Clinical assessment of coded Unani formulation D-worm and mebandazole for the treatment of hook worm, roundworm and whip worm

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Abstract: A case control, multicenter, prospective randomized two arm parallel group clinical trials was conducted on 190 patients. The main objective of this study is to provide comparative efficacy results of both trialed medicines. The comparison was done in between herbal medicine D-Worm and Mebandazole allopathic drug for the treatment of helminthiasis. All the rules of GCP (Good Clinical Practices) were followed including clinical history, clinical presentation, examination findings and stool tests. Stool D/R and Parasite antigen tests were performed before and after treatment. The comparison of symptoms were also done including the improvement in abdominal pain, worms in stool, anal itching, nausea and vomiting, loss of appetite, and fatigue etc. The data on clinical proforma was gathered and subjected to statistical analysis. Parasite specific antigen test and stool D/R is considered as gold standard test for the diagnosis and confirmation of helminthes infection. Different parameter i.e. age, sex, and other clinical sign and symptoms were studied and compared between two treatment groups (Control and Test groups) at baseline and end of therapeutic application. Consent of patient was taken at first before the start of examination. Majority of the patients (90%) included in this study group get cured after herbal treatment. The statistical analysis used for the assessment of the effect of the treatment also showed significant improvement after treatment.

Keywords: Helminthiasis, test drug D-Worm, control drug Mebandazole, Round Worm Whip Worm and Hook worm

INTRODUCTION

World Health Organization (WHO) in the year 2007 reported that over one billion of the world's population is chronically infected with intestinal helminthiasis (Ali, 1999). Worm infection was among the main problems of child nutritional deficiency, growth and health development (Chatterjee, 1980). This malaise poses as one of greater health hazard, especially in developing countries. Lack of pure water, low socio-economic status and inadequate drainage of wastes are the main causes of this disease (Chaturvedula, 2011). Worm infection is one of the major causes of early age children with manifestation of malnutrition, anemia, and stunted physical and mental growth. Worm infection along with repeated gastrointestinal and upper respiratory tract infection contributes to high morbidity and mortality (Cortan, 2001).

According to Unani concept, presence of worms always depends on mal-temperament or imbalance of phlegmatic temperament and unhealthy mode of living (Kantoori, 1889). A Unani medicine prescription is based on the totality of the mental and physical reactions to treat worm infections and cover the level of susceptibility and tendencies and the behavioral pattern. Thus selected herbal medicine helps to modify the physis (Icchpujani, 2002). As Ibn Sina describes in Cannon of Medicine that physician is likewise a preserver of physis. The physician should know the things that derange health and cause disease, and how to remove them from patients (Jahfar, 2003). It is possible only by advising a correct line of treatment after detailed case taking, along with the improvement of living environment. The best way to cure the patient is the application of drugs on temperamental basis. Not only the medicine, but also the awareness about sanitation has an important role in disease prevention and cure of worm infection (Jozef, 2011). Although Tibb-e-Unani offers treatment of worm infection in all age group patients and these have been documented in Tibbi pharmacopoeia and Qarabadhins. Though Unani system physicians offer significant scope in the treatment of worm infection but it lack systematic clinical evidence based approaches in this regard. Hence a systematic study to assess the scope of herbal medicine in the treatment of worm infection is a need rather than a desire. Therefore, a sincere effort has been made to study the efficacy of the herbal and allopathic medicines in the treatment of worm infection (Kabiruddin, 1938).

Previously, very few Unani medicines for intestinal worms have so far been reported. So this authenticated patients data based on clinical trials in human will be the new scientific work The present study was therefore,

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designed to evaluate efficacy of herbal medicine D-Worm and Mebandazole allopathic drug in the management of Hook worm, Round worm and Whip Worm (Kabiruddin, 1938).

