A CLINICAL STUDY ON THE EFFECT OF THREE INDIGENOUS HERBS BHRINGARAJ, APAMARGA, AKHUKARNI OVER PURISHAJA KRIMI (HELMINTHIASIS)

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ABSTRACT

A germ free world is impossible. Human are residing and maintaining their life along with several germs viz. viruses, bacteria, protozoa, parasites, etc. survival of the fittest is a common proverb, so, struggling is continued from the eve of human life. The present work may be called as a part of the struggling process because the most common serious helminth infections are prevalent in poor tropical and subtropical areas. In India, especially West Bengal, helminthiasis is a great problem. Anaemia, malnutrition, underweight and emaciation are frequently found in this region as a result of helminthiasis. Modern medicines, like albendazole, mebendazole etc. have not been able to completely eradicate the same. Also, these drugs have a lot of adverse effects. So, there is a dire need to search anthelminthic drugs to protect the health of our countrymen. As Ayurveda believes in nature of individual (prakriti), so conceptually if we are able to change the internal environment of intestine (kostha) by enhancing the strength of agni, then susceptibility or affinity towards production and multiplication of parasites may be seized or arrested. For the study three drugs viz. Bhringaraja [Eclipta alba (L) Hassk], Apamarga (Achyranthes aspera Linn.) and Akhukarni (Ipomoea reniformis Choiry) have selected from the classical texts. A clinical study was done on 80 patients divided into four groups 20 patients in each. The fourth group (Gr.D) showed maximum results of the drugs combination, which is discussed in the present paper.
KEYWORDS: Krimi, helminthiasis, prakriti, agni, Bhringaraj, Apamarga, Akhukarni, modern medicines etc.

INTRODUCTION
Proper sanitation, providing pure water, uncontaminated food and maintenance of personal hygiene are the key solutions of Helminthiasis. Yet, to arrest and eradicate the genesis as well as multiplication of the helminth, some drugs are ought to be introduced to our people.

In Vedas, existence of krimi has been indicated, while Ayurvedic classics have already mentioned the existence of krimi and during classification of krimi they categorized the parasites as per their nature or habitat. Purishaja Krimi or faeces borne parasites are found in Pakvashaya or colon and when excessively grown, they move downwards and when they move towards Amashaya or stomach, then the eructation produces faecal odour. Several health hazards appear during the infestation of Purishaja Krimi or helminths like diarrhoea, emaciation, dryness, horripilation, etc. so, the specific management has been mentioned by our classics through herbal and herbo-mineral compounds. Three herbs viz. Bhringaraja [Eclipta alba (L) Hassk], Apamarga (Achyranthes aspera Linn.) and Akhukarni (Ipomoea reniformis Choiry) have been included by our classics as anthelminthic drugs. So, present study is an effort to evaluate the efficacy of Bhringaraja (Eclipta alba), Apamarga (Achyranthes aspera) and Akhukarni (Ipomoea reniformis) in the management of Purishaja krimi (Intestinal Helminthiasis).

ETYMOLOGY OF KRIMI
The word Krimi is a term used to denote tiny living beings in Vedic and Ayurvedic literatures. Popular Sanskrit dictionaries stated that the word Krimi is derived from the root “Kramu” which means to step or to walk.

1. क्रमु पाद विक्षेपे[1]
Those which move with the legs are termed as Krimi.

2. लुम्पल्लित कीट कृमयः परित्स्तथैते[2]
That which is capable to break or injure the surroundings is term as a Krimi or Keeta”.

3. कृमि कीटत्यादि कृमयः कोष्ठपुरीषादि बाण्यसम्भवातः[3]
Which means Krimi is considered as the living being which is born from the vapour of faecal material in the intestinal tract or such environment elsewhere.
All these etymologies are not complete separately whereas in combination implies more applicable form. An analysis of first etymology reveals that it may pertain to macroscopic creature as these are with legs whereas the second etymology indicates the harmful nature of the tiny living being described under the term Krimi. The third etymology gives us the clue to its origin.

**DEFINITION OF PURISHAJA KRIMI**

*Purisha* is the *sthula kita ansha*[^4] (gross waste product) derived as a consequence of digestion of food. *Purishaja* means पुरीषाि् जािः (that which originates from purisha).[^5] So, *Purishaja Krimi* may be called as the *krimi* which either originates or resides in *purisha*.

