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PREVALENCE OF URINARY SCHISTOSOMIASIS IN ALRAHMA AREA

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ABSTRACT

This descriptive cross-sectional study. Was carried out to determine the prevalence of urinary Schistosomiasis in Alrahma quarter, Elobied city. From the 300 persons randomly selected urine samples were collected and examined age between 4years to and 70years. Were processed by ordinary centrifugal sedimentation technique. 15(5%) were positive for *S. haematobium* ova. Higher prevalence was recorded among students (6.5%) followed by farmers (2.6%). housewives (2.2%). Among the students, all infected were boys, while the girls were not infected. The infection varied is insignificant among the various age and occupational groups ($p < 0.05$), Males had higher infection rate (6.3%) than the females (1.2%).

Keywords: Schistosomiasis, Alrahma,

INTRODUCTION

Schistosomiasis, also known as bilharzias, is parasitic disease caused by trematodes from the genus schistosoma. There are four main species that infect humans. *S. haematobium* causes urinary schistosomiasis, whereas *S. mansoni*, *S. japonicum*, and *S. mekogi*, all cause intestinal schistosomiasis [1]. Urinary schistosomiasis is a chronic parasitic infection of circulatory system, which affects the bladder and subsequently the urinary tract system of man [2]. And it is a common tropical disease, second only to malaria among parasitic diseases, which poses serious health hazard in much Africa and the Middle East countries. Due to its associated morbidities [3]. Most of pathological effects of urinary schistosomiasis are caused by eggs in liver, spleen, or bladder. Eggs in the liver induce granulomas, which lead to fibrosis, hepatomegaly, and portal hypertension [4]. This occurs in heavy infection due to deposition of eggs in that organ of the body. And also deposition of eggs in the bladder and ureters which elicits

chronic granulomatous injury. The granulomatous inflammation causes nodules; polypoid lesion and ulceration in lumen of the ureter and bladder [2]. Clinically the infected persons (children) develop symptoms of urinary tract disease with haematuria, dysuria, and urinary frequency. Many of eggs die and become calcified, and lead to sand patches (calcified dead eggs). In the heavy infection, eggs can be carried to other parts of the body, following prolonged untreated infection and a marked cellular immune response. The ureters may become obstructed and the bladder wall leads to abnormal bladder functions. Urinary tract infection, and eventually obstructive renal disease with kidney damage may also occur. Complication can arise from genital schistosomiasis [5].

In clinical picture of *schistosomiasis haematobium* most patients are asymptomatic, but in the chronic stage can cause significant morbidity and mortality ⁽⁶⁾ that appears in some endemic areas. The chronic infection of long duration is associated with squamous cell bladder cancer (infection probably promoting rather than directly causing the cancer), calculi (stone) in the bladder and urinary tract infection are also found with the chronic urinary schistosomiasis.

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Anaemia is a common finding in the urinary schisto somiasis, particularly in those with low dietary iron intake coexisting hook worm infection or malaria. In Africa urinary schistosomiasis is also reported as impairing the growth and development of children [5].

Rationale

In recent years increasing cases of schistosomiasis haematobium in this area were noted form hospital recorded.

Objectives

General objective:

To study *S. haematobium* infection among the population of Alrahma quarter.

2.2. Specific objective:

- To determine the prevalence rate.
- To determine the main factors those predispose the infection with the worm.
- To determine level of utilization of health services.
- To estimate the urinary tract diseases attributable to *S. haematobium* infection by urine examination.

MATERIALS & METHODS

Study design

Prospective Cross- sectional analytical descriptive study.

Study area

The study area is the Alrahma quarter in Elobied town, North kordofan state during June 2008 .The total population in the area is 22,551. The rain is heavy in this area, and continues at least three months in the year so that there are many ponds distributed along the western part of area which act as suitable condition for living and multiplication of intermediate host.

Study population

The study was conducted on above three years of age living in Alrahma quarter

Sample size and sampling techniques

A total of 300 persons were recruited for this study, by stratified random method.

Collection of urine sample

The urine sample were collected between 10:00 am to 2:00 pm, the specimens consist of single terminal urine of at least 10 ml, after exercise to ensure maximum excretion of eggs. All specimens were centrifuged and deposit examined microscopically for ova, RBCs, pus cells and epithelial cells

Data collection and measurement

By using special design questionnaires, to collect information on environmental demographic characteristic, water contact and history of infection and treatment from *S. haematobium*.

