Prevalence of Hepatitis B &C in patients of End Stage Renal Disease (ESRD) on treatment of chronic/long-term hemodialysis

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ABSTRACT

Background: Hepatitis B & C are worse conditions and are more likely to be common in patients of end stage renal disease taking hemodialysis. The incidence varies in different regions of the world.

Aim: To assess the prevalence of Hepatitis B and Hepatitis C viral infection among ESRD patients on chronic/long-term hemodialysis at a community hospital.

Methods: Cross sectional study was done on 171 ESRD registered cases from 2009-2014. Viral serology was done to confirm presence of Hepatitis B or C virus by rapid immuno-chromatographic test (ICT).

Results: There were 103/171 (60.2%) males and 68 (39.8%) females with mean age of 43.82±14.44 years. The factor caused ESRD were hypertension, diabetes and ischemic heart disease. There were 31.6% who had vaccination for HBV. In this study, 69% were found positive for HBV or HCV. For HBV 54.97% while for HCV 11.11% had positive serology while 0.03% were positive for both HBV & HCV. Of the 94 HCV positive patients, 5 were vaccinated for HBV.

Conclusion: The incidence of Hepatitis B & C viral infection is common in ESRD patients on chronic/long-term hemodialysis in poor resource countries, with low vaccination rate of HBV. The seroprevalence for HCV rises abruptly with duration of dialysis.

Keywords: Hepatitis C; Hepatitis B; Hemodialysis; Chronic kidney disease; seropositivity

INTRODUCTION

Hepatitis B virus (HBV) and hepatitis C virus (HCV) are the most common reasons causing liver diseases. Hepatitis B is estimated to result in 563,000 deaths and hepatitis C in 366,000 deaths annually. In Pakistan, 4 to 5% population is affected due to these viruses. But scarce data regarding prevalence & risk factors of HBV & HCV infection at national level is scarce.

Stringent measures should be taken to control the infection, which is necessary to avert transmission of this nosocomial infection. But in Pakistan, the evidence is scarce and further studies are required to be conducted, particularly an audit to confirm the incidence in already registered patients, so that further spread of HBV or HCV can be prevented.

The objective of the study was to assess the frequency of Hepatitis B and Hepatitis C virus infection among ESRD patients on chronic/long-term hemodialysis (HD) at a community hospital and determine the correlation of HBV or HCV infection with the duration of hemodialysis.

METHOD

A retrospective, cross sectional study was conducted at the dialysis center of Lahore General Hospital, Lahore from 2014-2017. Medical records of 171 patients were reviewed. All patients had been on hemodialysis for at least 6 months. Data regarding demographics, cause of ESRD, duration of dialysis, co-morbid conditions, and vaccination status for HBV and HCV were documented. Viral serology was checked by rapid immuno-chromatographic test (ICT).

Data was analyzed using SPSS version 21. Chi-square test was used to compare the causes and comorbidities of HCV. Pearson correlation was used to determine the association between presence of HCV and HBV and duration of hemodialysis.

RESULTS

The mean age of patients was 43.82±14.43 years. There were 103/171 (60.23%) male and 68/171 (39.77%) female patients. The most common cause of ESRD was hypertension followed by Diabetes Mellitus; present in 100/171 (58.5%) and 22/171 (12.9%) patients, respectively. 33/171 (19.3%) patients had both diabetes and hypertension. Seven patients had obstructed uropathy (4.1%), and 2(1.2%) female patients had post partum hemorrhage as cause of ESRD. In our study, 42/171 (24.56%) patients had coronary artery disease, 11/171 (6.4%) had congestive heart failure, 4/171 (2.3%) had liver disease and 1/171 had cerebral vascular accident. 59/171 (34.5%) patients were on dialysis for about 6 months, 55/171 (32.2%) for 1 year, 20/171 (11.7%) for 2 years, 14/171 (8.2%) for 3 years, 20/171 (11.7%) for 4 years and 3/171 (1.8%) were on dialysis for 5 years. HCV and HBV serology was positive in 94/171 (55%) and 19/171 (11.1%) patients, respectively. According to the viral status, 80/171 (46.8%) patients were infected prior to the initiation of hemodialysis, duration of dialysis and prevalence of HBV and HCV were shown in table 1.

The correlation between the prevalence of HCV and duration of dialysis was 0.320 (p=0.000). This although significant, but is a very weak association. The correlation between HBV prevalence and duration of dialysis was 0.069 (p=0.371), which was not only weak but also insignificant (Table 3).
Prevalence of Hepatitis B & C in patients of End Stage Renal Disease

**DISCUSSION**

Hepatitis B and C virus infections are global health problems. Hepatitis B infection is endemic among patients on long-term hemodialysis and the prevalence is much higher in developing countries when compared to the developed world. Data suggests moderate-to-high incidence of HBV & HCV in various regions of the world. For example, in a study conducted in Libya, 34.9% cases had positive HBsAg (14.6% weighted average, range 12.4–16.6%) and HCV Ab (38% weighted average, range 23.7–68%) has been described in patients on chronic/long-term hemodialysis. Similarly, in a study conducted in India, HBV was present in 7.3% and HCV in 12.1% cases.

Hemodialysis patients typically acquire HCV during hemodialysis, direct contact between patients, a breach in infection control, contaminated equipment, or transfusion of contaminated blood products. Duong et al. observed a high prevalence of HBV and HCV in non-hemodialysis patients which ranged 3-56%. However, a high prevalence of HBsAg (14.6% weighted average, range 12.4–16.6%) and HCV Ab (38% weighted average, range 23.7–68%) has been described in patients on chronic/long-term hemodialysis.

In our study, we have observed that the correlation between HBV prevalence and duration of dialysis was 0.320 (p=0.000) which was significant but very weak. But the correlation between HCV prevalence and duration of dialysis was 0.069 (p=0.371) which was not only very weak but also insignificant. This showed that there is no relationship between duration of dialysis and HBV or HCV prevalence.

**CONCLUSION**

Blood related infections like HBV & HCV are common findings of this study among chronic hemodialysis patients. This may be due to poor vaccination rate for HBV. The chances of attaining HCV infection increases abruptly with prolonged duration of hemodialysis signifying cross infection in dialysis units.
REFERENCES