



ROLE OF *HVKIG SYRUP* IN *KRIMI ROGA* W.S.R. TO WORM INFESTATION IN CHILDREN

Dr. Subodh kant Pandey

PG Scholar, Dept. of Kaumarbhritya, Parul Institute of Ayurved, Parul University

Dr. Aboli Patil*

Asso. Prof., Dept. of Kaumarbhritya, Parul Institute of Ayurved, Parul University
*Corresponding Author

ABSTRACT In developing countries like India there is burden population explosion, poverty, overcrowding, poor sanitation children are more prone to develop krimi. Krimi is more common disease in childhood age. Worm infestation refers to the worms that live as parasites in the human body and are one of the main causes of diseases associated with health and nutrition problems beyond just gastrointestinal tract disturbances. Worldwide more than 3.5 billion people are infested with worms out of which 400 million are children among whom 1.47 billion have round worm, 1.3 billion have hook worm and 1.05 billion have whip worm infestations. Children aged 3-15 years' makeup the group with highest worm burden, which is caused greatly due to the contamination of environment, poor sanitation and hygiene. "A Parasite is a living organism which depends on a living host for its survival and derives nutrition from the host, without giving any benefit to the host".

KEYWORDS : Krimi, Worm infestation.

INTRODUCTION

World health organization (WHO) reports that today's scenario of health system is really on a decline state and not meeting the sated demand and changing needs. Paying less attention to the diet and life style has given rise to a good number of ailments challenging the scientific community among which worm infestation is one of the major conditions encountered in paediatric practice.

Worm infestation refers to the worms that live as parasites in the human body and are one of the main causes of diseases associated with health and nutrition problems beyond just gastrointestinal tract disturbances. Worldwide more than 3.5 billion people are infested with worms out of which 400 million are children among whom 1.47 billion have round worm, 1.3 billion have hook worm and 1.05 billion have whip worm infestations. Children aged 5-15 years makeup the group with highest worm burden, which is caused greatly due to the contamination of environment, poor sanitation and hygiene. "A Parasite is a living organism which depends on a living host for its survival and derives nutrition from the host, without giving any benefit to the host". Parasites may be simple unicellular protozoa or complex multi cellular metazoa. Protozoology and Helminthology are two branches of Parasitology which deal with study of Protozoa and Helmiths respectively.

The term *Krimi* is used to denote tiny living beings which reside in the human body in Vedas except Sama Veda. Concept of the *Krimi* and their relation in the development of disease is described in all available Ayurvedic Literature. Acharyas also describe *Krimi* as an etiological factor in various diseases; eg. *Krimija Hridroga*, *Krimija Shiroroga* etc. But the vast details of pathology of each and every *Krimi* is not found in our classics, may be because Acharya where devoid of sophisticated devices as available at present and their views were different in comparison with conventional medicine. But the classification, morphology etc. are described very well. The legend, Acharya Charaka classified *Krimi* into 20 types which come under the two broad groups i.e. *Bahya* and *Abhyantara*. He also postulated the line of treatment of *Krimiroga* i.e., *Apakarshana* (extraction of *krimi*), *Prakriti Vighata* (destruction of the favourable environment for survival of *krimi*) and *Nidana Parivarjana* (avoidance of etiological factors responsible for growth of *krimi*) mainly by through diet, medicines, hygiene and lifestyle management. This set of protocol for the management of *Krimiroga*, where the approach is aimed at the prevention and eradication of the intestinal worm infestations is very logical and also easy to follow. Many such guidelines are available in *Susruta Samhita*, *Kashyapa Samhita*, *Ashtanga Hridiaya*, *Bhavaprakasha* etc.

All the available data of prevalence of helminthic remains almost the same even after aggressive implementation of eradication programs with mass administration of anti-helminthic drugs. It is noticed that recurrence rate is very high due to development of resistance towards routine anti-helminthic drugs. An intestinal worm infection in humans is a silent epidemic that destroys the health, well-being and learning

potential of millions of children in many developing countries today. It is time to take collective action to deal with this silent calamity among our children to ensure that they grow up healthy both physically and mentally⁶. So it is the need of the hour to think about alternative treatments which can eradicate or assist in eradicating this mammoth challenge.

