

- Serum IgG
- Hb%
- TLC
- Neutrophils
- Lymphocytes
- Monocytes
- ESR

Calculation Overall effect of therapy on various morbidity features:

- Marked improvement - 75 % - 100 % relief
- Moderate improvement - 50 % - 75 % relief
- Mild improvement - 25 % - 50 % relief
- No improvement - < 25 % relief

OBSERVATIONS

A. Data regarding socio demographic condition

1. Age wise distribution-

Age (years)	No. of Patients			Total	Percentage (%)
	Group A	Group B	Group C		
3 – 5	11	9	8	28	62.22
6 – 8	4	5	2	11	24.44
9 – 12	2	1	3	6	13.33

2. Gender Wise Distribution

Gender	No. of Infants			Total	Percentage
	Group A	Group B	Group C		
Male	9	7	9	25	55.6
Female	6	8	6	20	44.4

3. Religion Wise Distribution

Religion Group	No. of patients			Total	Percentage
	Group A	Group B	Group C		
Hindu	15	15	15	45	100%
Others	0	0	0	00	0%

4. Parental education wise distribution

Parent	Educational qualification	Gr A	Gr B	Gr C	Total	%
Father	Illiterate	-	-	-	-	-
	School education	2	1	3	6	13.3
	Higher education	13	14	12	39	86.7
Mother	Illiterate	-	-	-	-	-
	School education	5	5	7	17	37.8
	Higher education	10	10	8	28	62.2

5. Parent's occupation wise distribution

Table no. 5

Parent	Occupation	Gr A	Gr B	Gr C	Total	%
Father	Laborer	1	0	2	3	6.7
	Business	5	8	4	17	37.8
	Service	9	7	9	25	55.5
Mother	House wife	9	10	12	31	68.9
	Working	6	5	3	14	31.1

6. Habitat Wise Distribution

Habitat	No. of Patients			Total	Percentage
	Group A	Group B	Group C		
Rural	10	12	11	33	73.3
Urban	5	3	4	12	26.7

7. Socio-economic status wise distribution

Socio economic Status	No. of Patients			Total	Percentage
	Group A	Group B	Group C		
Lower class	4	4	5	13	28.9
Middle class	10	6	8	24	53.3
Higher class	1	5	2	8	17.8

8. Family Type Wise Distribution

Family type	No. of Patients			Total	Percentage
	Group A	Group B	Group C		

Joint	6	3	4	13	28.89
Nuclear	9	12	11	32	71.11

9. Source of drinking water wise distribution

Source of water	Group A	Group B	Group C	Total	Percentage
Tap	13	6	8	27	60
Hand pump	4	6	4	14	31.1
Open well	0	3	1	4	8.9

10. 'Quality of sanitation used' Wise Distribution

Sanitation Quality	Group A	Group B	Group C	Total	Percentage
Poor	1	0	2	3	6.7
Satisfactory	4	6	4	14	31.1
Good	10	9	9	28	62.2

B. Data Regarding Personal History

11. Gestational age wise distribution of the patients

Gestational age	Gr. A	Gr. B	Gr. C	Total	% age
Preterm	2	0	0	2	4.44
Term	13	14	15	42	93.34
Post term	0	1	0	1	2.22

12. Breast feeding history (up to 6 months) wise distribution

Breast feeding history	Gr. A	Gr. B	Gr. C	Total	% age
Exclusively breastfed	13	13	14	40	88.89
Breastfed <6 months	2	1	1	4	8.89
Never breastfed	-	1	-	1	2.22

13. The distribution of patients according to weaning history

Weaning history	Gr. A	Gr. B	Gr. C	Total	% age
<6 months	2	0	0	2	4.44
6-9 months	11	14	12	37	82.22
9-12 months	2	1	3	6	13.33
>12 months	-	-	-	-	-

14. Showing immunization status wise distribution

Immunization status	Gr. A	Gr. B	Gr. C	Total	% age
No immunization	0	0	0	0	0
Complete	15	15	15	44	100
Partial	0	0	0	0	0

15. Dietary Pattern wise distribution

Diet	Gr. A	Gr. B	Gr. C	Total	%age
Vegetarian	8	6	8	22	48.89
Mixed	7	9	7	23	51.11

16. Status of appetite wise distribution

Appetite	Gr. A	Gr. B	Gr. C	Total	%age
Normal	5	6	6	17	37.78

Decreased	10	9	9	28	62.22
Increased	0	0	0	0	0

17. Bowel habit wise distribution

Bowel habits	Gr. A	Gr. B	Gr. C	Total	% age
Loose	4	6	4	14	31.11
Normal	6	8	7	21	46.67
Hard	4	3	3	10	22.22