Data analysis

By using SPSS computer software program, to compile data form into specially develop program.chi-square were used to test for significant difference between males and females, a various age, occupation group prevalence, result were considered significant when $P < 0.05$.

Ethical Clearance

Before the onset of study, ethical clearance was obtained from the population under Permission of local government; all infected subjects were given praziquantel as treatment.

RESULTS

Out of the 300 subjects, 221 males and 79 females had their urine samples examined for *S.heamatobim* eggs. 14 males and one female were found to be positive (secreted egg in their urine). This makes prevalence of 6.3% for the males and 1.2% for females. Males prevalence is higher rate than females, overall prevalence was 5 % (Table 1).

This study revealed that across age group, the highest prevalence (8.6%) was recorded in the 11-20 years age cohort, followed by 0-10 and 21-30 years age group (4.25% and 3.1%) respectively. The difference is insignificant for age (Table 2).

The prevalence was found to be higher among the khalwa student compared with basic school children (7.4% and 5.7%) respectively, increased in illiterate children 12.5 % and decreased in secondary school and absent in preschool children (Figure-1).

High prevalence of the disease among different study groups within student male 183 and females 34, the prevalence 7.1% and 0 % respectively overall prevalence 6% while the farmers 2.6% and housewives 2.2% (Figure2).

Most of the subjects with schistosomiasis (66.7%) were found to manifest more than one symptom at time, followed by haematouria (26.6%).While only one person (6.7%) did not present any observed symptoms (Table 3).

According to socioeconomic, the prevalence is high in subjects with low socioeconomic, and absent in moderate (Table 4).

Figure 1. Distribution of infection according to education level

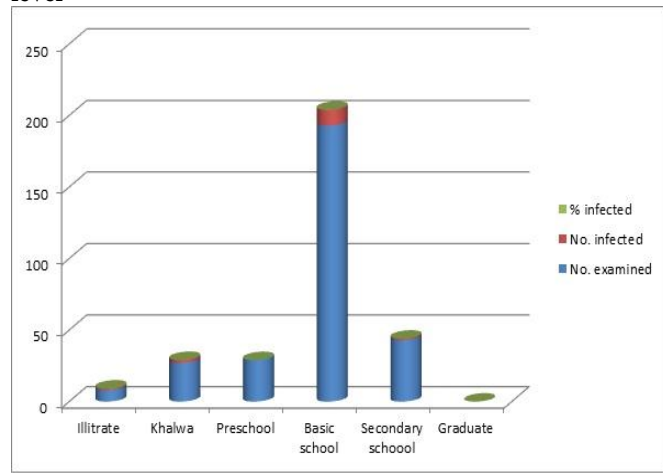


Figure 2. Distribution of infection among the different occupation groups

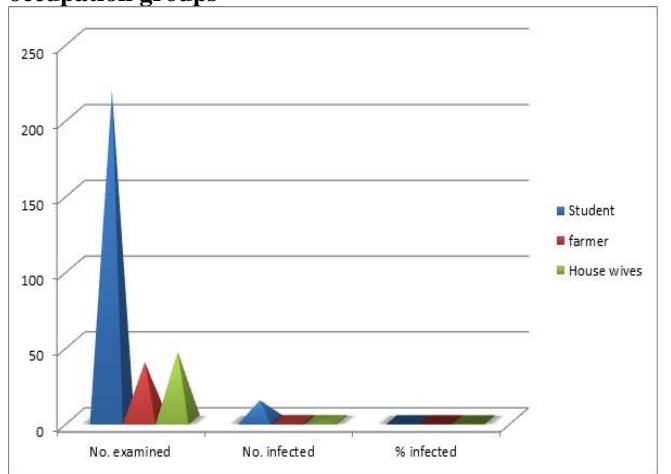


Table 1. Sex prevalence of *S. haematobium* in Alrahama quarter

| Population | No. examined | No. infected | % of infected |
|------------|--------------|--------------|---------------|
| Males | 221 | 14 | 6.3 |
| Females | 79 | 1 | 1.2 |
| Total | 300 | 15 | 5 |

P = 0.13

Table 2. Age – related prevalence of *S. haematobium* in Alrahama quarter

| Age group | No. examined | No. infected | % of infected |
|-----------|--------------|--------------|---------------|
| 0 - 10 | 142 | 6 | 4.2 |
| 11 - 20 | 93 | 8 | 8.6 |
| 21 - 30 | 32 | 0 | 3.1 |
| 31 - 40 | 16 | 0 | 0 |
| 41 - 50 | 12 | 0 | 0 |
| 51 -60 | 0 | 0 | 0 |
| 61 – 70 | 5 | 0 | 0 |