**AIMS AND OBJECTIVES OF THIS STUDY**

1. To co-relate *Purishaja Krimi* with Intestinal Helminthiasis
2. To evaluate the efficacy of *Bhringraja, Apamarga* and *Akhukarni* in the management of *Purishaja Krimi* (intestinal helminthiasis).
3. To observe the adverse effect, if any, of the trial drugs during the course of treatment.
4. To inspire the future workers of this field.
5. To provide an effective, safe and unique curative regimen against *Purishaja Krimi* or Intestinal Helminthiasis

**MATERIALS AND METHODS**

1. STUDY AREA- sufficient patients of *Purishaja Krimi* have been selected from OPD of IPGAE&R at SVSP, Kol-9 on the basis of careful history taking, clinical findings and judicious use of our institute’s laboratory.
2. STUDY POPULATION: Patient who attended OPD of IPGAE & R at S.V.S.P Hospital, Kolkata-9 from different corners of our country.
3. STUDY PERIOD- 1 ½ years (Trial period- 2 weeks for each sample)
4. SAMPLE SIZE- 80 patients
5. SAMPLE DESIGN- the whole sample has been be divided into 4 groups:

   - Group A- *Bhringraja + Apamarga churna* given to 20 patients
   - Group B- *Bhringraja + Akhukarni churna* given to 20 patients
   - Group C- *Apamarga + Akhukarni churna* given to 20 patients
   - Group D- *Bhringraja + Apamarga + Akhukarni churna* given to 20 patients
Among four groups the group D showed maximum effect of the drugs, so in this article the results of group D are discussed.

6. SELECTION OF THE PATIENTS

INCLUSIVE CRITERIAS

a. Patients with classical symptoms of Purishaja Krimi- purisha bheda (diarrhoea), karshya (emaciation), parushya (dryness), lomaharsha (horripilation), aasya, gudamukh toda and kandu (irritation and itching in oral cavity and anus), etc. attending IPGAE&R at SVSP have been selected for the present study irrespective of their sex, religion, occupation, etc.

b. Evidence of ova, cysts and in some cases the worms itself in stool.

c. Hb%- female- <12gm% and male- <13gm%

d. Age from 16 to 70 years.

e. Those who agree to come under trail.

EXCLUSIVE CRITERIAS

a) Patients suffering from grievous diseases like TB, AIDS, cancer, cardiac ailments, DM, gastric ulcer, acute or chronic renal failure, acute or chronic liver disease, etc.

b) Pregnant or lactating mother

c) Age <16 years and >70 years

d) Those who don’t agree to come under trail.

DIAGNOSIS

From history taking, systemic and stool examination.

Intensity of disease with the help of symptom grade, objective criteria and Laboratory findings.

PARAMETERS STUDIED

- Response on clinical sign and symptoms before and after treatment through scoring system.
- Stool analysis: routine and microscopic to evaluate the change of lab findings of stool examination (cysts, ova, etc.)
- Blood for Hb%
- Haematological investigations: TC, DC, ESR, LFT, Urea, Creatinine. AST, ALT, Bilirubin has been done before and after treatment to evaluate complications, if any.
PREPARATION OF MEDICINES

*Panchanga* (whole plant) of *Bhringraja, Apamarga* and *Akhukarni* was collected from the market (after recommendation and proper identification by the concerned *Ayurvedic* expert) and dried properly. The individual powdering was done of the foresaid components at apothecary department of IPGAE&R at SVSP. Airtight packet as below:

*Bhringraj, Apamarga & Akhukarni* (1:1:1) 42gm packets (P4) made for 20 heads of group D of patients.

**Dose** = 3gm OD

**Time** = early morning, empty stomach

**Duration** = 2 weeks

**Anupana** = Luke warm water

**Follow up:** all the patients were followed and the observations of subjective and objective features were recorded at end of 2 weeks of the study.

**Advice to the patients during clinical trial:**
- Patients were advised not to take any other drugs for *pravahika*.
- To keep away from stress and anxiety
- Not to take spicy, oily, heavy meals
- Restrict smoking, alcohol and excessive coitus, homosexuality
- Avoid travelling
- Not to change the source of drinking water

**Laboratory Investigations**

In each patient stool examination for Ova, Parasite and cysts, mucus, vegetable cells and starch has been performed. Routine blood examination and body weight was also measured.

**CLINICAL STUDY**

In Ayurveda, the specific cause, shape, colour, names, effects and treatment of *Krimi* (parasites) are described, in general. As the faeces borne parasites and its treatment involve several drugs, so the effectiveness of these drugs is needed to be evaluated.