Though effective drugs are obtainable for the treatment of particular parasites, but the present knowledge of Parasitology is not satisfactory. Countries like India where most of the people is below poverty line and living under unhygienic conditions and are also suffering from malnutrition; here worm infestations single or mixed and also re-infestations are common. Shadowy side of this grave image is the fact that almost more than 80% of our population suffers from infestation of *Krimi* drugs available in the current system of medicine for the treatment of various kinds of worm infestations. Moderately are costly, no single drug is effective beside all sorts of parasites and they on their insistent use may cause severe side effects. Hence, there is great need to explore our properties in the field of medicine so that we can offer economy and safe drugs to community that can cure all kinds of parasitic infestations.

In Ayurveda, all kinds of parasites are described under a common title of *Krimi*. Worldwide philosophies are placed down their treatment. They are

1. Apakarshana
2. Prakriti vighata
3. Nidana parivarjana.

Amongst these *Apakarshana* (Samshodhana Chikitsa) considering the patients mostly paediatric age group of patients inability to undergo vigorous processes of *Samshodhana* Karma of the degree advised by Charaka and *Nidana Parivarjana* is the general line of treatment is adoptable in all group of patients. So remain specific treatment *Prakriti Vighata* – it should be such a way that it is cost effective with minimum dose, period, and easy direction and with no side effects.

MATERIALS & METHODS:

The attempts to validate the insinuations from the ancient structures of medicine on the basis of current scientific principles stand as the major step in order to recuperate them in the present era. The materials are the building blocks, whereas the methods are the strategies drawn by the Designer in case of erecting a structure called as the study. The methods employed in a study decide its fate of being acclaimed or otherwise. They design the advancement of the study and lastly its outcome. Hence methods and materials employed is the heart of the research. They are more significant in case of a scientific research movement, where accurate facts are to be exposed.

Study design: Single Arm Clinical Trail

STUDY DESIGN DESCRIPTION:

The children full filling the criteria of inclusion were included in the study. They were duly registered in the OPD of Kaumarbhritya

Department, Parul Ayurved Hospital (PAH), Limda –Vadodara.

SELECTION OF PATIENTS:

The children of whichever sex, attending OPD of Kaumarbhritya Department of Parul Ayurved Hospital Limda, Vadodara and also from the School health survey (Limda Primary and secondary government school and Ishvarpura primary government school) conducted by Parul Ayurveda Hospital Limda, Vadodara were registered in the present study duly fulfilling the consent procedures. All details of the children were recorded and maintained in the specially prepared clinical research proforma (CRF).

RESEARCH SETTING: OPD of *Kaumarabhritya* Department, PAH, Limda-Vadodara was selected as the research setting.

RESEARCH POPULATION:

The children between the ages of 3 to 6 years of either sex attending KB OPD of Parul Ayurved Hospital, Limda-Vadodara and Government primary school of Limda and Ishvarpura village, were the research population of the study.

SAMPLING:

Simple Random sampling was followed in the study. The subjects were selected as per the selection criteria and randomly distributed into Intervention and Standard control groups. For the random distribution of subjects, electronic digital randomization table was used.

SAMPLING ELEMENT:

Sampling element was children between the ages of 1 to 6 years of either sex.

INCLUSION CRITERIA:

- Age >1 year and <6 years
- Ajirna (Indigestion)
- Chhardi (vomiting)
- Anaha (flatulence)
- Udar shoola (Children having pain in abdomen)
- Kshudha Mandya (Children with poor appetite).
- Vivarnata (Children with hypo pigmented patches on skin)
- Kandu (Children with anal itching)

EXCLUSION CRITERIA:

- Children with increased frequency of Stool and Urination
- Children with Fever, AGE, Jaundice, Severe Anemia
- Children with Pneumonia, RDS, cough
- Children with infectious diseases such as hepatitis, allergic diseases, other metabolic diseases/errors, endocrine diseases, genetic anomalies

TRIAL DRUG: HVKIF SYRUP: Ref: Anubhuta Drug.

Duration of the therapy: 4 weeks Therapeutic Intervention

Duration of follow up: 2 weeks

ROUTE OF ADMINISTRATION: Oral

INVESTIGATION:

1. Stool investigation (Routine & Microscopy)
2. Hemoglobin%
3. AEC

ADVERSE DRUG REACTIONS (ADR):

No Adverse drug reaction (ADR) were duly recorded and reported throughout the clinical trial.

