ejpmr, 2022,9(9), 404-420

SJIF Impact Factor 6.222

EUROPEAN JOURNAL OF PHARMACEUTICAL AND MEDICAL RESEARCH

www.ejpmr.com

Research Article

ISSN 2394-3211

EJPMR

AN ETIOPATHOLOGICAL STUDY OF KAPHAJA KRIMI W. S. R. TO WORM INFESTATION AND ITS UPSHAYATMAKA PARIKSHAN WITH SHIGRUADI MODAK

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Article Received on 21/07/2022 **Article Revised on 11/08/2022** **Article Accepted on 01/09/2022**

ABSTRACT

In the present scenario, we all are surrounded by ***krimis*** in some or the other forms. Some are visible with naked eyes and some are invisible. With the help of ***aaptopdesh***, ***anumaan*** and ***yukti pramaan***, our acharyas used to acquire 'the ***trikaalik gyaan'*** i.e., the knowledge of past, present and future. This *trikaalik gyaan* enabled them to visualize even the minute and invisible things. This is why they were known to be called as '***sukshmadarshi'***. Being ***sukshma*** or minute in nature, these *krimis* travel to various channels or ***srotas*** of body and hinder the normal functioning of the body. The description of *krimi* is done by ***Acharya Charaka in Vimansthana-7*** which itself is suggestive of its importance. Amongst the 4 types of krimis i.e, ***pureeshaja***, ***raktaja***, ***kaphaja*** and ***bahaya***, the classical features of '***kaphaja krimi'*** resemble to a great extent to those present in intestinal worms. In our routine running OPD's and IPD's there come about **75 % to 80 %** of patient with certain type of skin diseases, anemia, loss of appetite, weaknesses, swellings etc. and if we ask them about their bowel habit, it is usually very poor. Since, in Ayurveda we all know that the origin of every disease is '***MANDAGNI'***. So, in the treatment part we usually recommend them some ***DEEPANA***, ***PAACHANA*** and ***VIRECHAKA*** aushadhis and majority of them get relieve by their problems. So, what we have done is that knowingly or unknowingly we have also cleared the worms which could have been the possible cause of the above-mentioned sufferings. In this study, 60 cases divided in Group A and Group B were taken and administered the suitable dosage of Shigrudi Modak according to the age. It was found that the age between 17-34 in years in Group B and between 5-10yrs in Group A were more prone to worm infestation. The combination of the trial drug "SHIGRUADI MODAK" has proved better result in the Cardinal symptoms, Srotodushti lakshana, Dosha-Dushti lakshana, stool report and hematological investigations.

KEYWORDS: ***'Mandagni', Deepana***, ***Paachana*** and ***Virechaka,*** Srotodushti lakshana.

INTRODUCTION

As soon as we come across the term "worm infestation" the first and the foremost thing that clicks our mind is the suffering inhabiting children. Our notion about worm infestation has automatically established a relation between both of them. Just like an animal with long neck justifies - Giraffe similarly worm infestation means a suffering inhabiting a child.

Have we ever thought that not only children but adults are also equally getting affected by this worm infestation?

Helminths or worm infestation refers to worms that live as parasites in the human body and are a fundamental cause of disease associated with health and nutritional problems.

Almost all the acharyas have mentioned 20 number of *krimis*. According to ***prakriti*** or ***karan***, ***krimi*** are of 4 types - ***purishaja***, ***raktaja***, ***kaphaja*** and ***bahaya***.

The main causative factor of all diseases is ***mandagni*** as described in ***Ashtang Hridaya*** –

रोग: सर्वेऽपि मंदेऽग्नौ सुतरामुदराणि तु ।

अजीर्णान्न मलिनैश्चान्नैर्जायन्ते मलसंचयात् ।।

[अ.हृ.नि.१२/१]

Mandagni is specially the origin of all ***UDARROGA*** including ***UDARKRIMI***. ***UDARKRIMI*** comes under ***KAPHAJAKRIMI***. Ultimately *mandagni* gives rise to *kaphaja krimi*.

Here an attempt has been made to critically analyze the *kaphaja krimi* in our pioneer *Samhitas*.

In **Charaka Samhita**, various causative factors have been mentioned that lead to the rise of *kaphaja krimi*:

श्लेष्मजा:

क्षीरगुडतिलमत्स्यानूपमांसपिष्टान्नपरमान्नकुसुम्भस्नेहाजीर्ण

पूतिक्लिन्नसंकीर्णविरुधासात्म्यभोजनसमुत्थाना: ।।

[च.वि.७/१२]

Sushruta in his Samhita had described *Ahara-Sambandhi* and *Vihara-Sambandhi nidaan* for *krimiroga*.

In short, all those factors that increase *kapha* in our body give birth to *kaphaja krimi*.

In modern science also, we see that eating undercooked or uncooked food, excessive overeating, eating at irregular interval of time lead to problems like indigestion, flatulence, swelling, skin disease etc. So, in one or the other way *krimi* is responsible for the above problems.

Children eating excessive sweets and mud/soil develop intestinal worms. In Ayurveda, there is a description of ***MRITIKABHAKSHANJANYA PANDU*** which means that children eating soil/mud develop intestinal worms that further lead to deficiency of vital nutrients in them thus giving rise to anemia and mal nutrition like severe problems.

Main symptoms of *krimiroga* are -
Jwara (fever) ***Vaivarnata*** (discoloration of skin) ***Shula*** (pain) ***Hridyaroga*** (heart trouble) ***Sadanam*** (lassitude) ***Bhaktadwesha*** (anorexia) ***Atisara*** (diarrhea) ***Vamana*** (vomiting).

ज्वरो विवर्णता शूलम् हृद्रोग: सदनम् भ्रम: ।

भक्तद्वेषोऽतिसारश्च संजातकृमि लक्षणम् ।।

[सु.उ. ५४/१९]
In Charaka Samhita, the *kaphaja krimi* are named as per their place of function and resemblance like ***Antarad*** (living in intestine) ***Udarad*** (stomach) ***Hridyachara***, ***Churav***, ***Darbhapushp***, ***Saugandhika***, ***Mahaguda***.

Every Acharya has given ***AMASHAYA*** - the place of *kaphaja krimi*.

Krimis when exaggerated start roaming in both the directions of *amashaya*, that is in the upper GI tract and the lower GI tract.

"श्वेता:पृथुब्रघ्न" TAPEWORM [*Taenia saginata*]

"वृत्तपरिणाहागंडूपदाकृतय:" ROUNDWORM [*Ascaris lumbricoides*]

AIMS AND OBJECTIVES

- To study the concept of etiopathogenesis of *kaphaja krimi*.
- To study the clinical evaluation of etiopathogenesis of *kaphaja krimi* in modern as well as in Ayurveda classics.
- To study the comparative analytical description of *kaphaja krimi* w.s.r.to worm infestation.
- To study the therapeutic effect of ***Shigruadi Modak*** (swakalpita yoga) on worm infestation.

Plan of study

1. Conceptual study
2. Clinical study
3. Observation and result
4. Discussion
5. Summary
6. Conclusion

Conceptual study

Historical review

In this part, historical review about *Kaphaja Krimis* had been collected from classical text of Ayurveda, previous research work done, scientific journal, periodic magazines, monographs and other available source.

Similarly modern review regarding the worm infestation have been gathered from the Modern Texts and various other online media. After thorough analysis, the data has been gathered and compiled in an organized manner.

Disease review: This section includes the detailed description about *Kaphaja Krimi* from both the Ayurvedic point as well as Modern point of view.

Drug review: Includes the brief description of the drugs involved in the formation of *Shigruadi Modak*.

CLINICAL STUDY

MATERIAL AND METHOD

Material

Total registered patients 60 in number out of them 54 completed the protocol.

