Anthelmintic Activity of Unani Drug Mallotus phillippienesis (Kamela)

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ABSTRACT

The purpose of this study was to determine the epidemiology of parasitic infections and the efficacy of treatment of kamela. Parasitic infections were confirmed by clinical and pathological examination of the participants. Overall, helminthic infection in males is70% higher than in females 30% by parasitic infection. Analysis of prevalence in socioeconomic factors reveled about 66.66% people affected are of lower class the major contributing factor are poor hygienic conditions, poor sanitation and less awareness.

In the present study kamela has shown better action against tape worm with a cure rate of about 96.67% as compared with thread worm 93.34% and round worm with cure rate of about 86.67% respectively. kamela has shown effect in controlling the symptoms like pruritus ani, diarrhoea and history of passing worms with a cure rate of about 93.34% each. Other symptoms are also controlled like abdominal pain 80%, pruritus 86.67% and grinding teeth about 90%.

Keywords: Kamela, Cure rate, Helminthes, Risk factors.

INTRODUCTION

Intestinal parasitic infections are globally endemic and constitute greatest single worldwide cause of illness and disease^{1,2} Some 197 species of helminths have been found in association with the human alimentary tract³. Roundworms, hookworms, and whipworms thrive in human communities in which poverty is entrenched and clean drinking water; sanitation, health care, and health awareness are inadequate. According to the global burden of disease, soil-transmitted helminthiasis (infections with the nematodes *Ascaris lumbricoides*, *Trichuris trichiura* and the two hookworm species *Ancylostoma duodenale* and *Necator americanus* causes the loss of 5 million disability-adjusted life years every year⁴. While an infection with one or several soil-transmitted helminth species seldom causes death, chronic infections with moderate or heavy worm burdens result in considerable morbidity, including stunting, wasting, anemia and

impaired physical and mental development in children⁵.

Fighting disease with drugs is an endless task that originated from the existence of mankind .The drugs can be obtained from plant sources, animal sources, and mineral sources or may be synthetic or semi-synthetic⁶.

Anthelminthics are those agents that expel parasitic worms (helminthes) from the body, by either stunning or killing them. Intestinal infections with worms can be treated more easily than other infections. This is because the intestinal worms are killed by the drug and the drug need not be absorbed when administered through oral route. However, increasing problems of development of resistance in helminthes⁷⁻⁹ against anthelminthics have led to the proposal of screening medicinal plants for their anthelminthic property. Plants are known to provide a rich source of potent botanical anthelminthics¹⁰. A number of medicinal plants have been used to treat parasitic infections in human and animals¹¹⁻

Rational control of helminthic infections involves the regular use of appropriate anthelmintic drugs¹³. However, continuous administration of a drug leads to the development of resistance. Moreover, synthetic anthelmintics are well known to possess several adverse and/or side effects. Thus, search for alternative therapeutic agents for the treatment and control of helminthic infections has increased in importance.

The fruit *of Mallotus philippinensis*, Family: Euphorbiaceae, commonly called kamela has been commonly used in folk medicine for the treatment of various helminthic infections in man and animals¹⁴⁻¹⁵. Other medicinal properties ascribed to this indigenous plant in traditional medicine include anthelmintic, cathartic, aphrodisiac, lithotropic and styptic. In addition, the medicinal plant has been used in external applications for the control of parasitic infections of the skin, as an antiseptic for ears and systemically for urinary disorders ¹⁶⁻¹⁷. Kamela used to be included as an anthelmintic against tape worms in man and dog¹⁸. However, as far as can be ascertained, the indigenous drug has not so far been tried in goats and other ruminants. Therefore, the present was conducted to evaluate the anthelmintic activity of kamela.

MATERIALS AND METHODS

The present study was carried out at government Nizamia general hospital and Anware-Hashimya primary school, Farooqnagar, Falaknuma, Hyderabad.

standard questionnaire A was prepared and asked among individuals who were admitted to government Nizamia general hospital and Anware-Hashimya primary school, Farooqnagar, Falaknuma, Hydrabad. Trained assistants interviewed participants in person, asking questions on demographic data i.e., age, gender, and education level. Socioeconomic background i.e., occupation (hard working, moderate working, sedentary), household income (higher, middle and lower income group) and educational status. Behavioral risks i.e., personal hygiene such as hand washing and food consumption, habits (i.e. Smoking, consumption, chocolate. alcohol chalk. tobacco. gutkha or soil eating). Environmental sanitation, social surrounding and living condition characteristics (i.e., crowded lonely or average area, types of water supply, latrine system, sewage disposal system). Participants were also asked if they had history of previous illness diarrhoea and symptoms of gastroenteritis i.e., vomiting, nausea, abdominal pain, watery stools and blood or mucus stools, koch's, jaundice etc. For children, the questionnaire was completed by interviewing their parents or the guardian.