FOLLOW UP – 2 weeks

ASSESSMENT CRITERIA:

The assessment was based on the following parameters –

- Criteria assess by general status of health
- Improvements in sign of krimi like lalastrava, Udar Shoola etc
- Vyadhi upashamarth
- Nutrition
- Weight
- Diet

OBJECTIVE CRITERIA:

1. Stool investigation (Routine & Microscopy)

2. Hemoglobin%

3. AEC

SUBJECTIVE CRITERIA:

Improvements in Signs and Symptoms of Krimi

General status of health

Improvement in investigations

ASSESSMENT OF TOTAL EFFECT OF THERAPY:

Cured/ Excellent response : 100% relief of signs and symptoms.
 Markedly improved : Improvement between >75 – 99%
 Moderately improved : Improvement between >50 – 75%
 Mildly improved: Improvement between 25 – 50%
 Unchanged : No Relief in signs and symptoms

PRESENTATION OF DATA:

The outcome of treatment was tested for statistical significance by using applicable statistical tests. The effect of treatment of trial group on clinical features and laboratory parameters was tested for statistical significance with the help of paired Student's Paired 't' test. After obtaining 't' value the corresponding 'P' value against particular degree of freedom was noted on the 'Table of t'. P value <0.05 was considered as statistically significant, P < 0.01 or P < 0.001 were considered as highly significant.

STATUS OF CLINICAL STUDY:

| PATIENTS | TRAIL | TOTAL |
|------------|-------|-------|
| REGISTERED | 42 | 42 |
| COMPLETED | 40 | 40 |
| DROP OUT | 2 | 2 |

Total 42 children were registered in the clinical trial. Out of 42 children were enrolled in the trial group. Total 40 children completed the course of treatment and follow up; 40 children in trial. 2 volunteer dropped out from the study.

All the pre authenticated drugs used for the formulation (HVKIG Syrup) were taken separately in equal proportions, properly dried and pulverized in to *Yavakuta*. The decoction was prepared with all the drugs of the HVKIG combination. The standard SOP for *Kwatha* preparation was followed while preparing the *Kashya*. Decoction was filtered after completion of boiling process; then mixed with the sugar in proportion of 20 w/v% and then processed or given heat till the stage of “Two Tara *Chasani*”. After getting cool the honey in the proportion of 60 w/v% to form homogenous syrup mixture. The whole process of syrup preparation was done at the PHARMACY OF PARUL INSTITUTE OF AYURVED under sterile environment with following the SOPs for syrup preparation.

RESULT

Dominant Rasa in Diet wise Distribution of Patients.

| Rasa | NO. of Patient | Percentage (%) |
|---------|----------------|----------------|
| Madhura | 40 | 100 |
| Alma | 17 | 42.5 |
| Lavana | 32 | 80 |
| Katu | 23 | 57.5 |
| Tikta | 3 | 7.5 |
| Kashaya | 0 | 0 |

The data shows that 100% of patients used to take madhur rasa and 80% lavan rasa and 57% katu rasa, Amla rasa 42.5% and tikta rasa 7.5%.

Distribution of patients according to Agni

| Agni | No. of Patient | Percentage (%) |
|---------|----------------|----------------|
| Manda | 31 | 77.5 |
| Tikshna | 0 | 0 |
| Vishama | 9 | 22.5 |
| Total | 40 | 100 |

Out of patients the data shows that 77.5% patients mandagni and 22.5% patients are seen vismagni.

Distribution of patients according to Nidra

| Nidra (Praman in hrs) | No. of Patient | Percentage (%) |
|-----------------------|----------------|----------------|
| Adhika | 26 | 65 |
| Samyak | 14 | 35 |
| Alpa | 0 | 0 |

Out of patients, maximum patients i.e. 65% where is adhikya Nidra and

35% patients samyak Nidra.

Quality of Stool wise distribution of patients

| Quality of Stool | No. of Patient | Percentage (%) |
|------------------|----------------|----------------|
| Sama | 23 | 57.5 |
| Nirama | 17 | 42.5 |
| Total | 40 | 100 |

Maximum i.e. 57.5% patients had Sama mala-Pravriti while 43.90% patients had Nirama Mala Pravriti.

Distribution of patient based on type of worm

| Worm | No. of Patients | % |
|-------------------------|-----------------|-----|
| Ascaris Lumbricoids | 2 | 5 |
| Hymenolepis Nana | 4 | 10 |
| Trichuris Trichiura | 4 | 10 |
| Enterobius Vermicularis | 30 | 75 |
| Total | 40 | 100 |

Out of Patients, 5% of patient Ascaris Lumbricoids, 10% Hymenolepis Nan, 10% Trichuris Trichiura, 75% of patients Enterobius Vermicularis.