18. Adequacy of sleep wise distribution

Sleep	Gr. A	Gr. B	Gr. C	Total	%age
Normal	4	4	6	14	31.11
Disturbed	11	9	7	27	60.0
Excessive	0	3	1	4	8.89

C. Data regarding Clinical Presentation

19. History of Recurrent infections wise distribution

History of recurrent infections	No. of patients			Total	Percentage (%)
	Gr. A (n=15)	Gr. B (n=15)	Gr. C (n=15)		
Fever	10	10	10	30	66.67
Running nose	12	10	9	31	68.89
Cough	8	9	9	26	57.78
Sore throat	7	6	7	20	44.44
Enlarged tonsils	9	8	7	24	53.33
Pain abdomen	5	5	4	14	31.11
Diarrhoea	4	5	4	13	28.89

RESULTS AND OBSERVATION

EFFECT OF THERAPY ON SUBJECTIVE CRITERIA

A. Fever

i. Statistical analysis of severity

Group	Mean		Mean diff.	% Relief	SD±	SE±	't' value	P value	Remarks
	BT	AT							
A	1.900	0.800	1.100	57.89	0.568	0.180	6.128	<0.001	HS
B	1.600	0.600	1.000	62.50	0.943	0.298	3.354	0.008	S
C	1.300	1.200	0.100	7.69	0.568	0.180	0.557	0.591	IS

ii. Statistical analysis of frequency

Group	Mean		Mean diff.	% Relief	SD±	SE±	't' value	P value	Remarks
	BT	AT							
A	1.700	0.700	1.000	58.82	0.816	0.258	3.873	0.004	S
B	2.100	0.700	1.400	66.67	1.075	0.340	4.118	0.003	S
C	1.600	1.400	0.200	12.50	0.789	0.249	0.802	0.443	IS

B. Running nose

i. Statistical analysis of severity

Group	Mean		Mean diff.	% Relief	SD±	SE±	't' value	P value	Remarks
	BT	AT							
A	1.583	0.583	1.000	63.17	0.603	0.174	5.745	<0.001	HS
B	1.800	0.800	1.000	55.56	0.471	0.149	6.708	<0.001	HS
C	1.778	1.667	0.111	6.24	0.601	0.200	0.555	0.594	IS

ii. Statistical analysis of frequency

Group	Mean		Mean diff.	% Relief	SD±	SE±	't' value	P value	Remarks
	BT	AT							
A	1.833	0.750	1.083	59.08	1.165	0.336	3.223	0.008	S
B	2.400	0.900	1.500	62.5	1.080	0.342	4.392	0.002	S
C	2.000	1.778	0.222	11.10	0.667	0.222	1.000	0.347	IS

.Cough Severity

i. Statistical analysis of severity

Group	Mean		Mean diff.	% Relief	SD±	SE±	't' value	P value	Remarks
	BT	AT							
A	1.875	0.500	1.375	73.33	0.518	0.183	7.514	<0.001	HS
B	1.889	0.778	1.111	58.81	0.782	0.261	4.264	0.003	S
C	1.667	1.556	0.111	6.59	0.928	0.309	0.359	0.729	IS

ii. Statistical analysis of frequency

Group	Mean		Mean diff.	% Relief	SD±	SE±	't' value	P value	Remarks
	BT	AT							
A	2.250	0.875	1.375	61.11	1.061	0.375	3.667	0.008	S
B	1.444	0.667	0.777	53.81	0.667	0.222	3.500	0.008	S
C	1.556	1.444	0.112	7.19	1.167	0.389	0.286	0.782	IS

C. Sore throat Severity

i. Statistical analysis of severity

Group	Mean		Mean diff.	% Relief	SD±	SE±	't' value	P value	Remarks
	BT	AT							
A	1.429	0.571	0.857	59.97	0.690	0.261	3.286	0.017	S
B	1.333	0.500	0.833	62.49	0.753	0.307	2.712	0.042	S
C	1.857	1.714	0.143	7.70	0.690	0.261	0.548	0.604	IS

ii. Statistical analysis of frequency

Group	Mean		Mean diff.	% Relief	SD±	SE±	't' value	P value	Remarks
	BT	AT							
A	2.000	0.714	1.286	64.30	0.488	0.184	6.971	<0.001	HS
B	2.500	0.833	1.667	66.68	0.816	0.333	5.000	0.004	S
C	2.143	1.857	0.286	13.35	0.756	0.286	1.000	0.356	IS

