THE BURDEN OF HEPATITIS B AMONG PREGNANT WOMEN ATTENDING ANTENATAL CARE (ANC) SERVICES IN JUBA TEACHING HOSPITAL (JTH)-JUBA SOUTH SUDAN

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ABSTRACT

Introduction

Hepatitis B Virus disease is a major health problem world-wide which causes annual deaths of about 1-34 million indicating that death toll due to Hepatitis B disease is on the rise. It is an infection of the liver that can be self-limiting or if not treated can progress to fibrosis, cirrhosis (scaring) and possibly liver cancer (Hepatocellular carcinoma).

Methods

Cross-sectional study was used to establish the prevalence of HBV infections and associated risk factors among pregnant women attending antenatal care services in Juba Teaching Hospital (JTH). The study duration was from June 2017 to October 2017 with study subjects of 127 who successfully completed the interview and screening procedure. The data was collected by face to face interview using pre-tested questionnaires; blood sample was collected from each study subject by fifth year medical students and hospital nurse. This was done using HBsAg test kit

Results

The data showed that the prevalence of HBV infection among pregnant women attending Juba Teaching hospital was 6.3% which is considered to be high-intermediate compared to previous

study conducted in Sudan (5.6%). Associated risk factors identified include: age group ranging from 15-34 years, women with history of abortion, low education level and low socio-economic.

Conclusion

The prevalence of HBV is high among pregnant women attending ANC in JTH as predicted. The major risk factors identified are: reproductive age, poverty, history of abortion and low education level. There is a need for well-equipped screening facility for HBV in all government referral hospitals and other health facilities.

Introduction

Hepatitis B is one of the viral infectious diseases of the liver that is becoming a major public health concern globally despite the availability of effective vaccine and potent antiretroviral therapy. World-wide, the disease accounts for about 400 million chronic infections. Western Pacific region is the leading with over 95 million followed by the African region, over 75 million. (1) Recently, reports demonstrated that 68,600 people die of HBV infection and more than 300,000 deaths due to liver cancer secondary to hepatitis B every year globally. (2)It is the most common cause of liver cirrhosis and hepatocellular carcinoma (HCC). The risk of developing the chronic hepatitis B infection carrier is 95% for infections acquired by vertical transmission and 5% for those acquired during adulthood. (3,4) HBV is a blood borne infection and its transmission is commonly through exposure to infectious blood products or body fluids (urine, semen, sweat, saliva, and tears), use of contaminated needles, blood transfusion, vertical transmission, and unprotected sexual contact.

Pregnant women who test positive for both hepatitis B surface antigen (HBsAg) and hepatitis B e Antigen (HBeAg) have 70-90% risk of transmitting infection to their newborns and about 10-40% risk if they tested positive for only HBeAg.(4,5)

In South Sudan, previous studies estimated a country-wide prevalence of HBV infections to be 26%, a similar study on mother to child transmission of HBV infection revealed, five out of nine (55.5%), babies born to HBsAg positive mothers were infected (6,7). Unlike the previous studies which provided generalized country-wide information on the prevalence of the disease, this

study is scaled-down specifically to the prevalence of HBV and associated risk factors among pregnant women attending antenatal care in Juba Teaching Hospital.

South Sudan has been in war for more than two decades and there has been a lot of displacement within and abroad mostly East African countries (Uganda, Kenya and Ethiopia). This is in addition to poor primary healthcare system and facilities. Overcrowded camps without lack sanitary facilities confounded by disrupted social structures are conducive environment for transmission of infections such as HBV. WHO recommended that all countries integrate hepatitis B vaccine into their national immunization programs by 1997. South Sudan introduced hepatitis B vaccination into the national infant immunization program using the pentavalent (DTP-HepB-Hib) vaccine formulation on 16th July 2014 (8). However, this policy has faced many challenges from the start. Consequently many children remained at high risk of acquiring the HBV infection. There are cultural practices in South Sudan that can facilitate the transmission of infection, for example, inheritance of women, tribal markings using contaminated equipment, ear piercing, and group eating from same plate/tray. Most recent studies showed that exposure to body fluids (semen, sweat, tears, saliva) is associated with increased prevalence of Hepatitis B infection (9). However, in South Sudan, the most common risk factors were loss of a marital partner and history of Jaundice (10).

RESEARCH METHODOLOGY:

STUDY DESIGN AND METHOD

Cross-sectional study was used to establish the prevalence of HBV infections and associated risk factors among pregnant women attending antenatal care services in Juba Teaching Hospitals (JTH). The study was based on both quantitative and qualitative primary data collected from Juba Teaching Hospital.