Distribution of patients according to Play habit

| Playing | No. of Patient | Percentage (%) |
|---------|----------------|----------------|
| Indoor | 20 | 50 |
| Outdoor | 26 | 65 |

This table shows 65% patients were having habit of play more outdoor, followed by 50% patients had habit of playing in more indoor.

Distribution of patients according to Specific habit

| Habit | No. of Patient | Percentage (%) |
|----------------|----------------|----------------|
| PICA | 5 | 12.5 |
| Teeth grinding | 15 | 37.5 |
| Nail Biting | 17 | 42.5 |
| Thumb Sucking | 1 | 2.5 |
| Other | 1 | 2.5 |

SUBJECTIVE PARAMETER:

| SYMPTOMS | N | BT | AT | % | MEAN DIFF. | SD | SE | T | P |
|----------------------|----|-------|--------|-------|------------|-------|--------|--------|--------|
| VAIVARNATA | 36 | 1.4 | 0.295 | 77.5 | 1.125 | 0.6 | 0.09 | 0.7 | <0.001 |
| UDARSHOOL | 16 | 0.4 | 0.02 | 32.5 | 0.4 | 0.59 | 0.09 | 4.28 | <0.001 |
| ARUCHI | 40 | 1.68 | 0.325 | 79.17 | 1.325 | 0.572 | 0.905 | 14.642 | <0.001 |
| GUDAKANDU | 29 | 0.575 | 0.250 | 71.25 | 0.550 | 0.504 | 0.0797 | 6.904 | <0.001 |
| KAARSHYA | 4 | 0.150 | 0.750 | 5 | 0.750 | 0.265 | 0.065 | 1.775 | >0.001 |
| PARUSHA | 1 | 0.500 | 0.0 | 2.5 | 0.05 | 0.316 | 0.050 | 1.00 | >0.001 |
| LALASHRAV | 2 | 0.250 | 0.0250 | 0 | 0.0 | 0.0 | 0.0 | 0.0 | >0.001 |
| GUDEN KRIMI NIRGAMAN | 1 | 0.050 | 0.60 | 2.5 | 0.050 | 0.316 | 0.050 | 1.00 | >0.001 |
| CHARDI | 4 | 0.10 | 0.0 | 7.5 | 0.100 | 0.304 | 0.048 | 2.082 | >0.001 |
| ANAHA | 12 | 0.48 | 0.50 | 26.25 | 0.425 | 0.747 | 0.118 | 3.597 | <0.001 |

OBJECTIVE PARAMETER:

| INVESTIGATION | BT | AT | % | MEAN DIFF. | SD | SE | T | P |
|---------------|---------|--------|-------|------------|--------|--------|-------|--------|
| HB | 12.102 | 12.357 | 2.15 | 0.255 | 0.323 | 0.051 | 4.987 | <0.001 |
| AEC | 245.10 | 125.45 | 49.59 | 119.65 | 71.241 | 11.264 | 10.62 | <0.001 |
| STOOL | 0.410 | 0.0 | 40 | 0.410 | 0.448 | 0.0798 | 5.141 | <0.001 |
| WEIGHT | 13.280 | 13.632 | 2.74 | 0.353 | 0.332 | 0.652 | 6.714 | <0.001 |
| HIGHT | 100.063 | 100.16 | 0.10 | 0.100 | 0.304 | 0.048 | 2.082 | 0.044 |

DISCUSSION ON DISEASE REVIEW -

Intestinal parasitic infestation characterizes a large and serious medical and public health difficult in developing countries. Mostly responsible risk factors for this high prevalence are being low levels of sanitation, lack of safe water supply, poor hygiene, low socio economic status, illiterate parents and impoverished health services. The factors for consideration behind the choice of this particular difficult were:

- Increased incidence and recurrence of worm infestation in developed as well as developing countries.
- Worm Infestation is dominant causative factor for anaemia, malnutrition and innumerable secondary infections
- Need of the hour is to find out a simple, efficacious, harmless medicine which could root out the disease and prevent the recurrence.

Most of Samhita had description of *Krimiroga* but Kashyapa Samhita

The table shows Maximum i.e. 42.5% patients had habit of Nail biting; followed by 37.5% patients had habit of Teeth grinding. 12.5% patients had habit of mud eating, 2.5% patients had habit of thumb sucking whereas 02.5% patients had habit of other.