MATERIALS AND METHODS

This study was conducted on the patients who attended the outpatient department of Shifa Ul Mulk Memorial Hospital for Eastern Medicine, Hamdard University Karachi and Hakim Said Shaheed Free Tibbi Clinic, Behari Colony, Bahawalpur. The patients who belong to age group of 08-30 years were considered for the study. Both the sexes were included belonging to various socioeconomic group. One ninety patients which were clinically diagnosed and confirmed for intestinal helminthic infection were enrolled. The diagnosis was based on strong clinical history, clinical presentation and examination findings. The inclusion and exclusion criteria were followed as given later.

Method of collection of data

Clinical trial proforma were filled on the bases of clinical evaluation and improvement assessment for record of the patient it was filled at every follow up visit. Further diagnosis of helmintheasis was done on the basis of stool D/R test for the diagnosis of Hook Worm, Round Worm and Whip Worm. Some other laboratory investigations were also performed which includes and blood complete blood count (CBC) and stool antigen test. The data was processed in a Standardized Case Record (SCR). Processing includes analysis and synthesis of the case which were done as per the guidelines and principles of Unani System of Medicine. The herbal medicines selection and repetition of the dose were done according to the demand of the case, such as Acute or Chronic. Follow up in each case was planned for a minimum of 4 months. During the follow up each case was evaluated according to the scoring criteria, which includes the intensity of the symptoms before and after treatment.

The Mebendazole was selected for the purpose of comparison so as to obtain a reliable data. Doses were calculated according to patient's condition and severity.

Preparation of crude drug

Fresh matured leaves, epicarp of fruit and seed were collected and washed with distilled water and dried in room temperature. Samples were cut into small pieces and crushed in a mechanical mortar. Each of the medicines was weighted with ratio of 2:1:1 means the weight of dried epicarp of pomegranate peel was double then the others two. Dried herbal powder was filled in 500mg aseptic capsules by using encapsulation method. *Punica granatum* Fruit Peel: 300mg, *Azadirachta indica* Leaves: 100mg and *Trachyspermum ammi* seeds: 100mg. Dosage: One capsule at night for seven days.

RESULTS

One ninety patients with a diagnosis of helminthiasis were included in this study. All these cases followed up for a minimum of four months available, considered for the statistical study. In this study maximum prevalence of helminthiasis were found in the age group of 8 to 15 years (67 cases -33.33%). Followed by 16 to 25 and 36 to 45 years of age group (47 case in each group -23.33%) and minimum prevalence is found in 26 to 35years of age group (32 cases 20%). In the following figures comparative data of each variable is separately shown.

