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ORIGINAL ARTICLE

Prevalence of Intestinal Parasites among Pupils in Rural North Eastern, Nigeria

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ABSTRACT

Background: The study determined the prevalence of intestinal parasitism among pupils in rural schools (Almajiris) in Konduga local Government Area of Borno state. **Materials and Methods:** A total of 257 stool specimens were collected at random among pupils (Almajiris) in rural quranic schools; the stools were processed and examined both macroscopically and microscopically by concentration techniques. **Results:** The prevalence of intestinal parasitism among the Almajiris was 80.9%. The highest prevalence rate was 97.8% while the least prevalence was 67.4%. The 6-8 years age group had the highest prevalence of 85.7% while the least prevalence of 77.7% in the 13-16years age bracket. *Ascaris lumbricoides* had the highest prevalence of (19.1%) while *Trichuris trichiura* had the least prevalence of (3.5%). Thirteen pupils in the 5-8 years had multiple parasites; multiple parasitism also occurred in 22 pupils aged 9-12 years and in 11 pupils aged 13-16 years. **Conclusion:** There is a high prevalence rate of intestinal parasites with attendant risk of intestinal obstruction among the Almajiris in rural north eastern Nigeria.

KEY WORDS: Almajiris, intestinal parasites, intestinal obstruction

INTRODUCTION

Intestinal protozoa and faeco-oral transmitted helminths (STH) constitute major health problems, especially in the tropical and sub-tropical regions[1]. They can be the cause of a wide spectrum of clinical problems ranging from apparently symptomless infections to life-threatening conditions such as intestinal obstruction as in *Ascaris* infestation,[1] failure to thrive as well as anaemia if not properly treated.[2]

The 'Almajiris' are children drawn from different parts of the northern Nigeria to learn and be trained in Islamic religion under the leadership of Mallams (Islamic instructors-/scholars). The study aimed to determine the prevalence of intestinal parasites among the Almajiris in a local government area in north eastern Nigeria.

MATERIALS AND METHODS

Approval and permission for this study was granted by the Chief Imam of Konduga Central Mosque and head (Mallam) of the Quranic schools and/or children's guardians before the commencement of the study.

Stool specimens were collected in a clean, wide mouth, screw capped, transparent, dry and disinfectant-free containers from 257 Almajiris who were chosen randomly in each of the Quranic schools studied between February 2006 to May 2006. The stool specimens were immediately examined in the laboratory of General Hospital located in the local government area.

Each of the stool specimens was examined both macroscopically and microscopically using saline preparation, Lugol's Iodine and Formal ether concentration techniques as described by Cheeesbrough.[3]

The Almajiris that had intestinal parasites were treated with single dose of Albendazole or Praziquantel and or metronidazole for 5 days depending on the type of intestinal parasites seen in their stools.

RESULTS

Of the total 257 stool specimens examined, 208(80.9%) had intestinal parasites. The

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distribution among the schools showed a prevalence range of 97.8-67.4% (figure 1).The age group of 6-8 years had the highest prevalence (85.7%) while the 13-16 years bracket had the least (77.7%) [Table 1].

Table 2 showed the ditribution of intestinal parasites. *Ascaris lumbricoides* had the highest prevalence of (19.1%) while *Trichuris trichiura* had the least prevalence of (3.5%). Thirteen pupils in the 5-8 years had multiple parasites; multiple parasitism also occurred in 22 pupils aged 9-12 years and in 11 pupils aged 13-16 years (See Table 3).

DISCUSSION

The overall prevalence rate of intestinal parasitism among 'Almajiris' was 80.9%. This prevalence is higher when compared with previous findings in south-west Nigeria (28%), [4] south-eastern Nigeria (55.2) [5] and south- south Nigeria (67.2%) [6]. High prevalence of intestinal parasitic infestation is apt to occur in low socio economic condition, characterised by inadequate water supply and poor sanitary disposal of faeces[6-8]. The higher prevalence rate of intestinal parasitism in this study might be attributed to the poor hygienic practice and sanitary environment in the Almajiris live. The indiscriminate disposal of human wastes and unhygienic way of life might have been predisposing factors. The schools in this study were located in rural areas lacking portable water, proper system of refuse and human waste disposal. These may lead to a vicious cycle leading to worm infestation endemicity among these Almajiris as they come in contact with these wastes while playing on the playing ground.

The predominance of *Ascaris lumbricoides* in this study is in consonance with other reports.[13] The danger with ascariasis is that it is intimately related with intestinal obstruction and malnutrition in children. The prevalence of *Entamoeba histolytica* and *Schistosoma mansoni* was higher in this study compared with that of adult population[10-13].

One consequence of intestinal parasite infestation is risk of mechanical intestinal obstruction, especially in times of massive infestation. Mechanical Intestinal obstruction may be caused by a bolus (ball) of parasites and volvulus due to parasitic load and/or neurotoxins they excrete (Ascaris) causing contractions of the bowel.[14,15] Massive de-worming of children with anthelmintic medications especially carries this risk of intestinal obstruction with a poorer outcome. [16,17].

The study also showed that children within the 6-10 years age group had the highest prevalence of intestinal parasites, closely followed by the 11-15 years age groups. A similar trend was reported by Higgs[18], and Jombo[19] in which the bulk of parasitic infestation occurred in the 8-15years age group. Again the prevalence of intestinal parasites decreased with age in this study. This observation has been alluded to in another report[20]. This inverse relationship between the age and the prevalence of intestinal parasites might be due to higher level of awareness and good hygienic practice in the older age groups.

The 46% polyparasitism/multiple parasitism rate in this study was higher compared with 20.5% rate reported elsewhere [20], but agrees with others[18, 21]. Therefore, while treating children with intestinal parasites, it is advisable to use broad spectrum or multi-agent drug combinations because of this multiple parasitism susceptibility in children.

This study showed a high prevalence of intestinal parasitism among the Almajiris in the rural north eastern Nigeria. It is suggested that children with intestinal parasites should be treated periodically using broad spectrum or multi-agent drug combinations because of the multiple parasitism susceptibility in children. Public enlightenment and emphasis on personal hygiene and clean environment may be necessary in the prevention and control of parasitic infections among children in rural areas.

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