

Research Article

Frequency of Urinary Schistosomiasis Among School –Aged Children in Al-Lamab Area, Khartoum – Sudan

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Abstract

Background: Urinary schistosomiasis is a sickness initiated by parasitic flukes named *Schistosoma haematobium*, if left untreated, can eventually lead to anemia, malnutrition, renal failure, or bladder carcinoma. The illness occurs mostly among school-aged children and young adults in sub-Saharan Africa.

Rationale: *Bilharzia* is one of the most parasitic diseases with grave complications that may lead to sterility, kidney failure and bladder cancer.

Objectives: To know the frequency of urinary schistosomiasis among school-aged children in the al-lamab area.

Materials and Method: Descriptive, cross-sectional study, 314 urine specimens were collected from each participant and examined by filtration and sedimentation methods.

Result: the prevalence among 314 individuals about 10.2 % (32) screening by filtration and sedimentation technique, the results showed (10.2%) were positive by filtration and (7.3%) positive by sedimentation. The positive cause within each age groups showed 7-10 (2.9%), 11-14 (4.4%) and 15-18 (2.9%), The age groups 11-14 years its highest infection than other groups. The results showed that all infective children had hematuria and 78.1% proteinuria.

Conclusion: the prevalence of rate is highest in the age group 11-14 years in comparison to other age groups. The filtration technique is more sensitive than the sedimentation technique.

Keywords: Bilharzia, School Children in the Al-Lamab area, Khartoum –Sudan.

Introduction

Parasitic infections are a main community health problem worldwide; particularly in developing countries and constituting the greatest cause of illness and sickness. It is estimated that some 3.5 billion people are affected and that 450 million are ill as a result of these infections, the majority being children. These infections are regarded as a serious public health problem, as they can cause iron deficiency anemia, growth retardation in children and other physical and mental health conditions. The high prevalence of these infections is closely correlated with poverty, poor environmental hygiene and impoverished health services (1).

Bilharzia is a sickness caused by trematodes known as *Schistosoma haematobium*, which, if left untreated, can finally lead to anemia, malnutrition, renal failure, or bladder cancer. The disease happens primarily in school-aged children and young adults in sub-Saharan Africa. The parasite is found in the venous plexus draining the urinary bladder of humans. During infection, the parasites deposit terminal spined eggs which clog the venous plexus, impeding blood flow. This bursts the veins, letting blood and eggs penetrate the urinary bladder, resulting in the characteristic symptom of blood in urine or hematuria. In sub-Saharan Africa alone it is estimated that 70 million individuals experience hematuria, 32 million with difficulty in urinating (dysuria), 18 million with bladder-wall pathology, and 10 million with major hydronephrosis from infection caused by *Schistosoma haematobium*. The mortality rate due to nonfunctioning kidney (from *S. haematobium*) and hematemesis has been put at 150,000 per year. The above figures imply that urinary schistosomiasis is an important public health problem in sub-Saharan Africa and second to malaria in morbidity (2).

In Sudan Archibald (1933) supposed that bilharzia started as far back as 2600 B.C. he stated that Schistosomiasis has been presented into Sudan through economic and political contact with Egypt, also he proposed that the thousands of travelers from West Africa flowing through the country, to and from Mecca, played a significant role in the illness transmission. Schistosomiasis in Sudan is a second strategic public health problem. It clues to 28 million at risk, 5824000 infected and 9450 deaths every year (2000 estimates).

The wide clinic pathological range of bilharzia reflects the development of the host's immune response according to the chronicity of infection, bacterial or viral co-infection and, in the case of glomerulonephritis, to the extent of hepatic co-morbidity.

Rationale

Bilharzia is one of the most widespread parasitic diseases with grave consequences that may cause sterility, renal failure, and bladder carcinoma.

Objective

To know the occurrence of bilharzia between school-aged children in al-lamab area.

Material and Methods

Study Design:

A descriptive, cross-sectional study

Study Area:

Al-lamab area, Khartoum –Sudan

Study Population:

School aged children in Al-lamab area, Khartoum –Sudan

Sample Size:

314 participants.

Ethical consideration:

Participants were informed about the goal of the study and all of them were consent to participate in the study.

Data collection:

The study participants were interviewed by the administration of a stander questionnaire to obtain the socio-demographic and economic status information as well as epidemiological risk factors.

Methodology

Sample collection:

Urine specimens collected in a wide, clean, dry, transparent container free from chemicals and disinfectants.

Diagnostic methods:

Filtration and sedimentation concentration methods.

Result

In this study the prevalence of urinary schistosomiasis infection among school children from different age groups of both male and female was compared by using filtration and sedimentation technique. The overall prevalence rate among study groups was (10.2%). The results obtained showed that out of the infection 10.2% by filtration and (7.3%) by sedimentation method. The results showed that the prevalence of schist soma haematobium infection was correlated with age. The results revealed that children with melded age 11-14 years showed the highest prevalence compared to other age groups.

Table 1: showed the prevalence of urinary schistosomiasis among examined groups

Sample	Frequency	Percent
Positive	32	10.2%
Negative	282	89.8%
Total	314	100%

Table 2: showed the infection rates according to age groups

Age group	Frequency	Percent
7-10	9	2.9%
11-14	14	4.4%
15-18	9	2.9%
Total	32	10.2%

Table 3: showed the results according to concentration and filtration technique

Technique	Positive	Percentage
Filtration	32	10.2%
Sedimentation	23	7.3%

Table 4: showed the proteinuria and hematuria in positive patients

Complication	Frequency	percentage
Proteinuria	25	78.1%
Hematuria	32	100%

Conclusion

Our study concludes that; the prevalence rate is highest in the age group 11-14 years in comparison to other age groups. The filtration technique is more sensitive than the sedimentation technique.

References

1. Mohammed H, Siddig H, Mohammed B, Mohammed A, Ahmed H, et al. "Prevalence of Intestinal Parasitic Infections among Patients Attended to Alribat University hospital, Khartoum State, Sudan, 2017". *Cohesive J Microbiol Infect Dis.* 2(4). CJMI.000543.2019. DOI: 10.31031/CJMI.2019.02.000543.
2. Mosab N M H, Esraa A S A, HalaAlaa H O, Duaa A E E, Arwa F M, et al. "Prevalence of Urinary Schistosomiasis among School Aged Children in Khelawa Village, River Nile State, Sudan, 2017". *Res Med Eng Sci.* 3(2). RMES.000560. 2018.

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