Patients having classical symptoms of *Kaphaja Krimi* and presence of ova/ cyst/ worm in stool examination were selected from the OPD of various Departments of Government P. G. Ayurvedic College and Hospital, Varanasi.

Method of collection of data

Selected patients were divided into two groups.
Group A: Total 27 patients out of 30 were given the trial drug and the *Upshayatmaka Parikshan* was done.

In this group children with age between 5-16 years were kept and were given half the dosage of adult dose i.e., 6gm H.S.

Group B: Total 27 patients out of 30 were diagnosed with signs and symptoms of *kaphaja krimi* and their *Upshayatmaka Parikshan* was done using the trial drug.

In this group, adult patients were taken which were falling in the age group between 17 – 70 years. The dosage of the trial drug is 12gm H.S.

Special proforma has been designed including the mandatory criteria like the cardinal signs and symptoms, investigations etc. required for the *Upshayatmaka Parikshan*.

Diagnostic criteria

For the purpose of diagnosis, a standard research proforma has been prepared on the basis of Principles of Ayurveda and Modern science. Description of signs and symptoms, examination and investigations were included to reach to the final diagnosis of the disease.

Inclusion criteria

- **Age:** Children (5yr to 16yr) and Adult (17yr to 70yr)
- **Sex:** Both male and female.
- Patient with classical signs and symptom of *Kaphaja krimi* and presence of ova/ cyst/ worms in stool examination.

Exclusion criteria

Patient associated with systemic disorders like hypertension, DM, kidney disorders and with any malignancy.

- Pregnant women.
- Patients above 70 years of age.

Assessment criteria

The changes in cardinal signs and symptoms were assessed on the basis of subjective and objective parameters.

Subjective criteria

- Assessment of all patients was done on the basis of relief in signs and symptoms of *Kaphaja Krimi.*
- The chief complaints were allotted a score of 32=8x4 i.e., eight chief complaints, each possessing a score of four.

Symptoms	**score and grading**			
	0	1	2	3
Jwara	Normal [97.7^{0}f-99.5^{0}f]	Low grade [99^{0}f-100^{0}f]	Moderate [100^{0}f-103^{0}f]	High [>103^{0}f]
Vaivarnyata	Normal skin color	Slight discoloration	Moderate discoloration	Excessive discoloration
Shula	No	Mild	Moderate	Severe
Atisara	No	Mild [2-3 stool/day]	Moderate [4-6 stool/day]	Severe [7-9 stool/day]
Aruchi	No	Mild	Moderate	Severe
Shoth	No	In 25% of area	In 25%-50% of area	In 50%-75% of area
Chardi	No	1 episode/day	2-5 episode/day	3-6 episode/day
Panduta	No	Mild [9-11gm/dl]	Moderate [7-9gm/dl]	Severe [< 7gm/dl

Objective criteria

Increase in score denotes improvement

Initial reading	**Grading and score**
Increase in Hb gm/dl	
0.1 – 0.5 gm/dl	1
0.6 – 1 gm/dl	2
1.1 – 1.5 gm/dl	3
1.5 – 2 gm/dl	4
Stool report -ve for 3 consecutive days	
Positive Report	1
Out of 3, one negative	2
Out of 3, two negatives	3
All three negative	4
Decrease in ESR	
From 1 – 5 mm/hr.	1
From 6 – 10 mm/hr.	2
From 11 – 15 mm/hr.	3
From 15 – 20 mm/hr.	4

Decrease in AEC	
From 10 – 20	1
From 21 – 30	2
From 31 – 40	3
From 41 – 50	4

Assessment of therapy

Trial drug was given to the patient and the changes in subjective parameters were recorded at two weeks interval. Total effect of therapy in each patient was evaluated after completion of treatment.

S. no.	Result	Criteria
1	Cured	>75% relief in signs and symptoms
2	Moderately cured	51%-75% relief in signs and symptoms
3	Mild improvement	25%-51% relief in signs and symptoms
4	No improvement	<25% relief in signs and symptoms

Laboratory investigations

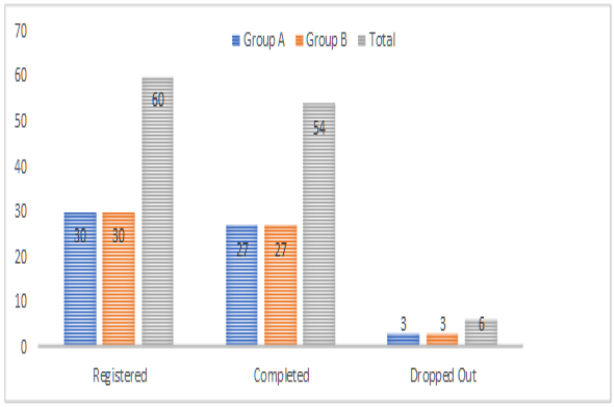
a) For clinical trial

S. No		Normal Range
1.	Complete blood count (CBC)	
	Total Leucocyte count (TLC)	4000-11000cells (10^3/µL)
	Differential Leucocyte Count	
	*Neutrophils *Lymphocytes *Monocytes *Eosinophils *Basophils	40-75% 20-42% 1-7% 2-6% 0-1%
3.	ESR in mm/hr.	
4.	Hemoglobin in gm/dl	
5.	FBS in mg/dl	
6.	PPBS in mg/dl	
7.	Urine Examination	

b) For differential diagnosis:

Stool Examination is being done.

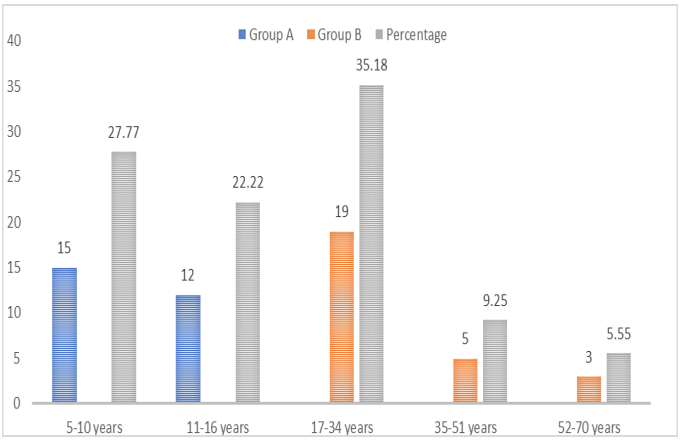
OBSERVATION AND RESULT



Registered patient-wise distribution (N=60) Graph 1.

For the purpose of study, total 60 patients were registered showing the signs and symptoms of kaphaja krimi, out of which 54 patients completed their 2 follow-ups and 6 patients completed 1 follow-up.

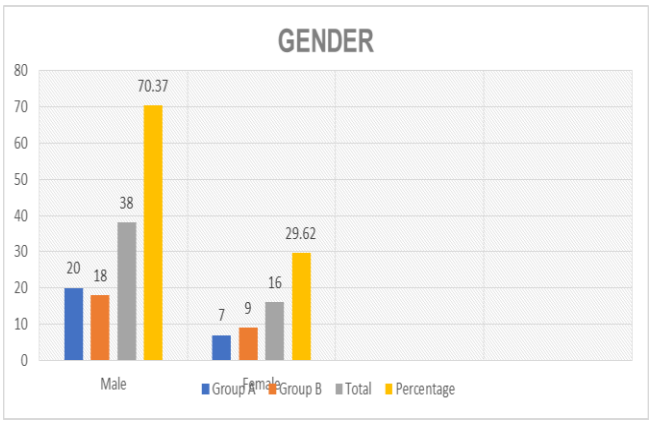
The result and observation are divided into two groups i.e., Group A and Group B. Group A consists of 30 number of registered children having age between 5years to 16 years but only 27 children completed their whole therapeutic regimen and Group B consists of 30 number of adults having age between 17 years to 70 years, out of which 27 patients completed their both follow ups.