Family wise distribution of patients

| Family | No. of Patient | Percentage (%) |
|---------|----------------|----------------|
| Joint | 21 | 52.5 |
| Nuclear | 19 | 47.5 |
| Total | 40 | 100 |

From the above table, we can interpret that out of total 40 no. of patients 52.5% live in joint family and the rest 47.5% live in a nuclear family.

Distribution of patients according to the Personal Hygiene

| Personal Hygiene | No. of Patient | Percentage (%) |
|------------------|----------------|----------------|
| Maintain | 15 | 37.5 |
| Not Maintain | 25 | 62.5 |
| Total | 40 | 100 |

The above table represent the personal hygiene of the patients. 62.5% of the patients do not maintain their hygiene and 37.5% of the patients do maintain their hygiene.

Distribution of patients based on Sharirika Prakruti

| Sharirika Prakruti | No. of Patient | Percentage (%) |
|----------------------|----------------|----------------|
| Vataja | 2 | 5 |
| Pittaja | 0 | 0 |
| Kaphaja | 0 | 0 |
| Vata-Pittaja | 13 | 32.5 |
| Pitta-Kaphaja | 1 | 2.5 |
| Vata-Kaphaja | 24 | 60 |
| Vata-Pittaja-Kaphaja | 0 | 0 |
| Total | 40 | 100 |

Majority of the patient i.e., 60% of the patients were vata – kaphaja, while 32.5% of them were vata – Pittaja, 5% of them were vataja and 205% were pitta – kaphaja.

had *Krimiroga* chapter lost some description in later period. There is every possibility that there had been certain texts revealing complete details of *Krimi* which may later being extinguished.

Etymology of *Krimiroga* shows that *Krimi* word has wide range including all *Apada Bahupada*, pathogenic - non-pathogenic, movable and alive organisms in it. Acharya Dalhana described its origin, whereas in *Vachaspathyam* (3rd part) described its pathogenic nature.

Acharya Charaka classified *Krimi* as *Sahaja* and *Vaikarika*, means they were also aware about non-pathogenic nature of *Krimi*. Acharyas just mention non-pathogenic worms by its name as *Sahaja*. Under the *Vaikarika Krimi*, two subgroups are described as *Bahya* and *Abhyantara Krimi*. Acharyas further divided internal *Krimi* in three groups

1. Raktaja
2. Purishaja

3. Shleshmaja - according to their habitat and the media in which they grow.

Shleshmaja Krimi is one class of Krimi which grow on the Ama and live in stomach, small intestine or upper part of gastro intestinal tract. Purishaja Krimi is one class of Krimi which grow on faecal material and alive in Pakwashaya (large intestine) or the lower part of gastrointestinal tract. Raktaja Krimi lives in blood and blood forming organ (liver). Acharya Bhava Mishra described Raktaja Krimi as a causative factor of skin disease.

Most of the Acharyas mentioned total number as 20 as far as the number of the Krimi is concerned, but when the different nomenclatures are counted it may be as high as 60. There are 10 nomenclatures under Bahya Krimi while there are 16 names under Shleshmaja Krimi. There are 13 nomenclatures found under Purishaja Krimi and there are 14 nomenclatures in Raktaja Krimi. Acharya Harita has separately described 6 names and has not split them into different groups.

DISCUSSION ON ANALYTICAL STUDY:

| PARAMETER | | |
|-----------|-------------------------|--|
| 1 | Ph | 4 |
| 2 | Loss of Drying | 72.41 % w/w |
| 3 | Specific gravity | 1.3319% w/w |
| 4 | Ash value | 0.98% w/w |
| 5 | Water Soluble Extract | 5.95% w/w |
| 6 | Alcohol Soluble Extract | 5.35% w/w |
| 7 | Acidic Insoluble Ash | 0.5% w/w |
| 8 | AIA | 0.5% w/w |
| 9 | TLC – 254 nm | Rf value – 0.29, 0.38, 0.61, 0.71, 0.8 |

| ORGANOLEPTIC | | |
|--------------|-------------|------------|
| 1 | Colour | Brown |
| 2 | Odour | Sweet |
| 3 | Taste | Sweet |
| 4 | Consistency | Semi Solid |

| SOLUBILITY TEST | | |
|-----------------|-------------------|-----------|
| 1 | Methanol | Soluble |
| 2 | Chloroform | Insoluble |
| 3 | Diethyl Ether | Insoluble |
| 4 | Carbon Disulphide | Insoluble |
| 5 | Water | Soluble |

HVKIG = All the pharmaceutical parameters analyzed showed values permissible for a syrup. Variation in weight was less than 72.41%.

