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The Prevalence of Schistosomasis among People in Almatama locality River Nile State, Sudan .

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Abstract

This is cross sectional descriptive community based study to measure the prevalence of Schistosomasis disease, multistage cluster sampling was taken (500person), and the data was collected by the flowing methods, Urine Examination, Stool examination, and Questionnaire, the data was analyzed by using (SPSS) the main result for study Schistosomosis Hematoupium was 15% and Schistosomosis Mansoni was Zero, the prevalence was high in Tibaha Alkhwad administrative unit with 6.0%, Almata with 5.2% and Wedhamid with 3.8%. The study found there was strong relation between Shistosomasis and both genders (male, female) where the prevalence was high among male 10.8%, the study also showed there was strong relationship between Schistosomasis and age groups, The prevalence increases among age group (15 to 25 years)with (5.8%), There was strong significant relation between swimming in stagnant water and getting infected with Schistosomasis, The prevalence increases among people go to swimming in stagnant water with 11.0% (PV =0.0000 significant),

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Introduction

The discovery of Schistosoma parasites in humans was in 1851 by Dr. Theodor Bilharz in Cairo, and the demonstration of their life cycle by Dr. Robert T. Leiper in Egypt in 1915 [1]. The great interest of European archeologists and historians in Egypt and the relative neglect of other civilizations in Africa also contributed to the view that Schistosomasis and several other infectious diseases originated in the lower Nile valley [2]. Schistosomasis disease is widely prevalent among waterborne diseases and is considered next to malaria, affecting more than 74 countries and 200 million people with 600 million people being exposed to the infection [3].Urinary Schistosomasis is caused by Schistosomasis haematobium and intestinal Schistosomasis by any of the organisms S. intercalatum, S. mansoni, S. japonicum, and S. mekongi [4]. Life cycle: Schistosomasis is a parasitic infection leads to chronic ill health. Infection is acquired from contaminated freshwater containing the larval forms (cercariae) of blood flukes, known as Schistosomasis. The centimeter long worms mature in the human bladder and intestines, laying eggs that can cause massive damage. Once released by the body in to water through feces and urine, the eggs hatch and their larvae (miracidia) penetrate suitable snail hosts. The cercariae emerge from the snail into water from where they penetrate a human host within seconds, thereby perpetuating the life cycle [5]. Signs and symptoms: Disease due to schistosomiasis depends on the infecting species and the intensity of infection. Acute Schistosomasis occurs 2 to 12 weeks post infection and symptoms last for periods varying from 1 day to a month or more; recurrence of symptoms 2 or 3 weeks later is common. Between 40% and 95% of individuals not previously exposed to infection develop symptoms which include fever, malaise, headache, abdominal pain, diarrhea and urticaria. Many have eosinophilia. After the initial acute onset, most become asymptomatic, although those with S haematobium infections may develop microscopic or macroscopic haematuria. Rare complications result from ectopic deposition of eggs in the spinal cord and brain. Most travelers are only lightly infected and are therefore often asymptomatic and unlikely to develop the severe manifestations of chronic schistosomiasis. Severe disease occurs in patients with heavy and prolonged infection. Hepatosplenomegaly, portal hypertension, ascites and oesophageal varices may result from intestinal schistosomiasis, and frank haematuria with varying degrees of impairment of the urinary bladder and ureters may occur with S haematobium infections [6]. Laboratory diagnosis is based on demonstrating the presence of parasite eggs in feces either by sedimentation techniques or by duodenal probe. Opisthorchis eggs are rather heavy and do not float readily in a saturated solution of sodium nitrate. of the immunologic tests, enzyme-linked immune sorbent assay (ELISA) is used most often. Assays to detect circulating antibodies for . Viverrini have shown moderately high sensitivity (91% to 92%), but specificity of opisthorchiasis 137 only 70% to 80%. viverrinimetabolic antigen in stool samples yielded slightly greater sensitivity than the observation of eggs in feces and proved to be capable of detecting infections on the basis of a single specimen [7]. The prevalence, intensity of infection, and transmission intensity of schistosomiasis is determined by numerous factors including socio-economic, human behavior, ecology and biological factors which influence the interactions between human and animal hosts and life cycle stages of the parasites. Human water contact behaviors and transmission patterns .The various permanent and temporal water bodies existing in the country contribute significantly to the eco epidemiological transmission of schistosomiasis [8]. The goal for the control of Schistosomasis of attaining a minimum target of regular administration of chemotherapy to at least 75% and up to 100% of all school-age children at risk of morbidity by 2010 . They have also indicated that WHO approach to combating should include "advocating new partnerships with organizations of the United Nations system, bilateral agencies, nongovernmental organizations and the private sector, and by continuing to provide international direction and coordination". January 2010 estimates indicate that less than 10%of the population at risk of morbidity receives praziquantel (PZQ) preventive chemotherapy [9]. Prevention and Control of Schistosomasis and Soil-transmitted helminthiasis, can be prevented through the Creation of alternative, safe water sources to reduce infective water contact, proper disposal of feces and urine to prevent viable eggs from reaching bodies of water containing snail hosts, health