Enlarged tonsils Severity

i. Statistical analysis of severity

Group	Mean		Mean diff.	% Relief	SD±	SE±	't' value	P value	Remarks
	BT	AT							
A	1.889	0.667	1.222	64.69	0.833	0.278	4.400	0.002	S
B	1.875	0.625	1.250	66.67	0.707	0.250	5.000	0.002	S
C	1.714	1.571	0.143	8.34	0.690	0.261	0.548	0.604	IS

ii. Statistical analysis of frequency

Group	Mean		Mean diff.	% Relief	SD±	SE±	't' value	P value	Remarks
	BT	AT							
A	2.000	0.778	1.222	61.10	0.833	0.278	4.400	0.002	S
B	2.000	0.750	1.250	62.50	1.165	0.412	3.035	0.019	S
C	1.429	1.143	0.286	20.01	0.951	0.360	0.795	0.457	IS

F. Pain abdomen Severity

i. Statistical analysis of severity

Group	Mean		Mean diff.	% Relief	SD±	SE±	't' value	P value	Remarks
	BT	AT							
A	2.000	1.000	1.000	50.00	0.707	0.316	3.162	0.034	S
B	2.000	0.800	1.200	60.00	0.837	0.374	3.207	0.033	S
C	2.000	1.750	0.250	12.50	0.957	0.479	0.522	0.638	IS

ii. Statistical analysis of frequency

Group	Mean		Mean diff.	% Relief	SD±	SE±	't' value	P value	Remarks
	BT	AT							
A	1.800	1.000	0.800	44.44	0.837	0.374	2.138	0.099	IS
B	2.000	1.200	0.800	40.00	0.837	0.374	2.138	0.099	IS
C	1.250	1.000	0.250	20.00	0.500	0.250	1.000	0.391	IS

G. Diarrhoea severity

i. Statistical analysis of severity

Group	Mean		Mean diff.	% Relief	SD±	SE±	't' value	P value	Remarks
	BT	AT							
A	1.250	0.500	0.750	60.00	0.500	0.250	3.000	0.058	IS
B	1.600	0.800	0.800	50.00	0.837	0.374	2.138	0.099	IS
C	1.000	0.750	0.250	25.00	0.500	0.250	1.000	0.391	IS

ii. Statistical analysis of frequency

Group	Mean		Mean diff.	% Relief	SD±	SE±	't' value	P value	Remarks
	BT	AT							
A	1.750	0.500	1.250	71.43	0.500	0.250	5.000	0.015	S
B	1.800	0.800	1.000	55.56	1.000	0.447	2.236	0.089	IS
C	1.500	1.000	0.500	33.33	0.577	0.289	1.732	0.182	IS

Overall improvement after therapy in various morbidity features:

Morbidity features		Percentage of improvement		
		Group A	Group B	Group C
Fever	*Severity*	57.89	62.50	7.69
	Frequency	58.82	66.67	12.50
Running nose	*Severity*	63.17	55.56	6.24
	Frequency	59.08	62.50	11.10
Cough	*Severity*	73.33	58.81	6.59
	Frequency	61.11	53.81	7.19
Sore throat	*Severity*	59.97	62.49	7.70
	Frequency	64.30	66.68	13.35
Enlarged tonsils	*Severity*	64.69	66.67	8.34
	Frequency	61.10	62.50	20.01
Pain abdomen	*Severity*	50.00	60.00	12.50
	Frequency	44.44	40.00	20.00
Diarrhoea	*Severity*	60.00	50.00	25.00
	Frequency	71.43	55.56	33.33

EFFECT OF THERAPY ON OBJECTIVE CRITERIA

Investigations:-

❖ ***IgG***

i. Difference observed in IgG value before and after treatment

Group	Mean		% change	SD±	SE±	't' value	P value	Remarks
	BT	AT						
A	5.993	11.233	87.44	1.667	0.430	12.176	<0.001	HS
B	6.667	11.647	74.7	1.623	0.419	11.883	<0.001	HS
C	6.660	6.800	2.1	0.297	0.076	1.825	0.089	IS

❖ ***Haemoglobin (g/dl)***

i. Difference observed in Haemoglobin value before and after treatment

Group	Mean		% change	SD±	SE±	't' value	P value	Remarks
	BT	AT						
A	11.147	11.867	6.5	0.656	0.169	4.251	<0.001	HS
B	12.560	13.120	4.46	0.624	0.161	3.474	0.004	S
C	10.833	11.487	6.03	0.300	0.077	8.443	<0.001	HS

❖ ***TLC (Total Leukocyte Count)***

i. Difference observed in TLC before and after treatment

Group	Mean		Mean diff.	% change	SD±	SE±	't' value	P value	Remarks
	BT	AT							
A	8.413	5.953	2.460	29.24	2.142	0.553	4.447	<0.001	HS
B	6.627	4.860	1.767	26.66	2.444	0.631	2.799	0.014	S
C	6.200	5.300	0.900	14.51	1.645	0.425	2.119	0.052	IS