**HOW THIS STUDY WILL ENRICH THE PRESENT KNOWLEDGE**

There are certain *krimighna* (anthelminthic) drugs mentioned by our *Acharyas* which are taken for the management for *Purishaja krimi*. So, in this context *Bhringaraja* (*Eclipta alba*),
Apamarga (Achyranthes aspera) and Akhukarni (Ipomoea reniformis) have been taken as remedy against the disease Purishaja krimi. This study will enrich the concept for elimination of root cause thereby rectifying the intestinal environment.

ANALYSIS OF DATA
Statistical analysis has been done on the response revealed from subjective, objective parameters and laboratory findings.

OBSERVATION AND RESULT
The observations are based on the following:
1. Etiological (nidana)
2. Clinical
3. Therapeutic

Table no.1. Statistically showing the effectiveness of P4 drug on patients of Purishaja Krimi.

<table>
<thead>
<tr>
<th>Symptoms n=18</th>
<th>BT Mean</th>
<th>AT Mean</th>
<th>Relief %</th>
<th>SD (±)</th>
<th>SE (±)</th>
<th>‘t’ value</th>
<th>P</th>
</tr>
</thead>
<tbody>
<tr>
<td>Purishaja bheda</td>
<td>1.39</td>
<td>0.44</td>
<td>68.34%</td>
<td>1.225</td>
<td>0.289</td>
<td>3.29</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td>Gudamukha toda,kandu</td>
<td>1.83</td>
<td>0.5</td>
<td>72.7%</td>
<td>1.526</td>
<td>0.36</td>
<td>3.69</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td>Nausea and vomiting</td>
<td>1.17</td>
<td>0.33</td>
<td>71.79%</td>
<td>1.179</td>
<td>0.278</td>
<td>3.021</td>
<td>&lt;0.01</td>
</tr>
<tr>
<td>Peri umbilical pain</td>
<td>1.06</td>
<td>0.2</td>
<td>81.13%</td>
<td>1.312</td>
<td>0.309</td>
<td>2.78</td>
<td>&lt;0.01</td>
</tr>
<tr>
<td>Dourbalya</td>
<td>1.72</td>
<td>0.44</td>
<td>74.42%</td>
<td>1.47</td>
<td>0.346</td>
<td>3.70</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td>Hb%</td>
<td>9.82</td>
<td>9.92</td>
<td>1.02%</td>
<td>0.138</td>
<td>0.032</td>
<td>3.13</td>
<td>&lt;0.01</td>
</tr>
<tr>
<td>Presence of ova</td>
<td>3</td>
<td>0.83</td>
<td>72.2%</td>
<td>2.37</td>
<td>0.56</td>
<td>3.87</td>
<td>&lt;0.001</td>
</tr>
</tbody>
</table>

Response in Group-D
The response of the treatment in patients of group D was variable when treated with Bhringaraja, Apamarga and Akhukarni. In this group 20 patients were registered and 18 of them have been treated. The response of the post-treatment condition is analysed on the basis of response after completion of treatment comparing with the pre-treatment status. The sign and symptoms present in the group D patients of Purishaja Krimi before starting the treatment, presenting with, Purisha bheda (frequent passage of stool), Gudamukha todakandu (perianal itching), nausea vomiting, periumbilical pain, dourbalya (weakness), karshya (emaciation), parushya (dryness). The effect of the drug was assessed on the subjective parameters and stool examination parameters i.e., stool for ova, parasite and cyst, occult blood, presence of mucus and presence of worm in the stool at the end of the treatment. The
effect of P4 group drugs was assessed on these symptoms at the end of 14 days of treatment and the improvement of symptoms were recorded.

Table no.2. Showing the evidence of Renal profile (Urea, Creatinine) and Liver Function test (SGOT, SGPT, Bilirubin) before and after treatment with statistical analysis of Group-D patients (n=18)

<table>
<thead>
<tr>
<th>Group D</th>
<th>Urea mg/dl</th>
<th>Creatinine mg/dl</th>
<th>AST U/L</th>
<th>ALT U/L</th>
<th>Bilirubin mg/dl</th>
</tr>
</thead>
<tbody>
<tr>
<td>BT</td>
<td>29.6</td>
<td>0.816</td>
<td>24.6</td>
<td>22.1</td>
<td>1.012</td>
</tr>
<tr>
<td>AT</td>
<td>29.4</td>
<td>0.8</td>
<td>24.4</td>
<td>21.83</td>
<td>1</td>
</tr>
<tr>
<td>% of difference</td>
<td>0.67%</td>
<td>1.96</td>
<td>0.81%</td>
<td>1.04%</td>
<td>1.44%</td>
</tr>
<tr>
<td>SD</td>
<td>0.62</td>
<td>0.046</td>
<td>0.91</td>
<td>0.57</td>
<td>0.04</td>
</tr>
<tr>
<td>SE</td>
<td>0.15</td>
<td>0.011</td>
<td>0.21</td>
<td>0.14</td>
<td>0.009</td>
</tr>
<tr>
<td>T</td>
<td>1.3</td>
<td>1.45</td>
<td>0.95</td>
<td>1.64</td>
<td>1.63</td>
</tr>
<tr>
<td>P</td>
<td>&lt;0.1</td>
<td>&lt;0.1</td>
<td>&lt;0.1</td>
<td>&lt;0.1</td>
<td>&lt;0.1</td>
</tr>
</tbody>
</table>