STUDY POPUATION AND SAMPLE SIZE

The target group included about 134 women of reproductive age all gestational ages who were attending their regular ANC services in Juba Teaching Hospitals.

SAMPLING METHOD

From the total of 134 pregnant women proposed, 127 were conveniently sampled and completed the questionnaire. Convenience sampling technique was used instead of random sampling technique as those who came for service were few. Participation was voluntary for those who attended ANC center.

DATA COLLECTION PROCEDURES

Authorization letter was provided by the Head of Department of Community medicine, College of Medicine, and was presented to head of department of Obs/Gyn Juba Teaching Hospital who permitted the process of data collection to go ahead. Data was collected by the research team (fifth year Medical students) using questionnaires, lab testing, and interview for qualitative data. For confidentiality purpose any information that was collected was de-identified. An informed consent was obtained from each participant then data were analyzed using Microsoft Excel version 2010

RESULTS

From the total of 134 samples proposed, 127 were available for analysis. The prevalence of Hepatitis B infection among pregnant women attending Antenatal Care (ANC) services in Juba Teaching Hospitals (JTH) is expected to be high.

Table: 1 Screening Result for Hepatitis B infection.

Participants	Frequency	Percentage
Reactive	8	6.30%
Non-Reactive	119	93.70%
Total	127	100%

Here the overall prevalence of HBsAg was 6.2% (8/127)

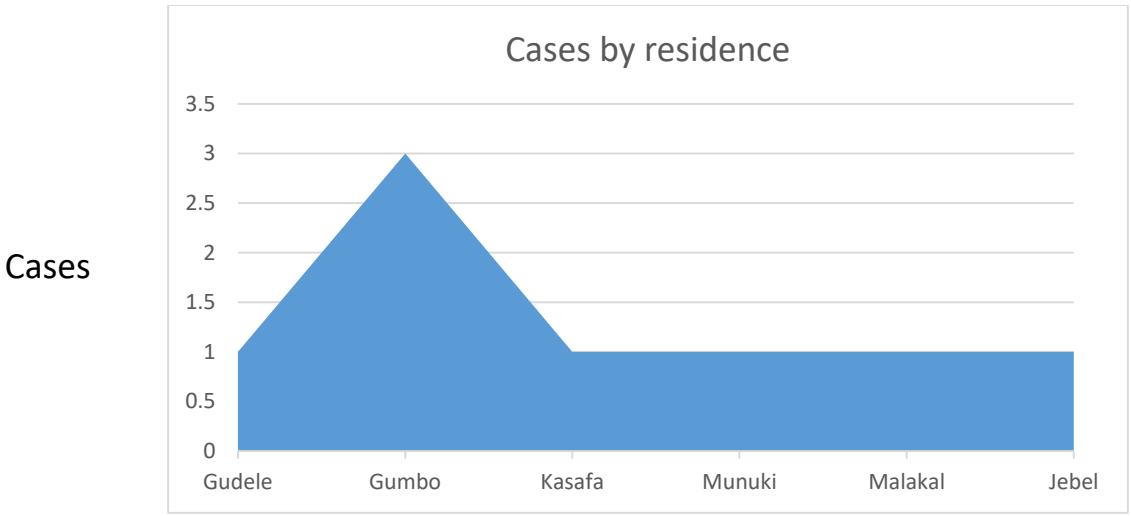

Figure: 1 Cases by residence

Figure 1. Show that Gumbo has 3 cases out of the 8 HBsAg positive individuals, representing 37.5%. This signifies the highest number of cases compared to the rest of residence.

Table: 2. Cases by age group

Age	Cases
15-24	4
25-34	4
35-44	0

The Age range of HBsAg positive is from 15-24 and 25-34 with equal distribution of 4 cases each while age range of 35-44 has none.