Age-wise distribution of cases (N=54) Graph 2.

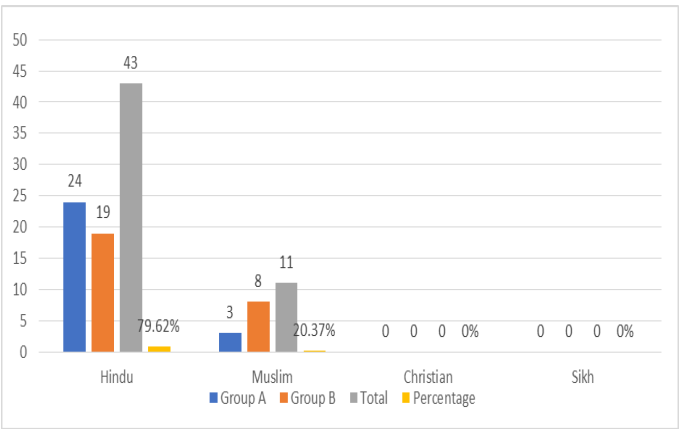
The above values show that out of 54 patients, maximum number of patients lies in age group 5 – 10 years (27.77%) in Group A and in age group 17- 34 (35.18%) in Group B.

So, krimi is more common in younger age group.



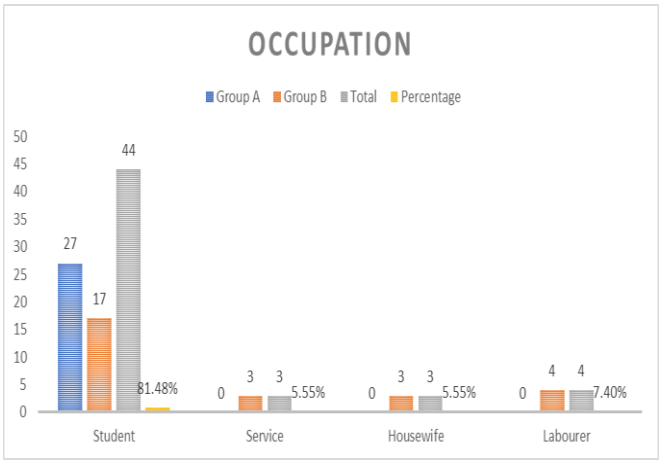
Gender-wise distribution of cases (N=54). Graph 3.

The occurrence of kaphaja krimis seen more in males (70.37%) than in females (29.62%).



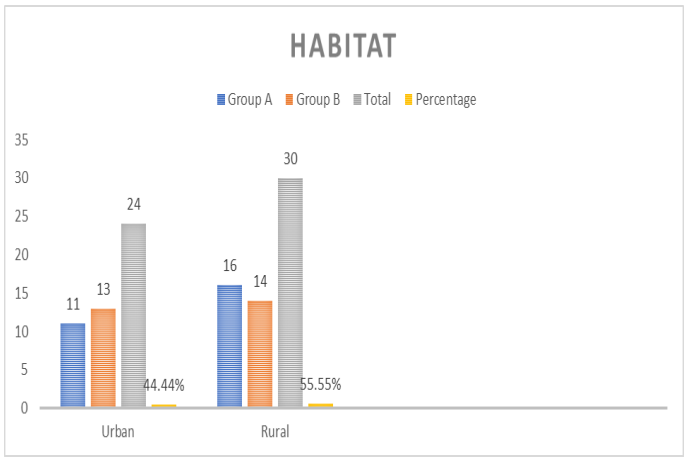
Religion-wise distribution of cases (N=54). Graph 4.

From the above table, we draw the conclusion that maximum patient belongs to Hindu religion i.e., 79.62% whereas 20.37% belongs to Muslim religion.



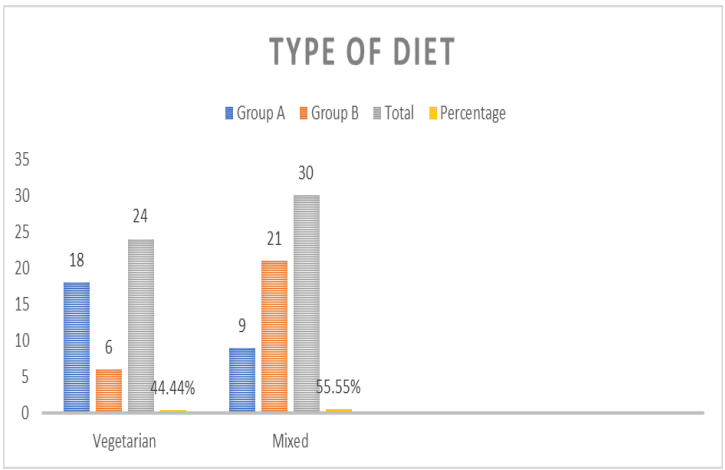
Occupation-wise distribution (N=54) Graph 5.

The above data shows that maximum number of cases are that of students (81.48%), next number is that of labourer which is 7.40%.



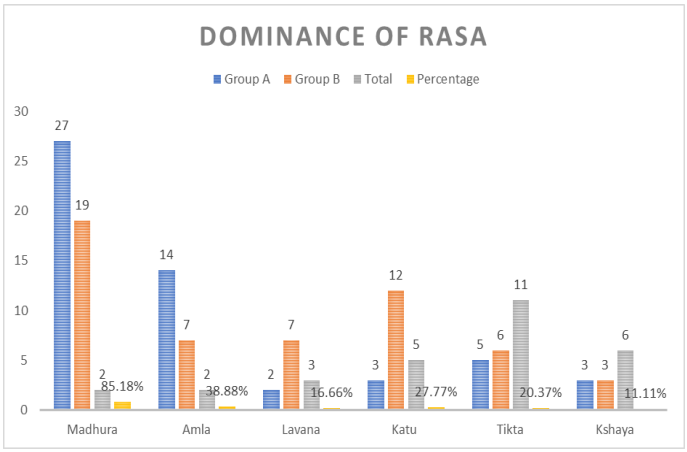
Habitat-wise distribution (N=54). Graph 6.

The above table shows that the maximum affected cases are from rural areas (55.555) while the number of cases is less in urban areas (44.44%).



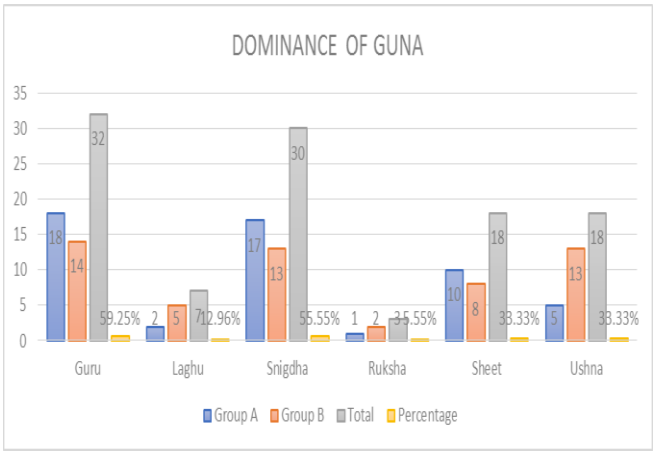
Diet-wise distribution (N=54) Graph 7.

The above table indicates that the cases intaking mixed diet (55.55%) are more prone to Kaphaja Krimi than those taking vegetarian diet (44.44%).



