Research Article

Prevalence of Urinary Schistosomiasis and Associated Factors among Male Students in Primary Schools at Almatama Locality, River Nile State, Sudan.

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Abstract

Introduction: Urinary schistosomiasis(*U. schistosomiasis*) is one of the main public health problems in Africa and the Middle East, The prevalence of the infection vary in different areas due to many factors associated with the infection. The present study aimed to determine the prevalence of *U. schistosomiasis* infection **and associated factors among male students in primary schools at Almatama Locality.**

Methods;

A descriptive cross-section was designed for the study during September 2021 and January 2022, at Almatama locality. A multiple-stage and systematic random sampling was used to select 400 male students as total sample of the study Data were collected for each student by using questionnaire and urine sample examination for detection of *U. schistosomiasis*.

Results and Discussion; the overall prevalence was 14%, but the prevalence varied considerably across schools in the different adminstrive units. The prevalence of *U. schistosomiasis* was highly in the age between 10 and 13 years (73%), compared with the other age groups..The study showed that contact with open water canalsand the non use of sanitary latrine represent thehigh risk factors associated with *U. schistosomiasis* infectionjnAlmatama Locality.

Conclusion; The high prevelange of *U. schistosomiasis* infection among students of primary schools at Almatama Locality observed in the present study may indicate the continuous contact and use of open water canals as water source for different purposes. Such activities were considered as the main risk factors associated with *U. schistosomiasis* infection,The study recommended to raise the students awareness of the ways of transmission and prevention of the disease.

Keywords: *U. schistosomiasis* prevalence, factors of infection, Almatma locality, Sudan.

Introduction

Urinary schistosomiasis caused by S.*haematobium* is one of the main public health problems in Africa, where the young children are most infected including primary schools students, [1]. In developing countries, children aged 5–17 years possess the highest risk of infection and are the most infected group, [2]. Schistosomiasis is often associated with many factors which related with the spread of disease in the different areas. These factors include low socioeconomic status, lack of safety water supply, and lack of basic infrastructure, poor housing and poor sanitation, [3].

The disposing of human waste into water sources as open canals is the main cause of schistomiasis. In addition, poor sanitation, bathing and swimming in dams and rivers or crossing rivers on the way to school barefooted, type and consistent use of toilet, uses of unprotected water sources to watering the vegetable gardens and knowledge about schistosomiasis are the risks that significantly associated with higher rates of infection, [4]. Personal hygiene and high frequency of contact with water in an endemic area might significantly increase the risk of acquiring this infection, [5].To prevent and control the disease, we must follow a number of measures necessary to control it, such asGood Hygienic disposal of human waste would be sufficient to eliminate the disease, [6]. Also Water for drinking and bathing should be boiled in endemic area. Infested water should be avoided. However, agricultural activities such as swimming, fishing and other involve long contact with water, making the avoidance of infection impractical, [7]. Systematic eradication of snails that found within water sources is an effective method, [8].. The adverse effects of schistosomiasis among primary schools student are diverse and alarming, the infection can lead to urethral and bladder fibrosis and hydronephrosis, hepatosplenomegaly, moreover, bladder cancer and colorectal cancer is a possible late-stage complication, [9].

Material and Methods

A descriptive cross- sectional study was conducted to determine the prevalence of *U. schistosomiasis* among primary schools male studentsin Almatama localityfrom, September 2021 to January 2022. Almatama locality is an area depending on agriculture economically and divided into 3 administrate units Wad hamid,

Almatma, and Tayba. It has 80 primary schools (19467 students) and some of community development centers. A multiple-stage and systematic random sampling was used to select the student's sample of the study. The selection involved 6 primary schools as 2 schools per each administrative Unit and a number of students as percentage from the total population A total of 400 male students of 6–17 years of age (Wad hamid n = 129,Almatman = 136 Tayba n =135) were interviewed by using questionnaire**.** Urine samples from each student was processed and examined microscopically for detection of eggs of *U.schistosomiasis*. Data was analyzed using; SPSS

Results and Discussion

The prevalence of *U. schistosomiasis* infections among male students at the primary school in Almatama was 14%. The interpretation indicated that There was considerable variation in prevalence rates among students in the primary schools, According to administrative units; the prevalence rate in Tyba administrative unit was higher (32%) compared with Almatma unit 9% and Wad hamid unit 0.8%. There was considerable variation in prevalence rates between ade group of the students. Students aged between 10 and 13 years were the most infected with an infection rate of 73% compared with the other age groups. Due to absence of latrine or toiletThe prevalence rate was high among studentswho didn't use the latrine or toilet. Students who had non-sanitary latrine had higher risk for acquiring the infection.

Table 1; Prevalence of *U. schistosomiasis* and Risk factors associated with infectionamong primary schools male students in Almatama locality-River Nile state, Sudan (n = 400)

Variables		Number of Examined	Number of infected	Prevalence
Total samples		400	56	(14%)
Administrative units	Wad hamid	129(32%)	1	(0.8%)
	Almatama	136(34%)	12	(9%)
	Tayba	135(34%)	43	(32%)
Age of students	6 to 9	69 (17.2%)	6	(10.7%)
	10 to 13	292 (73%)	41	(73.3%)
	14 to 17	39 (9.8%)	9	(16%)
Using of the latrine or toliet	They don't use the latrine or toilet	80 (20%)	14	(17.5%)
	They use the latrine or toilet	320 (80%)	42	(13%)
Contact with water	Yes	261(65%)	51	(19.5%)
	No	139(35%)	5	(3.5%)
Purpose of contact with open water canals	Swimming	112(42.9%)	24	(21.4%)
	Drinking water	31(11.9%	11	(35.4%)
	Agriculture	118(45.2%)	21	(17.7%)

The prevalence rate determined during this study was less than study carried out in White Nile state**,** Sudan where the prevalence of *U. schistosomiasis* was 45% of 384 primary schools students, [10]. The prevalence of this study also was high when compared to some previous studies in the same area, [11] [12]where these studies indicated that the prevalence rate was; 12% and 1.8% respectively,. This study showedthat *U. schistosomiasis* or urinary schistosomiasis is still activelytransmitted among primary school students within Almatma locality. Persistence of the disease indicates that the factors related with transmission of the disease are still present despite the successful therapeutic interventions by distributing praziquantel to the targeted. students of school aged group Previous studies pointed out the association between the disease and the frequency of students to open water sources such as irrigation canals of agricultural lands for various purpose of bathing, fetching, drinking water and agricultureirrigation,The and they recommended controlling these factors: we find that the same factors are still the main sources of infection, and this was clearly demonstrated through the incidence rate. The low prevalence in Wad Hamid administrative unit was attributed to that the population there depends on irrigation directly from the river, where the incidence rate was 0.8%, unlike the Tayba administrative unit, which depends on open channels in the irrigation process, where the incidence rate was 32%. The rate of incidence also varied according to water contact and the purpose of contact of the

students with open water canals. For students who work to bring water for drinking, the incidence rate was high (35.4%), while students who practice bathing in the water had an incidence rate of (21.4%), and for students who contact water for the purpose of irrigating agriculture, the incidence rate was (17.7%0, and it will be concluded that the process of frequencyOn the water channels help to increase the possibility of exposure,
to prevent it

Conclusion

U. schistosomiasis is still a health problem among school students in Almatma locality, due to the association of these students with multi activities that constitute risk factors for transmission of infection, such as fetching drinking water, irrigating agriculture and swimming in water sources as open canals. To disinfect the irrigation canals andraising the community's awareness of the ways of transmission of the disease and ways

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