TLC and HPTLC of prepared product were done. 5 spots observed under 254nm 5 spots observed under daylight matched with HPTLC spots suggesting presence of active ingredient in the formulation. Rf value is 0.29, 0.38, 0.61, 0.71, 0.8.

DISCUSSION ON CLINICAL STUDY -

AGE: Children appropriate to the age group of 1-6 years contributed major population of suspected intestinal worm. Pre School going children classically have the highest intensity of worm infestation of any age. As 1-6 years of age is the utmost active period of pre-school age, increased prevalence of worm infestation in them due to several sources is justifiable.

PRAKRITI: Majority of the subjects registered in the present study i.e., 60% were belonging to Vata- Kapha Prakriti, followed by 32.5% patients of Vata-Pitta Prakriti, only one patient i.e., 2.5% was of Pitta-Kaphaja Prakriti.

SOURCE OF DRINKING WATER: In 40 patients there are drinking pure water (50 percent) remaining 42.5 percent unknown and Maximum number of patients i.e. 29 (50 percent) consumed drinking water supplied by. Childhood malnutrition causes around 35 percent of all deaths of children under the age of five worldwide; it is estimated that 50 percent of childhood malnutrition is associated with repeated diarrhoea unclean supply, household storage, poor cleaning, etc. can contribute to this.

NIDANA: Diwaswapna, Asatmyabhojana, Viruddhashanna were reported by 100% of patients, while Ajirna bhojana was observed in 98.28% patients. The statement goes hand in hand with those Nidanans

mentioned by Acharya Charaka for manifestation of Krimi Roga.

SLEEP: Children having the history of disturbed sleep were suspected to be having worm infestation in majority (65.5%). Sleep disturbance may be due to vague pain abdomen, abdominal discomfort and itching around anal region, which are commonly seen related with worm infestation. Up to 10 per cent cases of enuresis may be due to worm infestations.

HABITS:

In the current clinical trial, 17 (42.5 percent) children had nail biting habits and 5 (12.5 percent) of PICA/ others and teeth grinding 15 (37.5 percent). Developing the habit of consuming these substances at a very early age suggests a lack of parental care and education in these children, hence hygienic activity and behavior expectations are comparatively lower, which is a major cause. As children have increased nutritional craving, they tend to show this sign of non-nutritional substances being consumed.

Various studies have identified Intestinal parasites in 63% - 70.3% of pica cases" suggesting strong relationship between patients suffering from pica and worm infestation. As children have increased craving for nutrition they tend to exhibit this sign of consuming non-nutritive substances.

PERSONAL HYGIENE:

Personal hygiene was observed to be children in maximum number of children isn't maintain hygiene 25(62.5) and 15(37.5%) of children maintain personal hygiene.

Children need to learn good personal hygiene very early in life. In addition to making them more socially acceptable, they should practice cleanliness to stay healthy. If they start early, they are more likely to develop a habit of good hygiene that will serve them well through life. According to Dr. Lynn Smitherman, an assistant pediatrics professor at Wayne State University, good hygiene will help them prevent from spreading illness.

SROTAS: In the present study, involvement of Ananvaha, Rasavaha and Purishvaha Srotas was seen in all the patients.

Kaphaja Krimi is located in Amashaya whereas Purishaja Krimi in Pakwashaya. These Krimi survive by deriving the Poshana from the Ahara consumed hence involvement of Annavaha, Rasavaha and Purishajavaha Srotas according to their anatomical positioning can be justified. Further intestinal worms affect the GI tract mainly having their effect on other systems. These 3 Srotas form the integral part of GI tract and involvement of worms is obvious.

DISCUSSION ON EFFECT OF THERAPY –

VAIVARNATA:

There is a 77.5% relief was observed in the symptoms Vivarnata, while these result was found statistically significant. These statistical findings are suggesting that, HVKIG syrup having good effect in relieving the symptoms. These result obtain due to Tvakaprasadana and Kaphahara Karma of Haritaki, Vidanga and Kampillaka, also there is Rasashodhaka effect of Indrayava and Kushtahara properties of Argvadha.