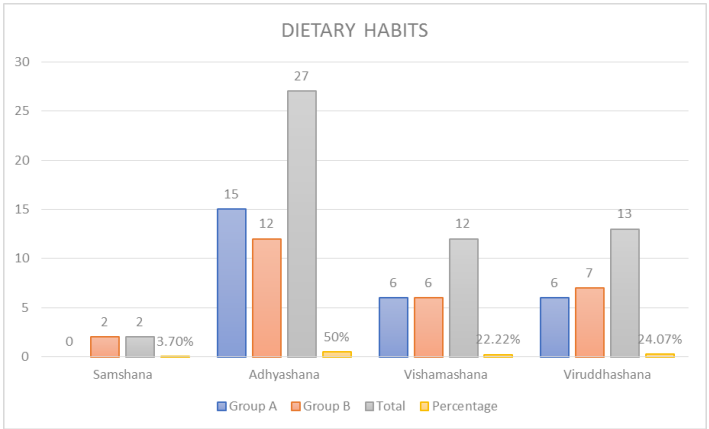
Dominance-wise Distribution (N=54) Graph 8.

Seen more in Madhura-rasa pradhana (85.18%), next is amla-rasa (38.88%).



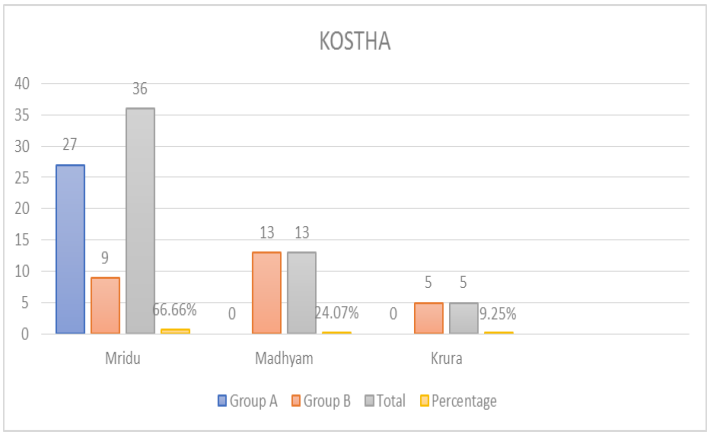
Dominance of Guna (N=54). Graph 9.

It shows the incidence of Dominance of Guna in dietary habits in patients of kaphaja krimi having the intake of Guru Guna (59.25%), the second highest is intake of snigdha guna which is 55.55%.



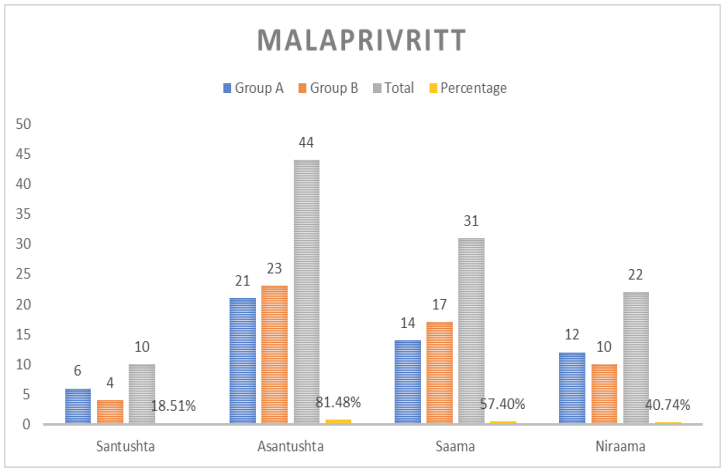
Shows the incidence of kaphaja krimi as per Dietary Habits. [N=54] Graph 10.

The above table shows that maximum cases involved were those who follow adhyashan dietary habit (50%). The next were those who followed Viruuddhashan type of dietary habits (24.07%) then next were Vishamashana type dietary followers were present. The only 3.70% cases were those who too Samashan type dietary habits.



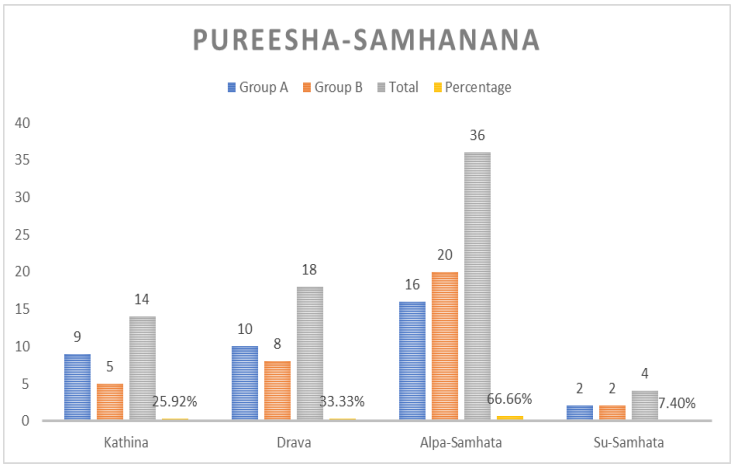
Kostha-wise distribution of Cases. [N=54]. Graph 11.

From the above graph, we conclude that children (Group A) all having Mridu-koshtha as well as in Group B those having Mridu-koshtha were maximum (66.66%) affected by Kaphaja Krimi-Roga. The next affected group is those having Madhyama-koshtha (24.07%) and the alst one is Krura-koshtha cases (9.25%).



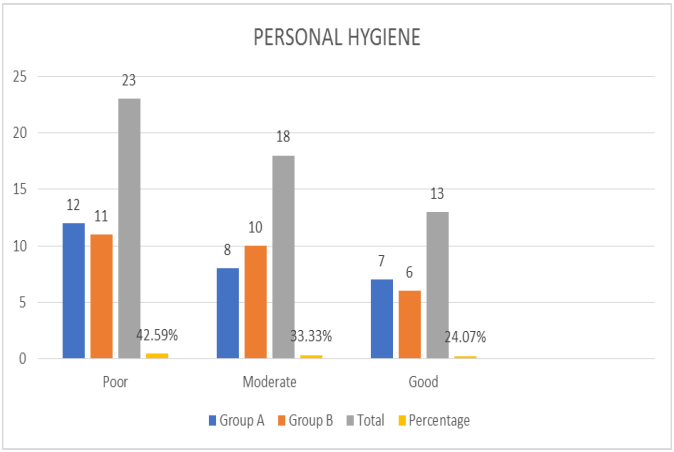
Malaprivritti-wise distribution of cases. [N=54] Graph 12.

From the above data, it is very clear that those having Asantushta-Malaprivritti (81.48%) were more prone to Kaphaja krimi, the next were those cases who were having Saama-Malaprivritti (57.40%). Then the next number of cases which were less than Saama were Niraama (40.74%) and the last one was Santushta-Malaprivritti (18.51%).



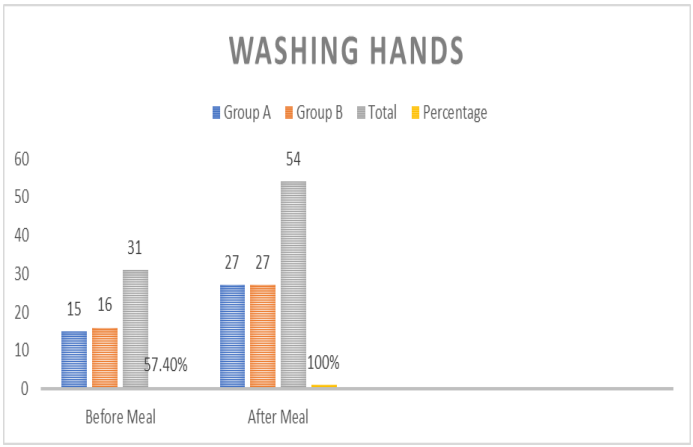
Pureesha - Samhanana-wise distribution of the cases. [N=54] Graph 13.