education, information and communication to promote early care-seeking behavior, use of safe water and proper disposal of excreta, environmental management reduction of snail habitat and snail contact [10].

Martials and Methods

This is a descriptive cross sectional community based study in Almatama locality River Nile State Sudan 2017, the study included resident people in Almatam locality, and their number is 151889. Multistage cluster sampling was used, the sample size was drawn by the flowing equation n = $z^2.p.q/d^2.def\times2$= 500 person.

Methods of Data Collection and Analysis

Urine Examination, filtration techniques for S.haematobium eggs described in which 10ml of urine was taken from each selected persons, the results are expressed as the number of eggs per ten milliliter of urine, Stool examination, Kato- katz technique was used to stool. Three grams of stool taken from people and divided into three specimens, Questionnaire used to collect data from residents in Almatama locality, included various factors related to spread of Schistosomasis such as, and the data collected was analyzed by (SPSS, statistical package for social) version 22 for windows7, for association between deferent variable were checked by using chi square test, P value > 0.05 was regarded significant.

Ethical Clearance

Ethical permission for the study was obtained prior data implementation, by consulting and receiving approval from, Shendi University, ministry of health, local health authority's ,Community Leaders, and consent those who are interviewed and exam .

Result

The prevalence of Schistosoma haemetoium was 15% and mansoni was zero (Table 1-5).

Table 1. demonstrates the prevalence of Schistosoma haemetoium among administrative units of Almatama locality

Administrative unit		Urine Exam Results		Total
		Positive	Negative	
Tibaha	Count	30	140	170
	Percentage	6.0%	28.0%	34.0%
Almatama	Count	26	138	164
	Percentage	5.2%	27.6%	32.8%
Wedhamid	Count	19	147	166
	Percentage	3.8%	29.4%	33.2%
Total	Count	75	425	500
	Percentage	15.0%	85.0%	100.0%

Table 2. illustrates the prevalence of Schistosoma hematubim in both genders (male and female) in Almata-ma locality.

Gender		Urine Exam Results		Total
		Positive	Negative	
Male	Count	54	216	270
	Percentage	10.8%	43.2%	54.0%
Female	Count	21	209	230
	Percentage	4.2%	41.8%	46.0%
Total	Count	75	425	500
	Percentage	15.0%	85.0%	100.0%

P.V= 0.001 significant.

The result illustrates high prevalence of Schistosomasis hematubim in male 10.8% than female 4.2%.

Table 3. shows the relation between the prevalence of Schistosoma hematubim and age groups in study population.