Inclusion Criteria

The selection criteria's are age 2-20 years. Candidate with history of passing worms in their stool and showing symptoms and signs suggesting helminthiasis with positive test for cyst or ova.

Exclusion Criteria

Candidate of age less than 2 years and more than 20 years, pregnant women and those suffering from infections like pneumonia, tuberculosis, typhoid and any kind of heart disease were excluded from the study.

Collected information was studied using a descriptive analysis.

Preparation and Administration of Drug

The drug was selected from ancient Unani classics whose action is Qatil-e-dedane-Ama and Nukhrij-e-dedan-e-Ama (vermifugal) and recommended by eminent ancient physicians in their classic texts. Moreover the drugs are cheap, easily available and having no toxic effects on important systems of body.

Kamela was made in fine powder and mixed with gum and round shaped tablet was made of 0.5 gm. 3-6 tablet BID was given according to age and body weight for three days.

Ethical Considerations

The study was approved by the Ethics Committee of the Institute.

RESULT AND DISCUSSION

The study aimed to identify the prevalence and intensity of intestinal parasitic infections among different age group and identify risk factors and role of pharmacological control of the infections.

This study found age group of less than 10 years are most heavily infected age group followed by the less than 5 year age group. Least infected are the age group of more than 10 years. This increased prevalence could be due to the behavior of this particular age group. Children use to play in the environment and are more prone to exposure to contaminated soil, high level of soil contact activity and low personal hygiene. Similar finding is supported by a previous report¹⁸. The prevalence rate of overall helminthic infection in malesare70% is higher than in females 30%. Other studies also revealed sex specific differences among parasitic infections¹⁸. Female children were more infected than male children¹⁹.

Analysis of prevalence in socioeconomic factors evaluated. was Infection rate was higher in lower class group as compared to middle and upper class. About 66.66% people affected are of lower class the major contributing factor are poor hygienic conditions. poor sanitation and less awareness. Soil transmitted helminthes were the most common intestinal parasites observed in the study as seen in other parts of the world²⁰⁻²¹. There are reports of high prevalence of three major intestinal helminths infection sascariasis. trichuriasis. and hookworm infection in the poorest areas of the world²²⁻²³. This could be because the infective stages of the embryonated eggs have enormous capacity for withstanding the environmental extremes of urban environments. Among protozoan infection E. coli and I. butschlii were the most common intestinal protozoa. Both can be transmitted orally by drinking infected water and both are environmental contaminants of the water supply ²⁴. kamela has been used to treat tapeworms in poultry, dogs and cats but was considered to be an inferior agent due to low efficacy and high toxicity²⁵. The available literature shows that the drug inhibits the succinic dehydrogenase enzyme derived from tape-worms²⁶. In addition, its alcoholic extract showed taenicidal action against *Hymenolepsis nana* while the aqueous extract exerted only mild anthelmintic activity²⁷. Furthermore, in a clinical study in children kamela powder has proved effective in 96% patients suffering from a cestode infection and the side effects observed were mild like nausea, vomiting and loose stools in about 20% of the children. Similarly, has shown kamela to paralyze the cesrode, Taenia hvdatigena and to relax intestinal segments of mice and rabbits. Its ED50 in mice has been shown to be 0.069 g/kg. In the present study kamela has better action against tape worm with a cure rate of about 96.67% as compared with thread worm 93.34% and round worm with cure rate of about 86.67% respectively. Is present study kamela has shown effect in controlling the symptoms like pruritus ani, diarrhoea and history of passing worms with a cure rate of about 93.34% each. Other symptoms are also controlled like abdominal pain 80%, pruritus 86.67% and grinding teeth about 90%.

CONCLUSION

It is conceivable from data that powdered tablet of *M. philippinensis* fruit (kamela possess anthelmintic activity and are sufficiently safe to treat gastro-intestinal infection. Thus the study seems to support the empirical use of the crude plant as a deworming agent in Unani and traditional medicines practiced commonly on the Indo-Pakistan subcontinent. However, further chemical and pharmacological studies must be conducted to decide the exact mechanisms of action of the active principles of kamela, its real worth in other ruminant species and against other helminthic infections.

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