

Frequency of Hepatitis B infection among Hemodialysis Patients at Aljomih Center, Elobied, Sudan, 2024

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ASBTRACT:

Background and objectives: Hepatitis is inflammation of the liver due to viral infection and leads to significant morbidity and mortality. The HBV is highly infectious and the virus can be spread through vertical transmission or horizontal transmission by exposure to blood, body fluid of infected individuals. HBV infection is considered as major public health problems worldwide. This study aimed to find out Frequency of Hepatitis B infection among Hemodialysis Patients at Aljomih Center, Elobied, Sudan, 2024. **Method and patients:** this Descriptive cross-sectional facility-based study included all patients of hemodialysis at Aljomih center during the study period (126 patients). **Results:** the study showed that 8 (6.3%) of hemodialysis patients have Hepatitis B infection. Most individuals were males 97 (77.0%), and 8 (6.3%) of them were HBV positive, 29 (27%) of patient were females. The patients were classified into four age groups. Moreover, 124 (98.4%) of the patients had previous blood transfusion and 8 (6.3%) were HBsAg positive. this study elucidated that 92 (73%) of participated were hypertensive and 2 (1.58%) of them were HBsAg positive. On the other hand, 10 (7.9%) of hemodialysis patients included in this study were diabetics and all of them were HBsAg negative. **Conclusion:** The prevalence of hepatitis B infection among HD patient was generally high (6.3%). More effort should be done to reduce this frequency of HBV among hemodialysis patients.

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Introduction: Hepatitis is inflammation of the liver due to viral infection and leads to significant morbidity and mortality 1. The HBV is highly infectious and the virus can be spread through vertical transmission (mother to child) or horizontally by exposure to blood, body fluids of infected individual (saliva, vaginal fluids, seminal fluids, etc), through needle stick injury, during hemodialysis, and sexual intercourse especially among individuals with multiple sexual partners 2 .HBV can also be spread through blood transfusion although the incidence has greatly reduced due to the routine screening of blood products before transfusion. HBV is one of most common viral infections among hemodialysis individuals with renal disease 3. Chronic kidney disease (CKD) has become one of the major public health problems worldwide. Patients with end-stage renal disease (ESRD) are at increased risk of acquiring HBV infections than the general population

3 Previous studies have shown that factors such as number of blood transfusions, dialysis duration more than two years, gender, blood transfusion, age, history of renal transplantation, transient hemodialysis and nationality were linked with the rate of HBV infection among hemodialysis patients 4.

Method and patients: This is a descriptive, facility-based cross-sectional study. The study was conducted at Aljomaih center in Elobied North kordofan state, Sudan. The study included all hemodialysis patients who attended Aljomaih center during the study period, with exclusion of patients with acute kidney injury and severely ill patients. A total of 126 patients with end-stage renal disease undergoing regular HD during the period from May to July 2024 were included. The data was collected through face-to-face interview and data recorded in patients' files using well designed questionnaire. The questionnaire included

socioeconomic data (e.g., age, gender, occupation, duration of hemodialysis, history of blood transfusion, history of vaccination against HBV infection, marital status, and history of diabetes and hypertension). Blood for HBsAg was done for all patients enrolled in the study. Ethical clearance was obtained from community medicine department and informed consent was obtained from each patient. A permission to use the center was obtained from the ministry of health North Kordofan. The data were analyzed using SPSS (statistical package for social sciences, version 22).

Results: HbsAg was screened for all patients enrolled in the study. In eight patients (6.3%), the result for HbsAg was positive, while in 118 patients (93.7%) the result was negative. Majority of patients were males (77.0%), and in 8 male patients (6.3%) the result for HBsAg was positive, 29 patients (27%) were females the screening for HbsAg was negative in all female patients.

Most patients (69.8%) were urbans and in 6 (4.76%) of them the result for HbsAg was positive, while 36 (28.57%) were belonged to rural areas and in 2 (1.58%) of them the result for HBsAg was positive.

According to the duration of dialysis, the patients were classified into four groups 40 patients (31.7%) were on dialysis for <1 year and one of them was HbsAg positive, 51 patients (40.5%) were on dialysis for 1 to 5 years and 4 (3.17) of them were HbsAg positive, 26 patients (20.6%) were on dialysis for 6 to 10 years and 2 (1.58%) of them were HBsAg positive, 9 patients (7.1%) were on dialysis for more than 10 years and only one of them was HBsAg positive.

Moreover, 124 patients (98.4%) had previous blood transfusion and 8 (6.3%) of them were HbsAg positive. Sixty patients (47.6%) reported that they are vaccinated against HBV infection and 5(3.96%) of them were HbsAg positive. In contrast, 66 patients (52.38%) were not vaccinated and 3 (2.38%) of them showed positive result for HBsAg.

Thirty-seven patients (29.4%) had past history of dental extraction and one of them was positive for HBsAg. Ninety-two patients (73%) were hypertensive and 2 of them were HBsAg positive. Ten patients

(7.9%) were diabetic, and all of them were HBsAg negative.

Discussion:

In this study, 6.3% of the participants were HBsAg positive which is a pit lower than the global prevalence of HBV infection among hemodialysis patients, which is found to be 7.32% 4. In a study from Addis Ababa, the prevalence of HBV infection among hemodialysis patients was found to be 1.2% 5, and this is lower than our prevalence of HBV infection. Another study from Tunisia, the prevalence of HBV infections among patients undergoing HD was 5.5% 6, and this is also lower than the prevalence rate of HBV infection compared to our result.

In this study, 124 patients received blood transfusion during their Haemodialysis sessions and 8 (6.3%) of them were found to be HBsAg positive but the problem is that there are no reports about the state of HBV before haemodialysis. However, our findings were in agreement with other studies, which showed association between the history of blood transfusion and HBV infection in HD patients 7.

Sixty (47.6%) patients were immunized against HBV, however 6 (4.76%) of them were found to be HbsAg positive. Ist is difficult to explain this finding which could be due to either incorrect formation, incomplete vaccination or invalidity vaccine.

Limitations of the Study:

Self-reported information was obtained from the respondents. Therefore, there might have been a possibility of social desirability bias on the scales used to assess the study variables. Information obtained was also subject to recall bias as participants might not recall all required information accurately.

Conclusions:

The prevalence of hepatitis B infection among HD patient was generally high at 6.3%. This study has demonstrated that there was significant association with the blood transfusion, but no significant association with the duration of dialysis. Vaccination against HBV infection is recommended for all the patients on haemodialysis to reduce the risk of acquisition of hepatitis B infection.

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