Efficacy and Safety of Mebendazole in Children with Worm Infestation

Pages with reference to book, From 140 To 141

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Abstract

Children aged between 2-16 yeats, were screened for worm infestation. Fifty-five children fulfilling the inclusion criteria were included in the study. They were treated with mebendazole 100mg twice daily for three consecutive days and followed-up for 15 days to assess cure rate and side effects. Fifty children completed the study with their stools being tested by direct smear and concentration methods and blood CBC done before treatment and at the end of the study. The cure rate for ascaris was 100% and for trichuris 75%. The drug was well tolerated and apart from mild diarrhoea occurring in 22% children, no untoward effects were reported. Nemazole (mebendazole) has shown promise and seems useful in treating children with worm infestation (JPMA 47: 140,1997).

Introduction

Worm infestation is common in children in developing countries and needs to be treated to prevent malnutrition as recommended by WHO. Ascaris lumbricoides seems to be a helminth with high prevalence. Mebendazole is a broad spectrum anthelmintic that directly inhibits glucose uptake in nematodes leading to glycogen depletion and decreased formation of A.TP. The exact mode of action in the transport of glucose is unknown[1]. It may be used to treat both adults and children with worm infestation. The aim of the present study was to see the efficacy and safety ofNemazole (mebendazole) in eradication of worms in children.

Patients and Methods

This study was conducted at the paediatrics outpatient department of Civil Hospital Karachi, from 17th June to 16th August 1994. All children of both sexes aged between 2 to 16 years were questioned regarding the passage of worms. Children with known hypersensitivity to mebendazole were excluded. Those children who answered in the affirmative had their stools examined for the presence of ova of helminths by direct smear and concentration methods. Consent for inclusion into the trial was taken from the guardians of fifty-five children who had testedpositive forova. Theirblood was tested for C.B.C. and platelets after a clinical assessment. They were given Nemazole one tablet or one teaspoonful of syrup (100 mg) twice daily for three consecutive days and followed-up clinically for 15 days on an outpatient basis, for any adverse effects during and after treatment. At the end of 15 days, two samples of stools were examined on 2 consecutive days for ova of helminths by direct smear and concentration methods. Drug was considered to be effective, if atleast, two faecal specimens were negative for ova. A sample of blood was drawn and tested for C.B.C. and platelet count. Five children were dropped fromthe study as three did not come for follow-up regularly and two had difficulties in providing stool samples on the fifteenth day.

Results

Fifty (37 males, 13 females) children completed the study. Twenty-five were between 2 years to less than 5 years and 25 between 5 years to 8 years. All children had abdominal pain and 36% complained of distention. Alteration of bowel movements occurred in 18% and weakness was noted by only 12% of guardians. Of the 50 cases with worm infestation, all had ascariasis. Trichuns, though the second commonest infestation, was present in only 8% (Table I).

Table I. Type of Helminth ova identified in 50 children.

Type of Helminth Ova	Pre-treatment No. of children	Pre-treatment % of total	Post-treatment No. of children	Post-treatment % of total
Ascaris lumbricoides	50	100	0	0
Trichuris trichuria	4	8	1	2
Hymenolepis nana	2	4	1*	2
Taenia saginata	1	2	0	0

Some children had mixed infestation. None of the children harboured ankylostoma. When treated with Nemazole, all children with ascariasis had a complete cure. However, in trichuns and hymenolepis, though the worm burden decreased, with fewer number of ova present in the stool, complete cure did not take place (Table II).

Table II. Blood CP values before and after treatment.

Index	Pre-treatment No. of children	Pre-treatment % of total	Post-treatment No. of children	Post-treatment % of total
Haemoglobi <10 gm	9	18	7	14
Eosinophil count >3%	48	96	38	76

After treatment haemoglobin improved in 4%, eosinophils decreased in 20% children below 3% of total leucocyte count and eleven (22%) children developed mild diarrhoea without signs of dehydration from which they recovered without treatment. There were no other adverse effects.

Discussion

Mebendazole is a broad spectrum anthelinintic which has been extensively studied in many intestinal nematodes and cestode infestations in animals with a remarkable freedom from side effect[2]. Although, it has been recommended as the drug of choice forascaris, trichuris, hookworm and enterobius infestation in children, adverse effects such as, occasional diarrhoea and abdominal pain have been reported with leukopenia, agranulocytosis and occasional hypospennia[3]. Other anthelmintic drugs used before introduction of Nemazole have many more adverse effects[4]. In view of the WHO recommendation "that in areas where prevalence of mild to moderate underweight children is greater than 25% and where parasites are known to be widespread, high pnority should be given to de-worming programme, data or prevalence of worm infestation and trials of anthelmintic drugs are vital". Our study shows that ascaris is present in 100% of children with helminthiasis and that hookworm is absent whereas,otherwonns are less common among children inKarachi.

Pakistan is a developing countiy where moderate to severe underweight children aged 0-4 years are 40%[3]. Malnutrition is, therefore, not noticed by parents as being abnormal and only 12% parents reported "weakness" in the children studied.Tenpercent of the rural and 55%of the uiban population of Pakistan has access to adequate sanitation[3] and will therefore, have recurring worm infestation because of poor hygienic standards. Despite the absence of public health infrastructure, the case for mass deworming of children to improve their growth, nutritional deficiencies and mental functions is strong. Our study, though small and not controlled by a placebo or double blindmethods had a strict criterion for cure rate. It therefore, shows important result that Nemazole has a 100% efficacy in ascaris infection. During treatment only 22% children complained of mild diarrhoea as the adverse effect. Larger studies on school children have established similarresults of efficacy and safety in Brazil[5] and Congo[6].

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