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SEROPREVALENCE OF HEPATITIS C VIRUS AMONG PATIENTS WITH ADVANCED SCHISTOSOMIASIS MANSONI

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ABSTRACT

Schistosomiasis (also known as bilharzias) is a parasitic disease caused by several species of trematodes (platyhelminth infection or flukes), a parasitic worm of the genus Schistosoma; snails serve as the intermediary agent between mammalian hosts. Schistosomiasis like many infectious disease, largely linked with human behavior. Intestinal and urinary Schistosomiasis caused by blood fluke called *S.mansoni* and *S.haematobium* respectively. The clinico-pathological manifestations and socioeconomic aspect forming the main public health concern. In *S.mansoni* infection eggs trapped in hepatic tissue, egg derived product and mediators released at the site of inflammation stimulate the differentiation of stellate cells into myofibroblast, fibroblast secrete extra cellular matrix proteins that deposits in periportal space leading to periportal fibrosis.

Key words: Schistosomiasis, Parasitic disease, *S.mansoni* and *S.haematobium.*

INTRODUCTION

The disease affects many people in developing countries, particulary children who may acquire the disease by swimming or playing in infected water (CIA, 2007; Archibald RG, 1993; Garcia LS *et al*, 1997; The Carter center, 2008).

In Egypt, hepatitis C virus infection (HCV), along with *S.mansoni* is the main cause of chronic liver disease and liver cirrhosis. Schistosomiasis, HCV, HBV are all associated with liver disease. However, co-infection with two or more of these infectious agents may potentiate the pathogenesis of liver disease (Reeder MM, 1981).

Study approach

This is a descriptive, cross-sectional facility based study, of qualitative approach and variable to assess the seroprevalence of HCV among intestinal Schistosomiasis patients.

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Study area and population

Health facility base study in the institute of endemic disease in Khartoum. Patients enrolled in this study were included following confirmation of intestinal Schistosomiasis by detect of *S.mansoni* eggs by stool examination.

Study variables

Screening of HCV antibodies measured by ICT. Results of stool examination by use direct microscopy and concentration technique. Frequency of ascites, Frequency of splenomegaly.

Gender in term of male and female. Age measured by years.

Sampling and sample size

Sampling technique used was non probability sampling.

Sample Frame

Patients with intestinal Schistosomiasis.

Sample size: 40 participants.

Tools of data collection and methodology

Data were collected using structural interviewing questionnaire.

METHODOLOGY

Immune Chromatography Test (ICT)

Intended Use

For the qualitative determination of serum antibodies against HCV.

Principle of procedure

Antibodies in patient serum/plasma is bind to antigen fixed in test kit to make Ag/Ab Complex, this complex (binding) appear as coloured line.

Procedure

A drop of plasma sample added in the sample well then add a drop of dilution buffer then wait for reaction to appear.

Quality control

The use of positive and negative control allows easy validation of the kit stability.

Data processing and analysis

The collected data were analyzed manually by using master sheet and computerized by SPSS program.

Ethical consideration

This study was approved by the ethical committee in the college, and it is also a part of a vast study which was previously approved by the ministry of health.

RESULTS

A total number of 40 persons were enrolled in this study. Among the 40 subject who took in the study 10(25%) were female and 30(75%) were male and their age range from 22 to 60 years.

All 40 participants showed signs of periportal fibrosis after examined by ultrasound. Among the 40 participants, 39(97.5%) was previously known bilharzial. From these 40 persons who took in the study 38(95%) showed no hepatomegaly, while only 2(5%) showed signs of hepatomegaly. Also 35(87.5%) of participants showed signs of spleenomegaly, while 5(12.5%) appear normal size of spleen. 36(90%) subjects showed no ascites, while 4(10%) subjects in this study showed ascites.

All these 40 participants have no signs of jaundice. 30(75%) persons have exposed to blood transfusion, while remainders 10(25%) not exposed.

Serological examination was run on these 40 patients suffering from intestinal Schistosomiasis, HCV antibodies were not detected in these patients.

Figure 1. Frequency of gender among study population

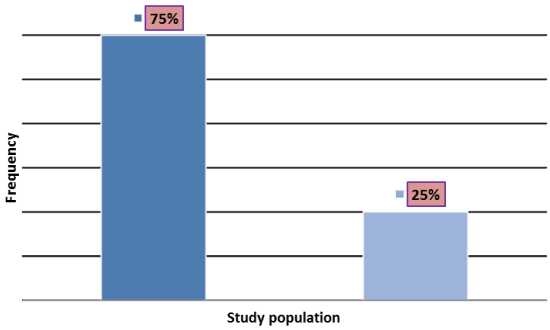
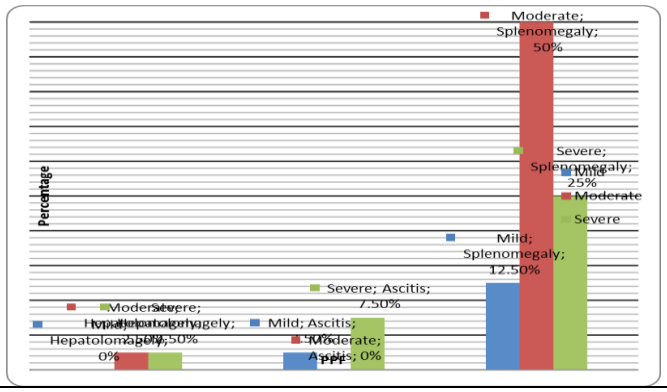


Figure 2. Frequency of clinical presentation in patients with PPF



DISCUSSION

This study showed no correlation between *S.mansoni* infection and HCV infection, and there are low prevalence of HCV among *S.mansoni* patients in Sudan, which is similar to study conducted by Mudawi et.al. (2007), in Gizera state of central Sudan conclude that HCV infection is of low prevalence and that Schistosomiasis and parenteral anti-schistosomal therapy are not major factors for infection in the population study (Madawi HM *et al*., 2007). Also in the study of (Berhe *et al*., 2007), in Ethiopia found that HCV was not associated with *S.mansoni* infection or with schistosomal periportal thickening/fibrosis (PPT/F). Also (Al-Shamiri *et al*., 2011), in Taiz, Yemen found that no association between *S.mansoni* infection and HBV and HCV, which is similar to the current result.In other hand, some studies contrast this findings as with (Bahgat *et al.*, 2010), conclude in his study that *S.mansoni* soluble egg antigen (SEA) has the potential to enhance HCV propagation. The frequency of periportal fibrosis (PPF) is higher in male than female because of the adult male go to swim or path in pond which might be contaminated with Schistosoma. The results of HCV antibodies were negative in all participants that means exposure not significantly related to HCV seropositivity were gender, active infection with

S.mansoni. The propagation and severity of intestinal Schistosomiasis in the study population was not associated to co-infection with HCV. Based on these results we may also speculate that the *S.mansoni* occurring in rural areas does not influence the transmission or dissemination of HCV, as (Jose Tavres *et al*., 2005), in Brazil found a very low prevalence of HCV infection with high prevalence of Schistosomiasis mansoni.

CONCLUSION

The present study found that there are low seroprevalence of HCV among the intestinal Schistosomiasis mansoni patients, and the infection of *S.mansoni* is not the risk factor of higher HCV seropositivity, also severity of disease not associated with co-infection with HCV. The frequency of splenomegaly in patients with PPF is high.

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