

Incidence and Prevalence of Hepatitis B and C Infection in Haemodialysis Patients at GMERS attached General Hospital Gandhinagar

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Abstract

Background & Objective: Hepatitis B and Hepatitis C are significant problems in the management of haemodialysis patients. We aimed to investigate the incidence and prevalence of HBV and HCV infection in the hemodialysis patients as well as risk factors for infection. **Methodology:** All adult patients receiving maintenance hemodialysis (n=217) in General hospital, gandhinagar were studied between September to December 2018. Testing for Hepatitis B surface antigen (HBsAg) and anti-HCV antibodies was performed at Department of Microbiology, GMERS medical college, Gandhinagar. **Results:** The prevalence and incidence rates were 2.30% in HBV patients and 5.06 in HCV patients respectively. There was a significant correlation of the prevalence and seroconversion of HCV and HBV with number of blood transfusion and duration of haemodialysis. **Conclusion:** Patients on maintenance hemodialysis have lower incidence and prevalence of HCV infection and lower rates of HBV infection in this study.

Keywords: Haemodialysis, Hepatitis B, Hepatitis C, Incidence, Nosocomial infection.

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INTRODUCTION

Infections with hepatitis B virus (HBV) and hepatitis C virus (HCV) are well-known and important causes of liver disease in end-stage renal failure patients on hemodialysis [1-4]. Patients receiving maintenance haemodialysis (HD) therapy are at increased risk for acquiring these infections and have a higher prevalence of HBV and HCV than the general population [5, 6]. The introduction of blood donor screening and a reduction in blood transfusions due to the availability of recombinant erythropoietin has significantly reduced the incidence of new HCV infections among HD patients in many countries [7-9]. HBV infection is usually due to patient to patient transmission within HD units [10]. Prior to effective screening of blood donations, HCV infection was associated with blood transfusions needed to correct the anaemia associated with kidney disease [11, 12] but patient to patient transmission in HD units is also reported [13, 14]. Recognition of the risk of nosocomial infection has resulted in recommendations that strict infection control procedures should be followed on HD units; patients with blood-borne virus infections should be isolated from sero-negative patients during dialysis and patients as well as staff should be vaccinated against hepatitis B. This study aimed to investigate for the incidence and

prevalence of HBV and HCV infection among patient taking Hemodialysis at GMERS attached General hospital gandhinagar.

MATERIAL AND METHODS

The study was done in department of Microbiology, Gmers medical college, gandhinagar after permission of respective authorities. A total 217 patients were taken in this study from September 2018 to December 2018. All 217 patients who were on hemodialysis included in the study. The testing was done by using HbsAg ELISA and Anti-HCV ELISA tests. All tests were carried out and interpreted strictly in accordance with the manufacturer's instructions.

RESULTS

Total 217 patients samples were tested for Hbsag and Anti-Hcv. Among them 127 were males (58.52%) and 90 were females (41.47%). Out of total 217 patients, 5(2.30%) were reactive to HbsAg ELISA test and 11(5.06%) were reactive to anti-HCV ELISA test.

PATIENT STATUS	PREVALANCE
HBsAg Reactive	5 (2.30%)
HBsAg Non Reactive	212(97.7%)
HCV Reactive	11 (5.06%)

HCV Non Reactive	206(94.93%)
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DISCUSSION

Hepatitis B and C infections are serious problem in chronic haemodialysis patients. This study was conducted to determine the prevalence of HbsAg and anti-HCV in patients with CRF, with the tests done at baseline. The prevalence rates were 2.30% for HbsAg and 5.06% respectively for HCV. The prevalence of anti-HCV in patients on haemodialysis from India is reported to be in the range of 3% to 45% [15]. The prevalence of HCV infection is known to vary widely in different regions of the world. The reason for variation in prevalence of HCV in haemodialysis patients is largely unknown [16]. Implementation of universal precaution in HD unit, method of HCV testing, blood transfusion and variable policy of isolation could be the potential reason. Prevalence of HCV in our study is relatively showing decreasing than previous years study from India. Possible reason for that are good nursing care, strict aseptic precautions, increase use of disposable materials like needle syringes, filters use for patients in dialysis, strict protocol for Testing of bloods & blood Products. Proper Biomedical Waste management. Use of Erythropoietin injection to treat anemia instead of blood unit. Vaccination against HBV awareness in general population is increase. All these factors should help in decreasing in Prevalence of HbsAg and HCV infection in haemodialysis patients.

The prevalence rates were 2.30% and 5.06% respectively for HBV and HCV in this Study. In Previous study in India, prevalence in HD patients of HBV and HCV were higher side. In Our study shows relatively lower prevalence of hepatitis B and HCV than other study. Possible reason is we have less number of patients.

Decreasing blood transfusions as well as the number of blood transfusions was strongly associated with HBV or HCV infection in our study. Several studies have shown that the risk of acquiring the HCV infection increase with an increase in the number of units of blood which were transfused [17-19].

On the other hand, the prevalence and incidence of HBV or HCV sero-positivity was significantly related to the length of time on HD. This is consistent with nosocomial transmission related to dialysis since longer duration of dialysis represents a longer period at risk of acquiring an infection. Similar observations have been reported by other authors [20-22]. Prevention of nosocomial transmission is of vital importance to decrease HCV infection. There was no significant differences in HCV infection among patients undergone for major and minor invasive procedure. So irrespective of type of invasive procedure breach in body tissue will increase the risk of HCV infection. Few case series also observed high prevalence of HCV infection in IV drug abuse [23, 24].

CONCLUSION

In conclusion, patients on maintenance HD in GMERS attached General Hospital Gandhinagar have a showing probably lower incidence and prevalence of HCV infection and HBV infection compare to other study. The factors associated with lower HBV and HCV infection are highly suggestive of Aseptic precautions, proper biomedical waste management, use of disposable materials for patients, pre-testing for HBSAG And ANTI-HCV before starting hemodialysis., Separate dialysis machine for patient Reactive against HCV and lesser use of blood & its products to treat anemia .

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