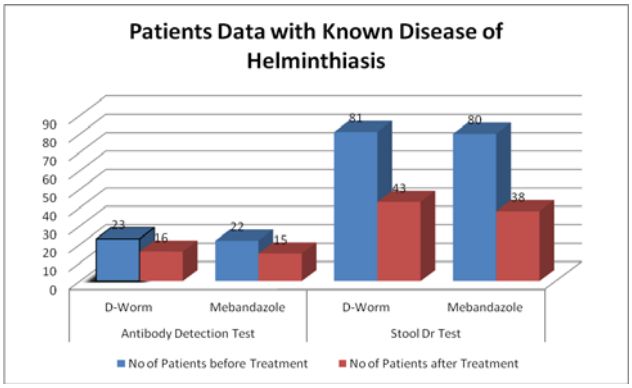

Fig. 1: Antibody detection and stool D/R tests analysis

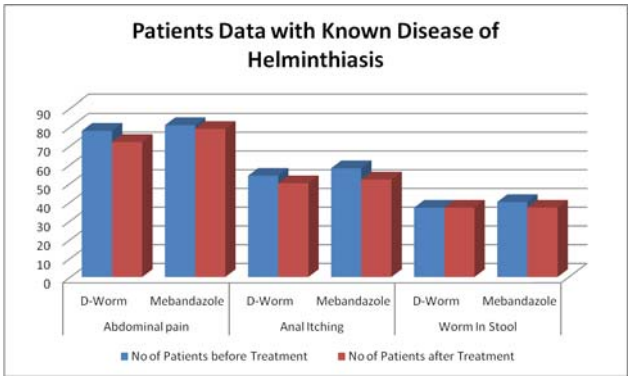

Fig. 2a: Analysis of Improvement in signs and symptoms

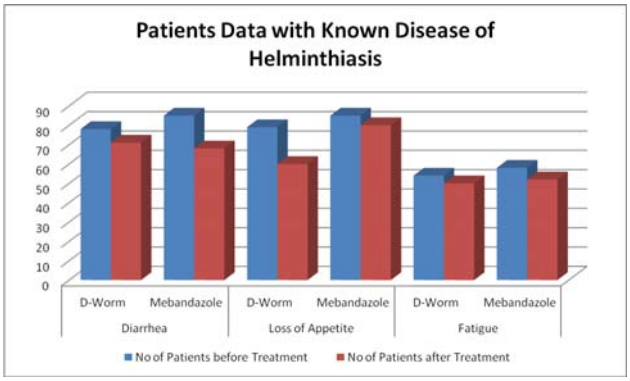

Fig. 2b: Analysis of Improvement in signs and symptoms

The principal objective on herbal medicine D-worm as compared to Mebendazole is to determine whether these may represent a platform for the development of novel

therapeutic. The efficacy of herbal formulation is a characteristic of a complex mixture of chemical compounds present in different herbs used as multiple dosage form design. The approach of this scientific clinical study validates the Unani medicine, so in its ultimate result, it leads to new class of therapeutics.

The intent-to-treat population consisted of 190 patients in which 94 were treated with coded herbal formulation D-worm and 96 were treated with Mebendazole. The efficacy of Allopathic drug (Mebandazole) measured by the reduction of Egg Per Gram in Round worm, hook worm and whip worm infection patients was 88%. Whereas, efficacy of Unani Herbal Formulation D-Worm was 91.5%. The result was also verified by another statistical technique Wilcox on Signed Rank Test and Kruskal-Wallis Test, which showed that the higher mean rank of 12th position in efficacy of D-Worm and mean rank of 9th position in efficacy of Mebandazole which showed higher in the efficacy of Unani Formulation in treatment of intestinal worms. From the analysis of the above results obtained it is obvious that the Herbal medicine is highly effective in treating helminthic parasitic infection.

Unani medicines are effective in treating intestinal worm infestation. Chi-square test was used to analyze the statistical difference. From the statistical results obtained out of clinical response it was concluded that D-worm is effective for the treatment of helminthiasis and its associated symptoms, the effect being confirmed by physicians and patients alike.

There was no such adverse effect with the use of D-worm and this has found good acceptability by all treated patients.

DISCUSSION

Many studies have been carried out in Pakistan because of high prevalence and serious adverse effects of this manifestation, and the prevalence recorded as in Karachi almost 7.73% (Karunaithas, 2011; Khan, 1978), Rawalpindi 43.90% and 14.6%, Islamabad 30.34%, 28.34% in Lahore (Khan, 1927), 21.1% in Sargodha (Kuwata, 1960), in Peshawar 12.44% (Nadkarni, 2000), and 12.9 % in Hazara Division (Ozcal, 1993) and many more other areas of Pakistan. Some other studies in different areas of the world have also been conducted such as 92.7% in Ethiopia (Paniker, 2002), 93% in Brazil (Sivropoulou, 1996) and 1.2% in USA (Stedmann's, 1999). Difference of this ratio in developing countries is higher in comparison with developed countries due to the fact that risk factors are more common in poor countries.

Modern allopathic medicines are usually prescribed for the treatment of helminthiasis. Some side effects may also occur by these drugs like nausea, vomiting, and muscle tremors. Drug resistance is also a major up-rising problem, which will remain a matter of discussion to health concerns. Therefore combined treatments are also being analyzed having differing modes of action against worms (Tariq, 2004; Viswananthan, 1999).

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