Age		Urine Exam Results		Total
		positive	Negative	
7 t0 15yers	Count	22	172	194
	Percentage	4.4%	34.4%	38.8%
15 to 25	Count	29	110	139
	percentage	5.8%	22.0%	27.8%
26 to 35	Count	16	62	78
	Percentage	3.2%	12.4%	15.6%
36 to 45	Count	6	42	48
	Percentage	1.2%	8.4%	9.6%
More than 45years	Count	2	39	41
	Percentage	0.4%	7.8%	8.2%
Total	Count	75	425	500
	Percentage	15.0%	85.0%	100.0%

X2 :11.8 PV:0.025 significant.

The prevalence is high among age groups (15- 25 years old 5.8%) and lower in the age group of more than 45 years old 0.4%).

Table 4. shows the relation between knowledge of the affected persons with Schistosoma about mode of transmission of Schistosomasis among study population in Almatama locality .

Knowledge's' person about the mode of Schisto-somasis transmissions		Urine Exam Results		Total
		Positive	Negative	
Swimming in stagnant water	Count	47	161	208
	Percentage	9.4%	32.2%	41.6%
Walking water	Count	10	93	103
	Percentage	2.0%	18.6%	20.6%
All above mention	Count	16	157	173
	Percentage	3.2%	31.4%	34.6%
They don't know	Count	2	14	16
	Percentage	0.4%	2.8%	3.2%
Total	Count	75	425	500
	Percentage	15.0%	85.0%	100.0%

X2=16, PV =0.001, significant

Table shows 9.4% of affected persons with Schistosomasis mentioned the mode of transmission is swimming in stagnant water while 0.4% don't know.

Table 5. illustrate the relation between Persons mentioned that Schistosoma can be prevented or not during the study in Almatama locality.

Schistosomasis can be prevented		Urine Exam Results		Total
		Affected	Normal	
Yes	Count	58	370	428
	Percentage	11.6%	74.0%	85.6%
No	Count	17	55	72
	percentage	3.4%	11.0%	14.4%
Total	Count	75	425	500
	Percentage	15.0%	85.0%	100.0%

X2= 4.8 PV= 0.027, Significant,

The table illustrate 11.6% of positively diagnosed mentioned Schistosoma can be prevented; while 3.4%mentioned the Schistosomasis can،t prevented.

Discussion

In this research it was found that the prevalence of Schistosomasis haematobium was 15% and mansoni was zero because the intermediate host for mansoni (bimoplalria) was rarely found in the study area. This result agrees with study that was conducted in Shendi locality among children the prevalence was 33.3% (Omya, 2014)

The study found that the prevalence was high among males (with 10.8%) than females (with 4.2%), this may be the males had frequently contact with stagnant water and work in agricultural projects, this result agrees with the Study conducted in Elkriab primary school, near ELslait irrigation scheme Sudan. 97 children (64 male and 33 female) infected with S. haematobium (Elagba. et al, 2006) -The study found that the age group (15 to 25) had high prevalence of 5.8%, this result agrees with a study which was carried out about the prevalence of Schistosomasis among primary school children in Barakat (Gazira state) age group greater than 15 years with 26.1% infection (Elawad,2006), also agrees with (Elsevier, 2006)

Conclusion

The prevalence of Schistosomasis hematoupium was 15% while Schistosomasis mansoni was Zero in Almamtama locality, The prevalence was high in Tibha administration unit with (6.0%), In Almatama unit (5.2%), The study found that there was strong relationship of Schistosomasis prevalence and gender, It was high among males (10.8%) than females (4.2%) with strong significant association (PV=0.001), The study showed there was strong relationship between Schistosomasis and age groups, the prevalence increased among age group (15 to 25 years) (5.8%) and (PV: 0.025)

Recommendation

1. The Public health authorities at localities are conducted effective health education programs on Schistosomasis.
2. The ministry of health is recommended provide free treatment for infected persons.
3. Encourage people to early diagnosis and treatment, for Schistosomasis.
4. Health authority of locality recommended to establishing an effective surveillance system to monitor the disease.
5. Shendi University is recommended to and cooperative with health authorities to raise the awareness for prevention and control of the disease.

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