UDARSHOOLA:

There is a 32.5% relief was observed in the symptoms Udarshoola, while these result was found statistically significant. These statistical findings are suggesting that, HVKIG syrup having good effect in relieving the symptoms.

These result obtain due to Tvakaprasadana and Kaphahara Karma of Haritaki, Vidanga and Kampillaka, also there is Rasashodhaka effect of Indrayava and Kushtahara properties of Argvadha.

ARUCHI:

There is a 79.17% relief was observed in the symptoms Aruchi, while these result was found statistically significant. These statistical findings are suggesting that, HVKIG syrup having good effect in relieving the symptoms.

GUDAKANDU:

There is a 71.25% relief was observed in the symptoms Gudkandu, while these result was found statistically significant. These statistical findings are suggesting that, HVKIG syrup having good effect in

relieving the symptoms.

KAARSHYA:

There is a 5% relief was observed in the symptoms Kaarshya, while these result was found statistically significant. These statistical findings are suggesting that, HVKIG syrup having good effect in relieving the symptoms.

PARUSHA:

There is a 2.5% relief was observed in the symptoms Parusha, while these result was found statistically significant. These statistical findings are suggesting that, HVKIG syrup having good effect in relieving the symptoms.

GUDEN KRIMI NIRGAMAN:

There is a 2.5% relief was observed in the symptoms Guden krimi Nirgaman, while these result was found statistically significant. These statistical findings are suggesting that, HVKIG syrup having good effect in relieving the symptoms.

CHARDI:

There is a 7.5% relief was observed in the symptoms Chardi, while these result was found statistically significant. These statistical findings are suggesting that, HVKIG syrup having good effect in relieving the symptoms.

ANAHA:

There is a 26.5% relief was observed in the symptoms Anaha, while these result was found statistically significant. These statistical findings are suggesting that, HVKIG syrup having good effect in relieving the symptoms.

HEAMOGLOBIN:

There is a 2.15% haemoglobin % increased, while these result was found statistically significant. These statistical findings are suggesting that, HVKIG syrup having good effect.

WEIGHT:

There is a 2.74% weight increased, while these result was found statistically significant. These statistical findings are suggesting that, HVKIG syrup having good effect.

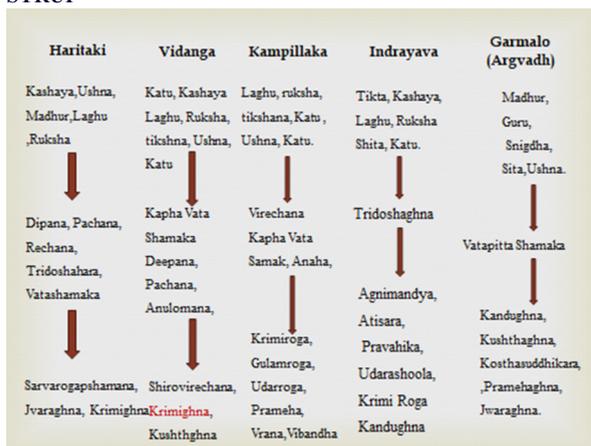
ABSOLUTE EOSINOPHIL COUNT:

There is a 49.59% AEC decrease, while this result was found statistically significant. These statistical findings are suggesting that, HVKIG syrup having good effect.

STOOL:

There is a 40% relief was observed in the symptoms Stool, while these result was found statistically significant. These statistical findings are suggesting that, HVKIG syrup having good effect in relieving the symptoms.

DISCUSSION ON PROBABLE MODE OF ACTION OF HVKIG SYRUP-



HARITAKI: Haritaki is Kashaya Rasa, Ushna Virya, Madhura Vipaka, and having Laghu, Ruksha properties due to this properties it helps in Dipana, Pachana, Tridosahara, and Vatanulomana, Jvaraghna which is useful to remove Krimi from body with

Apakarshna effect.

VIDANGA: Vidanga is Kashaya, Katu rasa, Laghu, Ruksha, Tikshna guna, Virya Ushna and vipaka katu due to this properties it helps in dipan, pachan, Anulomana, kapha vata shamak which is useful to remove krimi from body with apakarshna effect.

KAMPILLAKA: Kampillaka is laghu, Ruksha, Tikshna guna, katu rasa and Virya Ushna, vipaka katu due to this property it helps in Virechana, kaphavata samaka, anaha which is useful to remove krimi helps of Virechana karma.

