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RESEARCH ARTICLE

PREVALENCE OF HEPATITIS C IN HEMODIALYSIS PATIENTS IN INDIA

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ABSTRACT

Objective: To determine the prevalence of Hepatitis C in patients undergoing hemodialysis in India. **Materials and Methods:** The study was a Prospective single centre observational study conducted in patients attending a Hemodialysis unit between April 2018 and September 2018 at Sri Guru Ram Das Institute of Medical Sciences and Research, Amritsar. All patients with Chronic Kidney Disease who underwent hemodialysis were included whereas patients with Acute Kidney Injury were excluded. All the patients were tested for anti-HCV antibodies using ELISA. **Results:** 100 patients out of which 62 male and 38 female were included. Overall mean age was 52 ± 8 years. Prevalence of Hepatitis C was found to be 38% among 100 patients undergoing Hemodialysis.

Key words: Chronic renal failure, hemodialysis, hepatitis C virus.

INTRODUCTION

Chronic kidney disease (CKD) is a type of kidney disease in which there is gradual loss of kidney function over a period of months or years. Early on there are typically no symptoms. Later, leg swelling, periorbital edema, fatigue, vomiting, loss of appetite, or confusion may develop. Complications may include heart disease, high blood pressure, bone disease, or anemia. Causes of chronic kidney disease include diabetes, high blood pressure, glomerulonephritis, and polycystic kidney disease. Risk factors include a family history of the condition. Diagnosis is generally by blood tests to measure the glomerular filtration rate and urine tests to measure serum albumin and creatinine clearance. Further tests such as an ultrasound or kidney biopsy may be done to determine the underlying cause. A number of different classification systems exist which can be studied. Screening at high-risk people is recommended. Initial treatments may include medications to manage blood pressure, blood sugar, and high cholesterol. NSAIDs should be avoided. Other recommended measures include staying active and certain dietary changes. Severe disease may require hemodialysis, peritoneal dialysis, or a kidney transplant. Treatments for anemia and bone disease may also be required. Hepatitis C is an infectious disease caused by the hepatitis C virus (HCV) that primarily affects the liver. During the initial infection people often have mild or no symptoms. Occasionally a fever, dark urine, abdominal pain, and yellow tinged skin occurs. The virus persists in the liver in about 75% to 85% of those initially infected. Early on chronic infection typically has no symptoms. Over many years however, it often leads to liver disease and occasionally cirrhosis. In some cases, those with cirrhosis will develop complications such as liver failure, liver cancer, or dilated blood vessels in the esophagus and stomach. HCV is spread primarily by blood-to-blood contact associated with intravenous drug use, poorly sterilized medical equipment, needlestick injuries in healthcare, and transfusions. Using blood screening, the risk from a transfusion is less than one per two million. It may also be spread from an infected mother to her baby during birth. It is not spread by superficial contact (Aoufi Rabih and García Agudo, 2011). It is one of five known hepatitis viruses: A, B, C, D, and E. Diagnosis is by blood testing to look for either antibodies to the virus or its RNA. Testing is recommended in all people who are at risk. There is no vaccine against hepatitis C. Prevention includes - harm reduction efforts among people who use intravenous drugs and testing donated blood. Chronic infection can be cured about 95% of the time with antiviral medications such as sofosbuvir or simeprevir. Peginterferon and ribavirin were earlier generation treatments which had a cure rate of less than 50% and greater side effects. Getting access to the newer treatments however can be expensive. Those who develop cirrhosis or liver cancer may require a liver transplant. Hepatitis C is the leading reason for liver transplantation, though the virus usually recurs after transplantation. Hepatitis C virus (HCV) infection in patients undergoing hemodialysis (HD) is an emerging condition and constitutes a major problem complicating the dialysis process in dialysis units worldwide. The prevalence of HCV among the hemodialysis patients varies in different countries worldwide from 1% to 85%.Haemodialysis (HD) is a primary mode of therapy for patients with End Stage Renal Disease (ESRD). HD as it has an extracorporeal technique is associated with increased risk of parentally transmitted viruses including the Hepatitis C virus (HCV). The prevalence rates of these infections are variable in different parts of the world. The comparatively higher prevalence in the HD population of HCV viruses may be due to cross infection from other patients due to sharing of common equipments and requirements of multiple blood transfusions. It is with this background that this study was taken up in order to know the incidence of HCV infection with a view to control the HCV infection among HD undergoing patients to reduce morbidity and mortality due to HCV infection.