Table no.3. Overall effect of therapy on patients

<table>
<thead>
<tr>
<th>Grade</th>
<th>Gp. D n=18</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>POOR</td>
<td>0</td>
<td>-</td>
</tr>
<tr>
<td>GOOD</td>
<td>8</td>
<td>44.4%</td>
</tr>
<tr>
<td>EXCELLENT</td>
<td>10</td>
<td>55.6%</td>
</tr>
</tbody>
</table>

In Group D, 44.4% patients reported as good and 55.6% reported as excellent. While none of the patients were reported as poor in response.

DISCUSSION AND SUMMARY

The present thesis entitled, “A clinical study on the role of Bhringraja (Eclipta alba), Apamarga (Achyranthes aspera) and Akhukarni (Ipomoea reniformis) in the management of Purishaja Krimi w.s.r. to intestinal helminthiasis”.

20 patients of Group D were treated with Bhringraja, Apamarga and Akhukarni churna in equal proportion in the dose of 3 grams daily with lukewarm water at morning in empty stomach. The parts used of all the three drugs was whole plant and the treatment period of all groups were of 2 weeks with the restriction of certain apathy like divasvapna (day sleep), heavy, spicy, excessive sweet foods.

The last group of treatment where P4 drug (Bhringraja, Apamarga and Akhukarni) has been introduced to 18 patients of group D, the symptoms like Purisha bheda, Gudamukha todakandu, nausea-vomiting, periumbilical pain and dourbalya have been relieved by 68%, 73%, 72%, 81%, 74% respectively, while statistically the significance determined by
P<0.001, 0.001, 0.01, 0.01, 0.001 respectively. Hb% enhanced by about 1% and presence of ova in stool reduced by 72%. It is worthy to mention that, in connection with the number of patients, group D patients have shown excellent effect i.e. about 56%.

In consideration to features, *Purisha bheda* and periumbilical pain became more relieved by P4 drug which indicates that *ama pachana* followed by reduction of diarrhea and pain is the main action of *Bhringaraja, Apamarga* and *Akhukarni*. *Bhringaraja* possesses the *rasa katu* and *tikta*, *Apamarga* possesses the *rasa tikta* and *katu*, while *Akhukarni* possesses the *rasa Katu*, *tikta* and *Kasaya*. This information rightly suggests that the *katu* and *tikta rasa* of all three agents causing *agni deepana* and *pachana* action which leads to enhancement of *Agni bala* and rectifying the *mridu koshtha*. Simultaneously, that *agni bala* also pacifying *vayu* means rectifying the *krura koshtha*. At the same time, the extra *kasaya rasa* of *Akhukarni* reduces the *sara guna*. That means ceases the *purisha bheda*.

No statistically significant changes have been observed in the renal profile (Urea, Creatinine) and LFT (AST, ALT, Bilirubin) before and after treatment with the trial drugs. So, it could be suggested that the trial drugs have no such adverse effects over kidney and liver.

**CONCLUSION**

1. *Purishaja krimi* may be co-related with intestinal helminthiasis in relation to their sign and symptoms.
2. Unhealthy lifestyle, unwholesome and contaminated food and drinks are liable to form *ama*, which leads to development of *Purishaja krimi*.
3. *Pachaka, deepaka, saraka aushadhis* in combination may be able to arrest *Purishaja Krimi* (intestinal helminthiasis)
4. Combination of *Bhringraja, Apamarga* and *Akhukarni* in 1:1:1 ratio in a dose of 3 grams once daily is able to cure the patients of *Purishaja krimi* (intestinal helminthiasis) with excellent curative effect, where in symptomatic relief  P value found from <0.01 to <0.001. 5
5. Where P4 drug has the great wormicidal ability in the context of presence of ova in the stool.
6. No such adverse effects may be found during the therapy of *Bhringraja, Apamarga* and *Akhukarni* over kidney, liver as well as other systems.
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