INDRAYAVA: Indrayava is tikta and kashya rasa, laghu Ruksha guna and shita Virya and katu vipaka due to this properties it helps in tridoshaghna which is useful to remove krimi with apkarshana effect.and useful in Agnimandya and kandughana.

GARMALA (ARAGVADH): Aragvadh is Madhura rasa, guru and snigdha guna, sita and Ushna Virya, madhur vipaka due to this property it helps in vattapitta samaka which is useful krimighana and kandughana.

CONCLUSION

The study entitled “ROLE OF HVKIG SYRUP IN KRIMI ROGA W.S.R. WORM INFESTATION IN CHILDREN” was aimed at evaluating the clinical efficacy of HVKIG SYRUP.

After a comprehensive observation and discussion on the observed data, the following conclusions may be drawn:

- Child are more prone for *Krimi Roga* due to *MadhuraPraya Ahara*, lack of hygiene towards health, and tenacious contact with etiological factors.
- HVKIG Syrup is such combination affording *Apakarshana* and *Prakritivighata* to *Krimi Roga*.
- This clinical study reveals the significant effect on the subjective parameters of *Krimi Roga* which is suggestive that this combination is actual suitable to treat the *Shleshmaja* and *Purishaja Krimi*. Still Combination is additional effective to treat the *Purishaja Krimi*.
- *Shleshmaja* Krimis is said to residing in upper part of the gastrointestinal tract and growing on Ama. As the literatures suggest, *Purishaja Krimi* is found in lower part of gastrointestinal tract living on faecal material.
- The trial drug HVKIG is effective in managing all types of *Krimi*. It contains five drugs as principle ingredient which is having anti-helminthic property.
- In majority of the patients *Purishaja Krimi* dominant symptoms were observed. Involvement of *Annavaaha* Srotas, *Rasavaha* Srotas and *Purishavaha* Srotas was seen in majority of patients.
- On the efficacy of treatment on signs and symptoms, HVKIG SYRUP showed statistically significant results on *Vivarnata*, *Udarashoola* and *Chardi*, *Anaha* etc.
- Hence HVKIG is clinical effective remedy for *Krimi Roga* in children.
- HVKIG syrup is effective in the treatment of *Krimi Roga* in children.

REFERENCES

1. Introduction and overview the World Health Report 2008, Primary Health care, WHO, Geneva, Pg.no.5
2. International Journal of Environmental Health research: 13S153-S159 (June 2003) 3. C P Baveja V Baveja, Medical Parasitology, First edition, 2007, Chapter 1, Pg.no.3, Arya Publishing Company, Sirmour, H.P
3. Baveja V Baveja, Medical Parasitology, First edition, 2007, Chapter 1, Pg.no.3, Arya Publishing Company, Sirmour, H.P
4. Agnivesha, redacted by Charaka and Dridhabala with Ayrveda Dipika commentary of Chakrapani Datta, Charaka Samhitha, Sutra Sthana 19/9, Pg.no.110, Chaukhambha Sanskrit Sansthan, Varanasi.
5. Agnivesha, redacted by Charaka and Dridhabala with Ayrveda Dipika commentary of Chakrapani Datta, Charaka Samhitha, Vimana Sthana 7/28-30, 5th edition, Pg.no.258, Chaukhambha Sanskrit Sansthan, Varanasi
6. International Journal of Environmental Health research : 13,S156 (June 2003)
7. Sushruta Samhitha, Uttara Sthana 54 / 8-16 Pp 400
8. Haritha Samhitha, 3rd Sthana, 5th Chapter
9. www.worldbank.org/hnp. “School deworming at a glance”, march 2003
10. http://www.unicef.org/media/media_45481.html
11. Charaka Samhitha, Vimana Sthana 7/12-13
12. http://www.banginfo.in/Naturecure/Bedwetting.html
13. Ravinder K. Gupta, Ritu Gupta, “Clinical Profile of Pica in Childhood”, JK science, Vol. 7 No.2, April-June 2005
14. Robinson BA, TolanW, Golding Beecher O. Childhood pica some aspects of the clinical profile in Manchester, Jamaica, West Ind Med J 1990; 39: 20-26.
15. Karoui A, Karoui H. Pica in Tunisian children. Results of a survey performed in a poly clinic of Tunisian social security national administration. Pediatrics 1993; 8(7-8): 565-69.
16. http://www.livestrong.com/article/75036-kids-personal-hygiene
17. Charaka Samhitha, Vimana Sthana 7/12-13