❖ ***Neutrophil (%)***

i. Difference observed in Neutrophil count before and after treatment

Group	Mean		% change	SD±	SE±	't' value	P value	Remarks
	BT	AT						
A	50.513	50.553	-0.79	4.746	1.225	-0.033	0.974	IS
B	56.107	54.787	2.35	4.388	1.133	1.165	0.263	IS
C	49.767	50.540	-1.55	6.973	1.800	-0.430	0.674	IS

❖ ***Lymphocytes (%)***

i. Difference observed in Lymphocyte count before and after treatment

Group	Mean		% change	SD±	SE±	't' value	P value	Remarks
	BT	AT						
A	40.733	43.207	6.07	4.991	1.289	1.919	0.076	IS
B	36.187	37.440	3.46	10.39	2.685	0.467	0.648	IS
C	40.267	42.407	5.31	6.462	1.668	1.283	0.220	IS

.Monocytes (%)

i. Difference observed in Monocyte count before and after treatment

Group	Mean		% change	SD±	SE±	't' value	P value	Remarks
	BT	AT						
A	8.753	6.240	28.71	2.287	0.590	4.257	<0.001	HS
B	7.693	5.453	29.12	3.054	0.789	2.840	0.013	S
C	9.960	7.833	21.36	4.742	1.224	1.737	0.104	IS

❖ ***ESR***

i. Difference observed in ESR level before and after treatment

Group	Mean		% change	SD±	SE±	't' value	P value	Remarks
	BT	AT						
A	14.467	6.733	53.45	7.186	1.855	4.168	<0.001	HS
B	12.867	5.933	53.88	8.556	2.209	3.138	0.007	S
C	7.667	6.333	17.39	1.291	0.333	4.000	0.001	S

DISCUSSION

28 (62.22%) Patient were in the age group of 3-5 year, this data shows that the morbidity rate is higher in children below 5 years of age. 25 (55.6%) patients were males which is suggestive of higher morbidity rate in males than in females. Parents of maximum number of patients have completed higher education (Father-86.7%, Mother-62.2%). This is suggestive of degree of health awareness is more in educated. Maximum patients from middle and lower socio economic class this may be because usually lower and middle class family's approaches to government hospitals.Maximum no. of patients i.e. 33 (73.3 %) were from rural area because study was conducted in rural area. Maximum patients from nuclear family. Studies reveal that the overall health status of members of nuclear families is poor as compared to members of joint families.In most of the cases (62.2%) the quality of sanitation was found good, Poor sanitation is linked to transmission of diseases, but this distribution reveals that children are more prone to diseases despite of good sanitary condition due to their lack of immunity.62.22

% patients in this study were having decreased appetite which is directly related to malnutrition which is a major cause of decreased immune status**.** Maximum patients i.e. 60% were having disturbed sleep. It is already observed that proper sleep can boost up immunity while improper sleep decreases immune power, which supports the data in this study.

In patients of both group A and group B moderate improvement in various morbidity features was found except frequency of pain abdomen which showed mild improvement. In group C patients no improvement in any of the morbidity features was observed except diarrheal frequency which showed mild improvement.

Discussion on probable mode of action of the trial drugs

Rasayana, *Balya*, *Vrisya* and *Ojovardhak* properties of the ingredients of *Kushmand Khand* strengthen the immune defense of the body. *Tridoshahara* property of *Kushmand* and *Pippali* help in alleviating *Prakupita Dosha*s. *Deepana* and *Pachana* properties of the drugs help digesting *Ama*, clear the obstruction of *Srota*s and enables *Uttarottara Dhatuposhana*, thereby increasing the *Bala*. *Srotovishodhan*, *Yogavahi* and *Grahi* properties increase bioavailability and absorption of the drug. Other properties like *Jwarahara*, *Swasahara*, *Krimighna*, *Kaphanissaraka*, *Chedana, Sandhana* provide symptomatic relief to various infections. *Ghee*, *Madhu* and *Khand* have caloric values and also contain vitamins & micronutrients which are essential for normal body functions. Pharmacological actions of the drugs as evident from the above table are also suggestive of immunomodulatory effect of *Kushmand Khand*.

Balya and *Rasayan* quality of *Ashwagandha* improve body's immune power. *Tikta rasa* and *Deepana* property of *Ashwagandha* is capable of *Ama Pachana* enables further nutrition of *Dhatu*s, thereby increasing the *Bala*. It also has *Brimhana* property, thus strengthen the body. Pharmacological studies also showed its immune-modulatory, antibiotic, anti-inflammatory, antioxidant activities which are very crucial to maintain the body's immune system.

CONCLUSION

This clinical trial suggests *Kushmand Khand* and *Ashwagandha Rasayan* both are effective in lowering down the morbidity pattern in children due to their immune-modulatory effect however this is an early phase clinical trial done on limited patient with limited resources. To establish the conclusion there is a requirement to perform the study on bigger population with broad resources and parameters along with others factor.

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