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MATERIALS AND METHODS

The study was a Prospective single centre observational study conducted in patients attending a HD unit between April 2018 and September 2018 in the department of Medicine at Sri Guru Ram Das Institute of Medical Sciences and Research, Amritsar.

Inclusion Criteria: All patients with Chronic Renal Disease who were undergoing Hemodialysis were included.

Exclusion Criteria: Patients with Acute Kidney Injury were excluded.

Ethical consideration: From ethical point of view all the participants were fully explained the procedure of the study and informed written consent was taken. The institutional review board of Sri Guru Ram Das Institute of Medical Sciences and Research, Amritsar approved the protocol of this study. With the informed consent, blood samples were collected of a total 100 Hemodialysis undergoing patients who constituted the test group. By following all the standard necessary precautions, 5 ml of whole blood was drawn from each of the suspected HCV patients undergoing HD under strict aseptic conditions. All the blood samples were transported to the Department of Microbiology, and all the samples were allowed to clot. The clear serum was transferred into sterile test tubes. It was then centrifuged, and the clear supernatant was transferred into vials for preservation at 4°C in the refrigerator. All 100 blood samples sera were tested periodically for the incidence of HCV infection by determining the presence of anti HCV antibodies using Hepatitis C ELISA test kit. All the 100 patients received regular dialysis of 2-3 sessions/week.

Statistical Analysis: Computer software SPSS-18 was used for data analysis.

RESULTS

100 patients out of which 62 male and 38 female were included. Overall mean age was 52 ± 8 years. Prevalence of Hepatitis C was found to be 38% among 100 patients undergoing Hemodialysis.

DISCUSSION

Chronic liver disease (CLD), particularly due to HCV infection, is a major complication amongst haemodialysis patients. A high prevalence of HCV infection among patients being treated with maintenance haemodialysis has been attributed to transfusion requirements in this risk group. Blood transfusion as well as nosocomial infection continue to play important roles in the transmission of HCV. In the present study, anti-HCV antibodies in the serum were used as the gold standard to document HCV infection. In the present study the cause of End Stage Renal Disease was unknown in 36.0%, whereas the most common cause of End Stage Renal Disease was hypertension in 20.0% of the patients followed by diabetes mellitus in 17.8%; these results agree with most of the studies in which hypertension and diabetes mellitus were the main causes of renal failure. The duration of haemodialysis was a significant risk factor for HCV infection in a haemodialysis setting, as with an increase in the duration of haemodialysis there might be increased risk for nosocomial transmission of HCV. The mechanisms responsible for HCV infection transmission in hemodialysis services in our countrymay be due to the following factors - repeated blood transfusion, cross infection through hemodialysis machines may be a cause for the transmission which necessitates more attention on sterilization and control of infection in dialysis units. Various methods to control infection are as follows:

1. Diagnosis and treatment of all hemodialysis patients who are infected with the virus
2. Education of nurses and all health care providers involved with these cases
3. Organising various prevention programs for the general population.

Nevertheless, successful control of the infection needs further investigations to assess the effectiveness of different preventive and diagnostic policies. Preventive programs vary with regions and societies. Several studies are focused on isolating hemodialysis patients while some others attempt to use specified equipments and services for these patients and disinfection of the devices and the environment.

Conclusion

Hepatitis C virus infection is more prevalent among hemodialysis patients in the developing countries. HCV infection prominently increases the burden of disease in the Hemodialysis population. The longer a patient is on hemodialysis, the more susceptible he/she is to HCV acquisition. Hemodialysis patients should be routinely screened for HCV infection, preferably using serological methods. Strict adherence to universal precautions along with isolating HCV-infected dialysis patients might help to control disease spread in HD units.

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