From the above graph, we conclude that the maximum number of cases were Alpa-Samhata (66.66%) and the next number of cases were those having Drava-Samhanana Pureesha (33.33%).



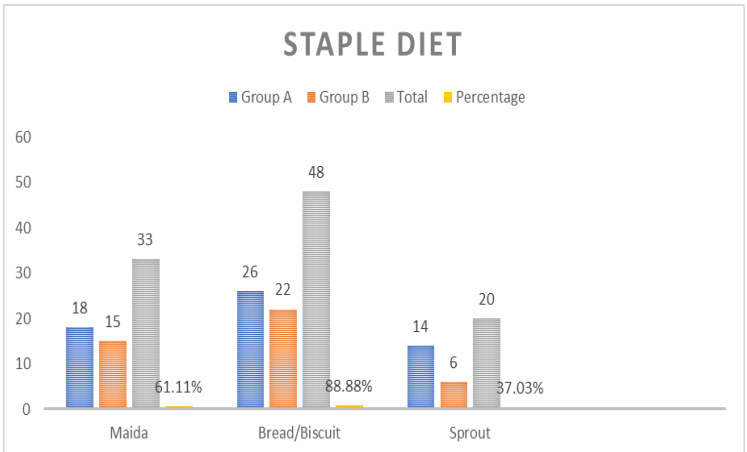
Relation of disease with personal hygiene[N=54]. Graph 14.

It shows that out of 54 patients, 23 patients (42.59%) were having poor hygiene and they are suffering more from kaphaja krimis. The next common group is moderate one having 33.33 % of incidence and the last one is good personal hygiene which is 24.07% of the total incidence.



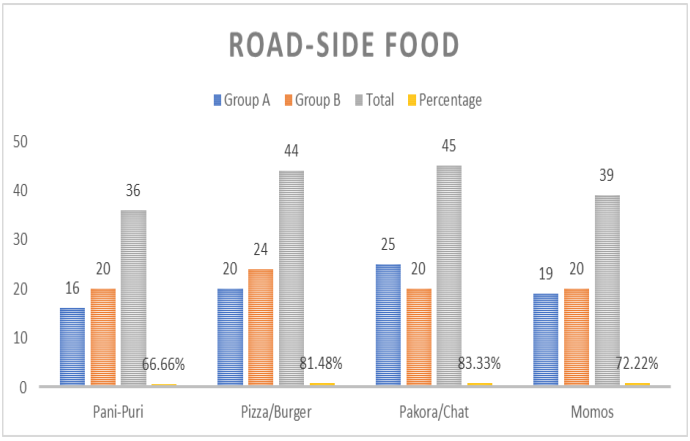
Shows the incidence of Kaphaja krimi as per washing hands before and after meal. [N=54] Graph 15.

From the above table, it is concluded that almost 100% washed hands after meal but only 57.40% washed hands before meal. This is really a low number.



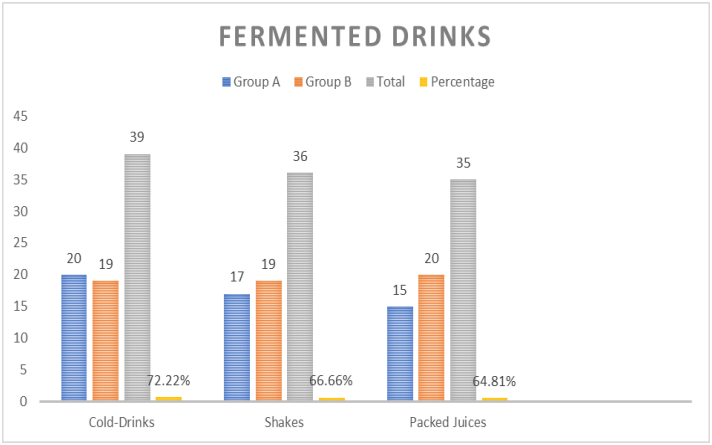
Shows the distribution of cases as per intake of Staple diet. [N=54] Graph 16.

Maximum number of cases were those whose staple diet was bread/biscuit (88.88%), the next group were those having more intake of Maida products (61.11%).



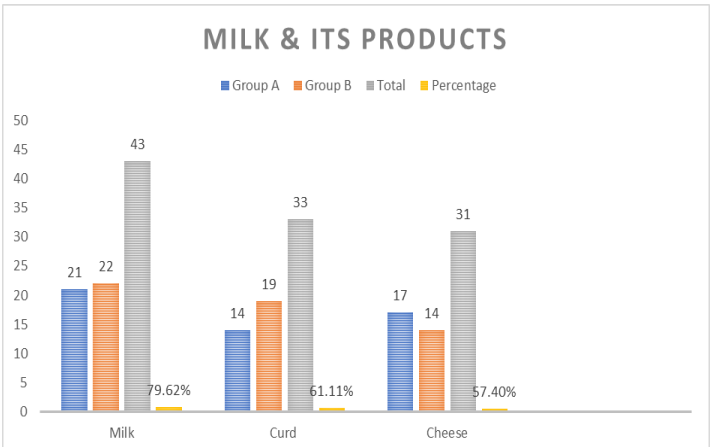
Distribution of cases as per intake of Roadside food. [N=54] Graph 17.

From the above data, we conclude that those intaking Chat/Pakora (83.33%) at high speed are more vulnerable to kaphaja-krimi while the next group of getting infection more easily is those with intake of Pizza/Burger, the next is intaking momos (72.22%) and the last group is of those intaking pani-puri which is 66.66%.



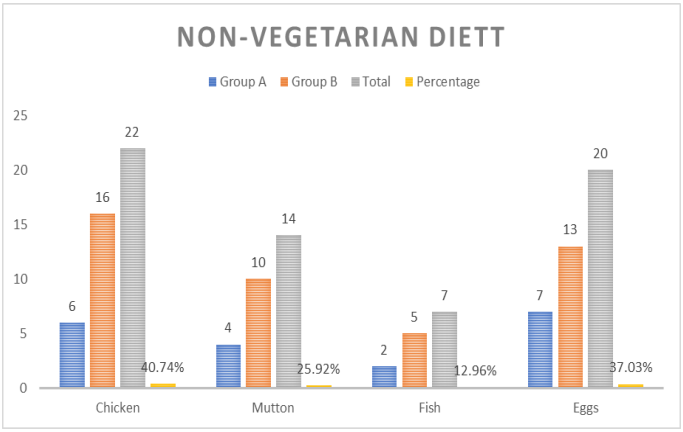
Shows the distribution of cases as per the intake of fermented drinks [N=54] Graph 18.

From the above data, we conclude that the percentage of those intaking cold-drinks is 72.22%, next is the of shakes (66.66%) and last is packed juices (64.81%).



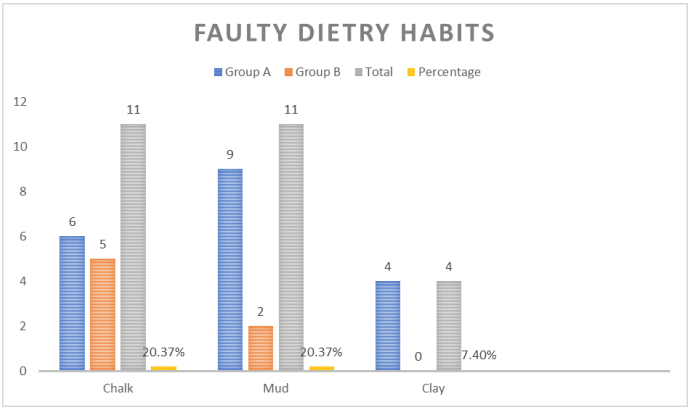
Shows the distribution of cases as per the intake of Milk and its Products. [N=54] Graph 19.