P = 0.31

Table 3. Clinical signs and symptoms related *S. haematobium* in Alrahama quarter

| Symptoms | No. infected | % of infected |
|---------------|--------------|---------------|
| Haematuria | 4 | 26.6 |
| More than one | 10 | 66.7 |
| None(0) | 1 | 6.75 |
| Total | 15 | 100 |

Table 4. Socio-economic related *S. haematobium* in Alrahama

| Socio-economic | No. examined | No. infected | % of infected |
|----------------|--------------|--------------|---------------|
| Low | 296 | 15 | 5 |
| Moderate | 4 | 0 | 0 |
| Total | 300 | 15 | 50 |

DISCUSSION

Urinary schistosomiasis is endemic in Alrahama quarter but not recognized as a public health problem. Most people are aware of disease but do not bother to treat it, even those with heavier infection, since they do not regard the symptom, as serious. Notably haematuria is usually

invisible. Few individuals were found to have been treated at hospital, using praziquantel as treatment.

Through the questionnaire, all people were found to be using tap water for drinking, bathing, and other domestic purpose. The most infected group populations of

people were student's (57%), this can be explained by the fact that they are more exposure ponds water.

The pond water is the main transmission vehicle in the community. Ponds are distributed along the western end of the quarter. They provide a natural water source as well as serve as meeting point for schistosoma parasite, their intermediate host and the people. The people continue being infected, and re- infected since no intervention is performed.

There was (74%) of study group were males despite the fact females more than males in study area(males 8500, females 14051).

There is a difference in the prevalence of urinary schistosomiasis between the sexes. Similar observations were made by Elias E. and Dfalla A.Issen 1994 in Rahad irrigation. This may be related to socio- cultural factors, and houses made of mud as noted by. Abdelmoneiam Hilali, 1999 -2000, in Gezira Managil scheme, apparent male bias prevalence may be due to high contact with water.

Only one farmer urine sample was found to be positive for urinary schistosomiasis giving prevalence (2.6%), he is also working in building houses made from mud, using ponds water which might be contaminated by cercariae. And only one housewife was positive for *S. haematobium*, She came from Karasan quarter in Elobied were clothes washing is done using their clothes in ponds water.

Detection rate of the urinary schistosomiasis rise among the age group (0 – 10) years and 21 – 30) years age-group and packed up 11- 20 years – group and packed within 11- 20 years age- banded before a steady decrease with increase in age. This observed decrease in prevalence with increase in age may be attributed to decreased exposure to ponds water contact role and increasing immunity with age. Higher prevalence of urinary schistosomiasis among students and farmer could also be attributed to higher frequency of contact with infective agents. These categories subjects therefore has greater exposure to infection as of occupation duties.

This is first time data on the distribution of urinary schistosomiasis is recorded for Alrahama Quarter, Elobied locality, north of kordofan state. It's suggested that any control program for urinary schistosomiasis control in

Elobied city should include specifically target (5-40) year's age cohort. Student (basic school) and farming group.

CONCLUSIONS

Most of people in the area are aware of the disease but few of infected were treated, because most population are poor. The infection in area is acute so that most of infected patient are completely treated by praziquantel and when followed up after one week and then after one month there was no egg found in their urine. obtaining of urine specimen for examination is very difficult from house wives and farmers because they are not found in their houses during the day, so that the specimens were obtained in incorrect time (mid-day) and need long time there is no ova found in their urine even after repeated collection. The prevalence in these groups had decrease to a level that approximated those who had been examined.

The study found out that the prevalence of *S. haematobium* among the overall study population was 5%.

The ponds water acts as the main source of infection in the area. This is used for building, washing clothes, and other domestic purposes

The study revealed that the health services are inadequate in the study area. There is only one primary health care unit and no lab.

The infection with *S. haematobium* is associated with more urinary tract infections among population. Common signs and symptoms observed among the infected persons in study area included haematuria. Painful urination and oligouria.

RECOMMENDATION

Based on the findings of our study. It is recommended that: Schistosomiasis control programs should embark more on health education about life cycle of parasite. The need for proper disposal of urine .The State Government should provide pipe water to peripheral Quarters of city to further reduce the observed rate of infection with urinary schistosomiasis in study area, and other parasite that dependent on contaminated water for transmission, and a vail drugs for treatment of schistosomiasis. People think the treatment very expensive. Students and other persons coming to the study area from other station should be urine examined for *S. haematobium*.

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