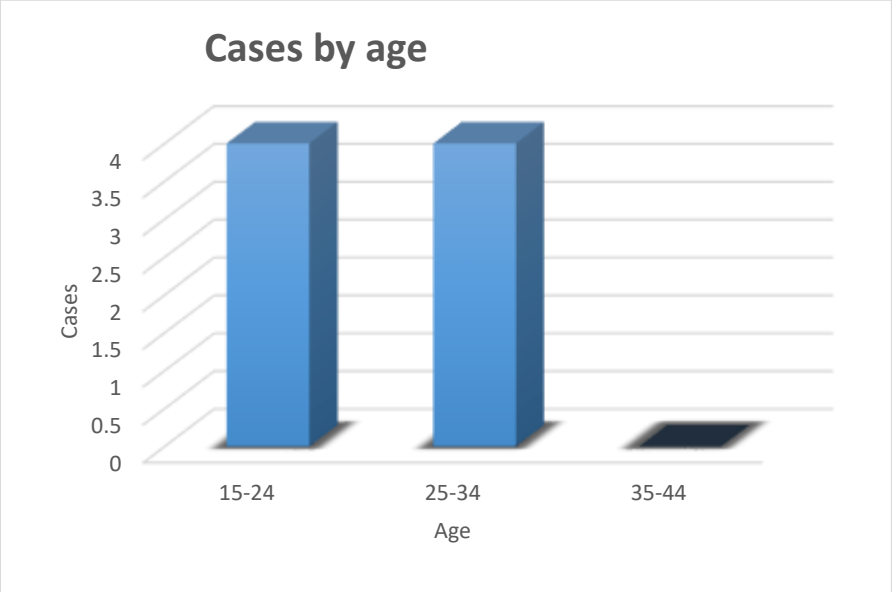

Figure: 2 Illustrates the Cases of the HBsAg which is equal 15-24 (50%) and 25-34 (50%)

Among the risk factors that were identified to have relationship with prevalence of HBV, age range between 15-34 years has shown possible link to HBV infection rate than those above or below this range. This could be due to the fact that they are sexually active age group and therefore prone to multiple sexual partners and frequency. Pregnant women who had history of abortion, low socio-economic status and educational level are more likely to have acquired the infection than those who are not. Meanwhile surgical procedure, blood transfusion, cultural background and marital status did not show any substantial contribution to the infection among the participants. Tables (4.1, 4.3, 4.5)

Table 3. Participants by Education Level

Level	Frequency	Percentage
Primary	47	37%
secondary	43	34%
tertiary	11	8.66%

others	26	20.47%
total	127	100%

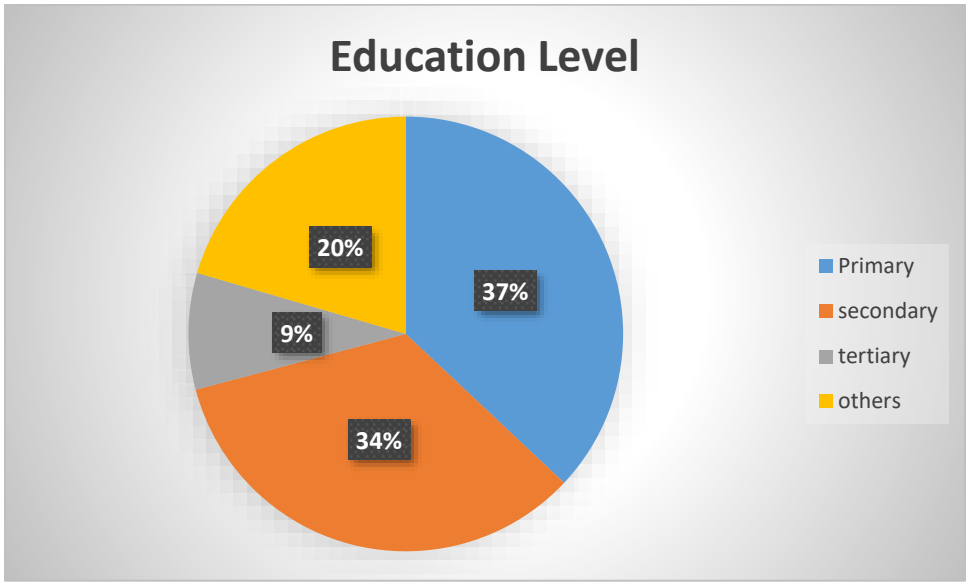

Figure 3 illustration percentages by Education level

From table 4.5 and Figure 4.4, primary level has 47 (37%) individuals, secondary level has 43 (34%) individuals while tertiary level presents the lowest with 11(8.7%) and others represents 26 (20.4%) individuals