From the above data, we conclude that the percentage of those intaking milk is 79.62%, next is curd intake which is 61.11% and the last one is Cheese intake which is 57.40%.



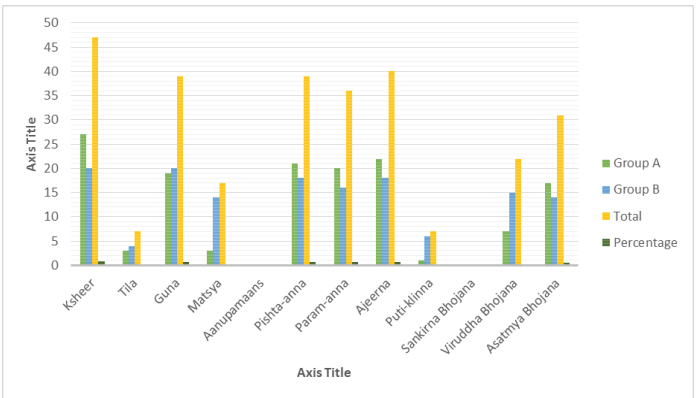
Shows the distribution of cases as per the intake of Non-veg Product. [N=54] Graph 20.

From the above data, we conclude that the percentage of those intaking of Chicken is more (40.74%), the next group of cases is Eggs (37.03%), then comes mutton (25.92%). The least group of intaking fish is only 12.96%.



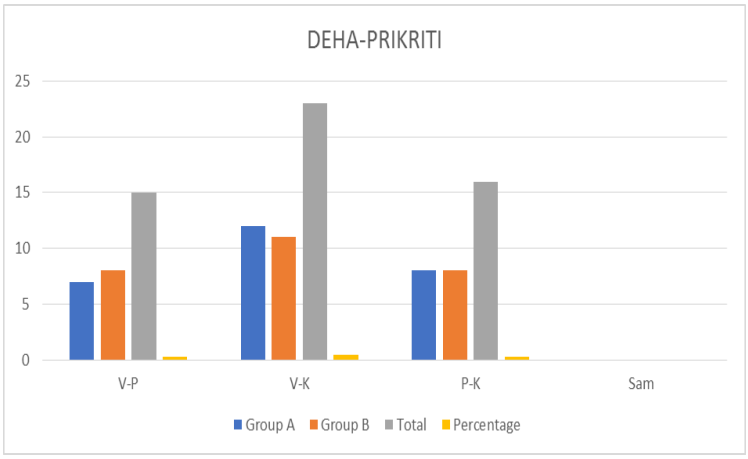
Shows the distribution of cases as per the intake of Faulty Dietary Habits. [N=54] Graph 21.

From the above data, we conclude that the percentage of those intaking chalk and mud was equal which is 20.27% and clay intake is 7.40%.



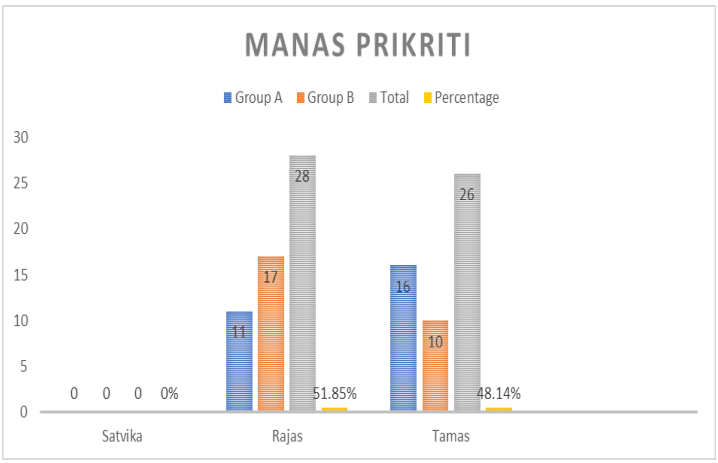
Incidence of Kaphaja-Krimi as per Kaphajanya Aharaja Nidana. [N=54] Graph 22

From the above data, we conclude that the percentage of those intaking milk were more in percentage (87.03%) and the second highest percentage were those who intake food in Ajeerna or indigestion condition which is 74.07%.



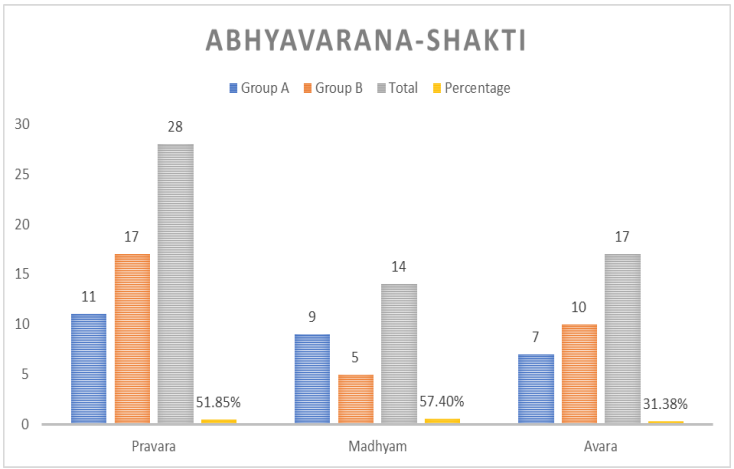
Incidence of krimi related to Deha-prakiti. [N=54] Graph 23.

The above data shows that the vata-kaphaja cases were 42.59%, the next is pitta-kaphaja prakriti which is 29.62%, the next is vata-pittaja prakriti which is 27.77%.



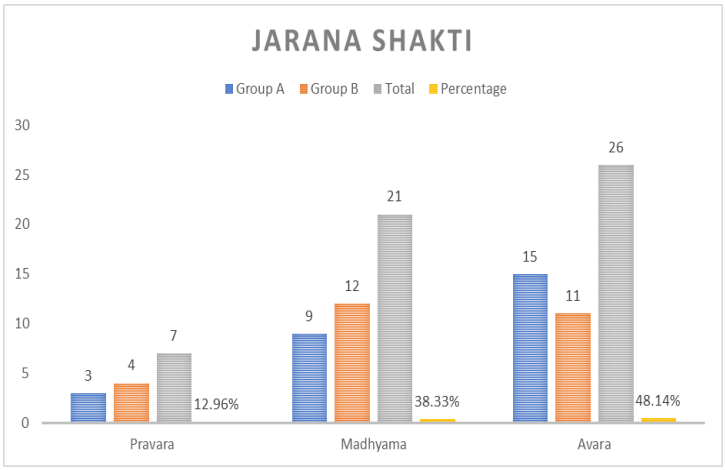
It shows the incidence of Manas Prakriti in patients of kaphaja krimi [N=54]. Graph 24.

From the above data, we conclude that the percentage of Satvika Prakriti was zero% while that of Rajas Prakriti was 51.85% and the last one was Tamsika Prakriti (48.14%).