Table 4 study participants by socioeconomic status

Low	78	61.42%
Moderate	49	38.58%
High	0	0%
Total	127	100%

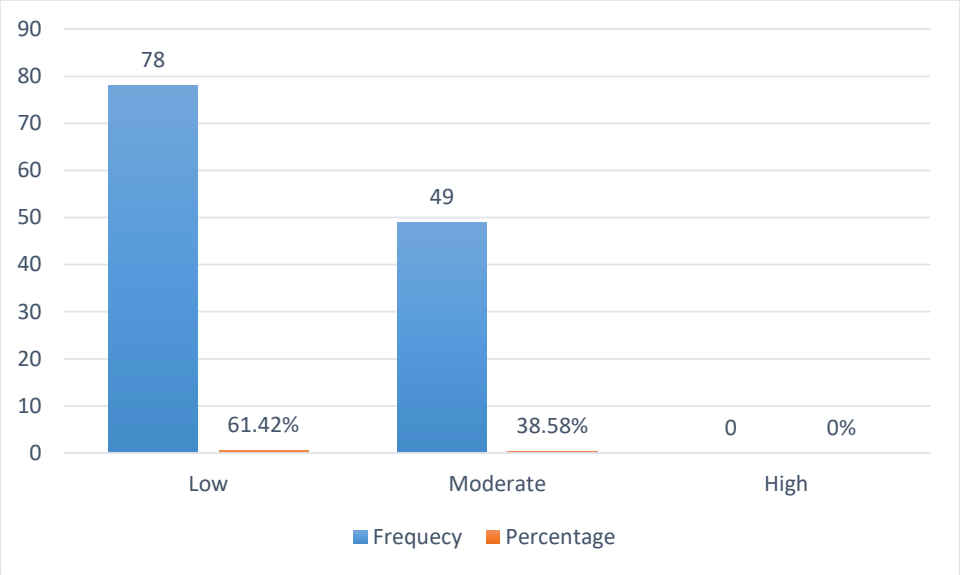

Figure: 4 Bar graph of socio-economic status with it levels

Table 4.6 and Figure 4 categorize the participants based on income, education, leaving status. Majority of them are from Low socio-economic status, 78 (61.4%), moderate, 49 (38.58%). Meanwhile under category of 'High', no recorded findings reflected in the study.

Table 5 Awareness of Hepatitis B among pregnant women:

Level	Frequency	Percentage
Aware	18	14.20%
Not aware	109	85.8%
Total	127	100%

When asked if the subjects were aware of HBV infection 18 of 127 (14.20%), said they were aware, while 109 (85.80% were not aware about HBV infection before interview. As it is reflected from the table 3 lower education level can explain lack of knowledge about hepatitis virus B infection.

DISCUSSION

According to the findings of this study, the prevalence of HBV infections among pregnant women attending ANC at JTH, Juba South Sudan was 6.3%. This is considered to be high-intermediate according to WHO classification. A cross-sectional study by Kirbak in the period between December 2012 and March 2013 in Juba Teaching Hospital South Sudan revealed prevalence of 11% of HBV infection among pregnant women. That prevalence was considered to be high compared to 6.3% of this research finding. This difference in results could be due to sample size where Kirbak's sample size was 280 while this study has 127. This result is similar with prevalence of 6.1% reported in Southern Ethiopia, 6% in Addis Ababa and 7.3% in Gondar, Northwest Ethiopia, 6.2% in Sierra Leone and 5.6% in Sudan respectively. While it is higher compared to 3.9% in Kaduna Metropolis, Nigeria and 3.9% in Mbagathi District hospital**,** Nairobi, Kenya respectively. The cases according to residential areas, Gumbo is leading in HBV positive cases with a rate of 37.5% while the remaining 5 areas have equal rate of 12.5% each. The reasons behind Gumbo having such as a greater rate are not clear but suggestions are that it is an entry and outlet point for travelers, where lodges and Inns are plenty and therefore encouraging prostitution which is thought to be the main root of spreading the HBV infections.

Among the risk factors found to be associated with HBV infections are: age, history of abortion, lower education level, and poverty.

Based on descriptive analysis all of the cases were between age group ranging from 15-34 years. Suggested reasons include the fact that they are sexually active and unsafe sexual practice. This finding is similar to study by Olokoba et al. who recorded the highest prevalence rates among women in age groups 25–35 years (11).

When participants were categorized by education level: primary level has the highest percentage (37%) compared to secondary, tertiary and other categories.

Participants were stratified by socioeconomic status, 61.42% were at low level and 38.58% were under moderate by country level. Participants were assessed on knowledge of hepatitis B virus infection before this study 85.8% was unaware and 14.2% have knowledge about the hepatitis B

virus infection. However participants were not asked for their education background during the interview. Weak health care system couple with lack of access to health education made the situation worse.

CONCLUSION

The prevalence of HBV is high among pregnant women attending ANC in JTH as predicted. The major risk factors identified are: reproductive age, poverty, history of abortion and low education level. There is a need for well-equipped screening facility for HBV in all government referral hospitals and other health facilities.

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