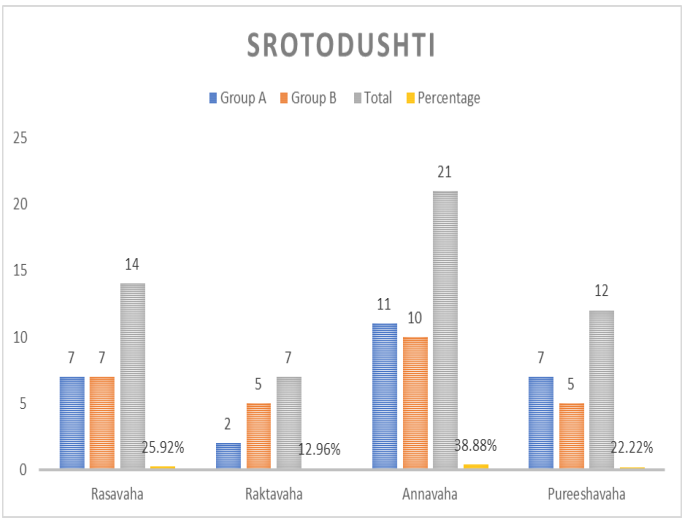
Distribution of cases according to Abhyavarana Shakti. [N=54] Graph 25.

From the above data, we conclude that the percentage of those Madhyama Abhyavarana-Shakti is more which is (57.40%), the next one is with Pravara Abhyavaran-Shakti (51.85%) and the last one is with Avara-Abhyavaran Shakti (31.38%)



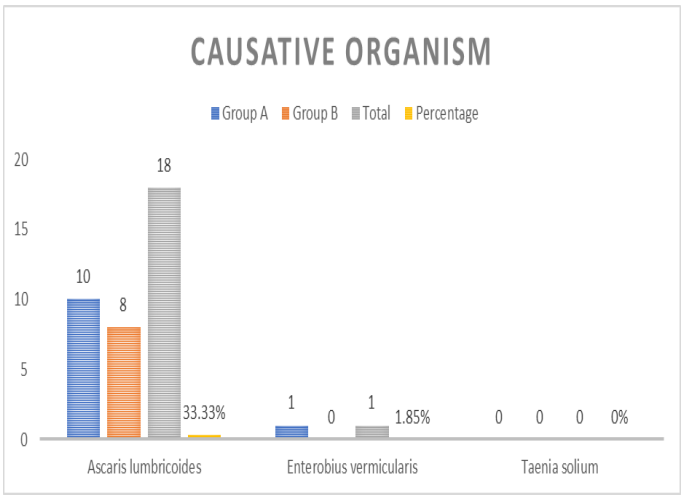
Distribution of cases according to Jaran Shakti. [N=54] Graph 26.

It was noted that maximum patients i.e., 48.14% were those with Avara Jarana Shakti, next were those with Madhayama Jarana shakti (38.88%) and the next is with Pravara Jarana Shakti (12.96%).



Distribution of cases according to Srotodushti. [N=54] Graph 27.

It is noted that maximum number of patients with Annavaha (38.88%) were affected by krimi, the next number of cases were those having Rasavaha srotodushti (25.92%) and the next group is Pureeshavah Srotodushti (22.22%) and then the last one is Raktavaha Srotoduhti which is 12.96%.



Causative Organism-wise Distribution. [N=54] Graph 28.

From the above data, we get that the cases affected with Ascaris lumbricoides were more (33.33%) while that with Enterobius vermicularis were 1.85% and there were no cases found with infection from Taenia solium (0%).

Percentage of Improvement in Chief Complaints or Subjective Criteria.

Chief complaints	Group A				Group B			
	B. T.	A. T.	% Change	Improvement	B. T.	A. T.	% Change	Improvement
Jwara	1.11	0.00	100	Marked	0.81	0.00	100	Marked
Vaivarnata	0.33	0.07	77.78	Marked	0.33	0.15	55.56	Mild
Udara Shool	0.96	0.15	84.62	Marked	0.63	0.15	76.47	Marked
Bhakta-Dwesha	1.30	0.48	62.86	Moderate	0.85	0.30	65.22	Mild
Atisaar	0.59	0.00	100	Marked	0.56	0.15	73.33	Mild
Chardi	0.56	0.11	80	Marked	0.33	0.00	100	Marked
Panduta	0.96	0.67	30.77	Mild	1.04	0.48	53.57	Mild
Shoonakshikoot	0.56	0.33	40	Mild	0.37	0.00	100	Marked

In Group A – 100% relief was seen in two complaints i.e., Jwara and Atisaar, 84.62% relief was seen in Udara shoola, 80% relief in Chardi, 77.78% seen in Vaivarnata, 40% seen in Shoonakshikoota and the least relief was observed in the cpmplaints of panduta which is 30.77%.

In Group B – 100% relief observed in Jwara, Chardi and Shoonakshikoot, 76.47% in Udara-Shoola, 73.33% in Atisaar, 65.22% in Bhaktadwesha, 55.56% in Vaivarnata, 53.57% in Panduta.

Percentage of improvement in Objective Criteria

Criteria	Group A				Group B			
	B. T	A. T	%	Improvement	B. T	A. T	%	Improvement
AEC	155.63	138.81	10.80	No	237.93	226.89	4.64	No
ESR	31.30	25.00	20.12	No	28.82	24.14	16.31	No
Hemoglobin	10.46	10.54	-0.74	No	10.79	11.27	-4.49	No
Naked worms	0.48	0.07	84.62	Marked	0.52	0.04	92.86	Marked
Ova-cyst	0.48	0.04	92.31	Marked	0.52	0.00	100	Marked
Occult blood	0.04	0.00	100	Marked	0.19	0.00	100	Marked

In Group A – marked improvement seen in three criteria i.e., Naked worms, Ova-cyst, Occult Blood which comes under stool examination, no improvement seen in AEC, ESR, Hb%.

In Group B – marked improvement seen in three criteria i.e., Naked worms, Ova-cyst, Occult Blood which comes under stool examination, no improvement seen in AEC, ESR, Hb%.

Effect of Therapy of Chief Complaints on Both Groups [N=54

Independent Samples Test									
Group Compare		N	Mean	Std. Deviation	% Change	t	DIF	p-value	Result
Jwara_(fever)	A	27.00	0.00	0.00					
	B	27.00	0.00	0.00					
Vaivarnata	A	27.00	0.07	0.27	-100.00	-0.86	52.00	0.40	NS
	B	27.00	0.15	0.36					
Udara_shool	A	27.00	0.15	0.36	0.00	0.00	52.00	1.00	NS
	B	27.00	0.15	0.36					
BhaktaDwesha	A	27.00	0.48	0.70	38.46	1.14	52.00	0.26	NS
	B	27.00	0.30	0.47					
Atisaar (Diarrhea)	A	27.00	0.00	0.00					
	B	27.00	0.15	0.36					
Chardi	A	27.00	0.11	0.32	100.00	1.80	52.00	0.08	NS
	B	27.00	0.00	0.00					
Panduta	A	27.00	0.67	0.68	27.78	0.99	52.00	0.33	NS
	B	27.00	0.48	0.70					
Shoonakshikoot	A	27.00	0.33	0.48	100.00	3.606	52.00	.001	HS
	27	27.00	0.00	0.00					

Effect of therapy on Objective Criteria on both the groups. [N=54]

Independent samples test									
Group compare		**N**	**Mean**	**Std. Deviation**	**% change**	**T**	**Dif**	**P-value**	**Result**
Aec	A	27.00	138.81	67.34	-63.45	-3.09	52.00	0.003	Ns
	B	27.00	226.89	131.84					
Esr	A	27.00	25.00	14.11	3.51	0.26	52.00	0.796	Ns
	B	27.00	24.12	10.45					
Hemoglobin	A	27.00	10.54	1.53	-6.97	-1.54	52.00	0.129	Ns
	B	27.00	11.27	1.94					
Naked_worms	A	27.00	0.07	0.27	50.00	0.585	52.00	0.561	Ns
	B	27.00	0.04	0.19					
Ovacyst	A	27.00	0.04	0.19	100.00	1.00	52.00	0.322	Ns
	B	27.00	0.00	0.00					
Occult_blood	A	27.00	0.00	0.00					
	B	27.00	0.00	0.00					

Effect of Therapy Clinical Examination on Both the Groups. [N=54]

Independent samples test									
Group compare		**N**	**Mean**	**Std. Deviation**	**% change**	**T**	**Dif**	**P-value**	**Result**
Tlc	A	27.00	6529.63	1086.57	3.35	0.68	52.00	.497	Ns
	B	27.00	6310.74	1256.39					
Neutrophils	A	27.00	55.63	9.33	-5.71	-1.19	52.00	.239	Ns
	B	27.00	58.81	10.26					
Lymphocytes	A	27.00	38.21	12.17	27.39	3.50	52.00	.001	Hs
	B	27.00	27.74	9.66					
Eosinophils	A	27.00	3.45	1.70	23.48	1.511	52.00	.137	Ns
	B	27.00	2.64	2.21					
Monocytes	A	27.00	4.09	2.10	-51.99	-3.08	52.00	0.003	Hs
	B	27.00	6.21	2.90					
Basophils	A	27.00	0.13	0.15	-117.14	-3.77	52.00	0.000	Hs
	B	27.00	0.28	0.15					
Fbs	A	27.00	77.74	9.26	-0.57	-0.15	52.00	0.883	Ns
	B	27.00	78.19	12.53					
Ppbs	A	27.00	93.41	12.73	-14.59	-2.94	52.00	0.005	Hs
	B	27.00	107.04	20.47					

RESULT

On studying the Upshayatmaka parikhshan on both the Groups through paired 't' test, it was found that the effect of the kalpita yoga 'Shigruadi Modak' showed almost equal effect on both the groups.

The aim of my research work was to study the Upshayatamaka Parikshan of Shigruadi Modaka on Kaphaja Krimi in Adult Age Group as well as in Children and the effect of the drug on these age groups. From the research work, it was found that the age between 17-34 in years in Group B and between 5-10yrs in Group A were more prone to worm infestation.

Evaluation of the therapeutic effect

Effect on chief complaints

Shigruaadi modaka showed better improvement in percentage of complaints like Jwara with 100% which was statistically highly significant in both the groups. The next is Vaivarnata which was 77.78% resolved in group A while 55.56% resolved in Group B. it was significant in Group B while highly significant in group A.

Udara-Shoola was statistically highly significant in both the groups but it showed better result in Group A which is 84.62%.

Bhaktadwesha was statistically significant in both the groups but Group B was more benefitted than group A.

Atisaar was highly significant statistically in both the groups. Group A showed better result.

Chardi was also highly significant in both the groups but Group B was benefitted more than group A. Panduta is almost similar to vaivarnata but here we mainly focus on hemoglobin concentration. Vaivarnata due to decreased hemoglobin may be termed as Panduta obtaining peculiar Pandu Varna or color. It was statistically highly significant in both the groups but Group b showed more

god result. Shoonakshikoot was significant in Group A while it was highly significant in Group B.

Probable mode of results

The formulation of Shigruadi Modaka contained Shigru as the main content. The mode of action is Krimighna, Deepaniya, Kaph-Vata Har and Vishnashana. Almost every acharya has excepted the Krimighna property of Shigru due to its Tikshna, katu and Kaph-Vata Nashak guna. It possesses all the properties that do not allow the parasites to flourish.

The next content in Shigruadi Modaka is Palash which is again a kriminashak drug. Palash being lekhaniya and bhedaniya removes the pureesha thus facilitating clearance of the lower GIT. The bhavana of Apamarg Kshar has been used which is again a krimihar drug. The base of the entire modaka s made up of jaggery that helps in the easy intake of modaka as well attracting the krimis from various srotas and helps in bringing them in koshtha. The anupaan used in this therapy is of Mridwikayukta dugdha. The motive behind this is mridwika in Charaka is said to be the best fruit by citing the below shloka mentioned in Ch. Su. 25/38 as ***"Mridwika Phalanaam".*** **It** is also said to be deepaniya so helps in the stimulation of Jathragini. Milk acts in two ways, first it acts as Snehana Dravya and the second role of milk is that it helps in the exaggeration of krimis. Mridwika and Milk together act as Mridu-Virechaka.

In the Apkarshana Chikitsa of Krimi, it is clearly mentioned that we should do the two procedures in order to first attract the krmis and second to remove the krimis. For this, Acharya Charaka in Vimaan sthaan – 7 clearly says that the first and the foremost thing to do is the patient must go through the process of Snehana and Swedana for 6 or 7 days and next day, he should be administered with Sanshodhana Aushadhis. The sanshodhan process like Asthapana Vasti, vamana, Virechana should be done in one day only.

For snehana, we have milk and for swedana, we have Shobhanjana in the drug. Shobhanjana is also kept in the Swedopaga Mahakashayaya of Charaka.

Effect of therapy on objective parameters

The trial drug showed good result on decrease in AEC with 10.80% change showing statistically highly significant in Group A while with 4.64% change in Group B with ($p<0.05$) suggestive of significant statistically.

ESR was reduced in both the groups. Group A showed ($p<0.05$) statistically significant result while Group B showed statistically highly significant result.

Both the groups had >80% on negative stool report for 3 consecutive days. This means both the groups were equally potent to act on causative helminth in the disease.

The Shobhanjan, Palaash and the Apamarga used as the Kaashtha Aushadhis are considered Krimighna Aushadhis. So, the combination of these three has proved better result on both the groups.

Overall effect of shigruaadi modaka

Assessment of overall effect of Shigruadi Modaka revealed that marked improvement (>75%) was seen in the chief complaints like Jwara, Udara-Shoola, Chardi and Shoonakshikoot while amongst the objective criteria, marked improvement was observed in appearance of Naked worms, in Ova-cyst and Occult blood in stool examination.

The Shobhanjan, Palaash and the Apamarga used as the Kaashtha Aushadhis are considered Krimighna Aushadhis. So, the combination of these three has proved better result on both the groups.

CONCLUSION

The trial drug showed equal effect on both the Groups. The jaggery and milk helped in the exaggeration of kimis, the combination of three marvelous ingredients (shigru, palash and apamarga) showed their krimghna properties and Mridwikayukta Dugdha helped in the removal of krimis by acting as a mild purgative.

The positive results shown by Shigruadi Modak are attributed to its Katu, Lavana Anurasa, Ushna Virya, Katu Vipaka, Guna like Laghu, Ruksha with deepaniya, lekhaniya, Krimighna and Vata-Shamaka properties.

From the research work done, it could be concluded that

The description made by our Acharyas in Samhitas, Vedas and Upanishads regarding the Kaphaja Krimi resembles to a great extend to the modern parasitology. The seven krimis mentioned under the Kaphaja Krimis resemble in some or the other way to the modern helminths. It can be depicted in following ways.

"श्वेता:पृथुब्रघ्न" TAPEWORM [*Taenia saginata*]

"वृत्तपरिणाहागंडूपदाकृतय:" ROUNDWORM [*Ascaris lumbricoides*]

From the study, it can be concluded that the Shleshmaja krimi is the migrating larvae of *Ascaris lumbricoides* and *Enterobius vermicularis.*

The classical description of Shleshmaja krimi is of parasites in upper gastro-intestinal tract or 'AMASHAYA' and they roam in upper and lower part when exaggerated.

The effect of trial drug has been proven earlier. It best suits the treatment of Kaphaja Krimi as it is prepared by keeping in mind the about conditions that do not allow

the krimis to flourish and withdraw the nutrition from the human body.

Shigru has many other properties besides Krimighna. It is the best drug used for liver disorders. It keeps the liver healthy by removing the toxicity.

The combination of the trial drug "SHIGRUADI MODAK" has proved better result in the Cardinal symptoms, Srotodushti lakshana, Dosha-Dushti lakshana, stool report and hematological investigations.

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