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Management of Hepatitis C in Dialysis Dependent Patients.

Fawad Khalid, Muhammad Omair Ansar
Nawaz Sharif Kidney Hospital, Swat, Pakistan

Abstract

Objective: Prevalence of Hepatitis C (HCV) is quite high in Pakistan and in particular among maintenance hemodialysis (MHD) patients. HCV is associated with increasing morbidity and mortality among MHD patients. The current availability of direct acting antiviral therapy has changed the canvas for HCV prevalence in many countries. Aim of our study was to evaluate the status of HCV prevalence and its management at our center.

Methods: This descriptive study was conducted at to evaluate the seroprevalence of HCV among MHD patients. Data regarding HCV status, PCR positivity and number of patients on active treatment were evaluated.

Results: A total of 109 patients were undergoing MHD in this study. The prevalence of patient who had HCV was 40 (36.6%). All patients had PCR done and out of them PCR was positive in 28 Patients. All except 4 of the 28 patients had been started on HCV treatment with direct antiviral therapy for HCV.

Conclusion: almost all of HCV PCR positive patients were being treated with DAA in our dialysis unit.

Key words: HCV, hemodialysis, antiviral, seroconversion, health insurance, transmission.

Corresponding Author:

Dr Fawad Khalid
Nawaz Sharif Kidney Hospital
Swat, Pakistan
Email: fawadkhalid004@gmail.com

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Introduction

There are more than 130-150 million patients worldwide who are infected with hepatitis C virus.[1,2] Kidney involvement by HCV is frequent, 46% of HCV positive patients had proteinuria and in a study of patients with glomerulonephritis 39% patients had occult HCV infection.[3,4] The incidence of HCV positive among patients undergoing dialysis varies from less than 5% to maximum of 60% from various parts of the world.[5] Chronic kidney disease can trigger different types of hepatic lesions; however, drug induced liver injuries are common due to renal failure, but hepatitis C remains the moderate causative factor for liver disease in population undergoing hemodialysis.[6]

A recent meta-analysis performed by Su et al. the incidence of hepatitis C infections among patients undergoing hemodialysis was directly dependent upon the socioeconomic status of the country. The rate of HCV positive patients was only 0.97 per 100 patients in developed countries as compared to 4.44 per 100 patients in the developing countries.[7] Another study from Taiwan also revealed that the prevalence of chronic kidney disease (CKD) in HCV positive patients was 16.5% and it was found to be an independent separate risk factor for future development of chronic kidney disease.[8]

The patients undergoing renal replacement therapy such as hemodialysis are usually infected with HCV infection through blood borne infections due to pathogens either present on the surface of articles present at bedside or sharing of contaminated medical supplies and equipment. Such incidents are more common in developing countries such as India, Pakistan, and Bangladesh where strict universal precautions are ignored.[9] The

management of HCV has seen a drastic change due to latest medications approvals by FDA. The direct acting antivirals (DAA) drugs which target various HCV lifecycle are telaprevir and boceprevir which were approved initially for treatment genotype 1 HCV are now available for all genotypes and several formulations and combinations exist.[10]

With the latest introduction of health insurance in Pakistan allowing every individual to have free access to healthcare facilities, including the chronic conditions such as HCV, has provided an opportunity to eradicate HCV. In this current cross-sectional study, we have gathered the data from our dialysis unit evaluating HCV treatment among patients undergoing maintenance hemodialysis (MHD). Our aim was to document the percentage of patients with HCV and undergoing active treatment.

Method

This is a cross-sectional study based on MHD patients, undergoing dialysis at Nawaz Sharif Kidney Hospital, Swat, Pakistan. All data was gathered during the month of January till April 2021 and all patients were adults above 18 years of age. The data was collected after proper consent from patients and permission from the hospital administration since no formal IRB exists.

A simple questionnaire including patient characteristics including gender, age, marital status, work history, past history of any disease like diabetes mellitus and hypertension was designed and used to collect the data. Among HCV positive patients, more specific data about their treatment, pre and post treatment PCR was documented. We also documented the level of education, financial support in treatment from the government or self-pay. All the data was collected by medical professionals, and they were well informed about the scope of study to ensure consistent and proper results.

The participants were considered HCV positive if they had ELISA positive. All patients had PCR done. DAA administration was evaluated among the PCR positive patients from the hospital medication profile for each patient. The compliance with medications was evaluated from the hospital medication profile for each patient.

Statistical Analysis

The statistical analysis of the study was based on ongoing metric variables like mean, mode, and median and standard deviation and some categorical were shown as percentages. The entire analysis was conducted using Microsoft excel and SPSS 21.

Results

Among 109 MHD patients 40 (36.6%) were positive for HCV and were included in the study. All patients had HCV PCR RNA qualitative done. General characteristics of the patients are shown in Table 1.

PCR was positive in 28 (60%) and all of them except 4 were on DAAT. The DAAT medications were being provided through the recently introduced health insurance program in the province. None had completed their treatment protocol of 12 weeks yet, however compliance was 100% Table 2.

Table 1: Clinical characteristics of all 40 HCV positive patients undergoing maintenance hemodialysis twice per week.

Age Group (years) 18-30 31-50 51-70 71-90	 10 15 12 3
Gender	Male 24 (60 %), Females16 (40%)
Diabetes	23
Diabetes & Hypertension	17

Table 2: Clinical characteristics of 28 patients who had HCV PCR positive.

	HCV positive DAAT* Treatment. N= (24)	HCV positive No treatment N= (4)
Age Group 18-30 31-50 51-70 71-90	 0 4 14 6	 0 0 1 3
Male Female	14 10	3 1

*DAAT: Direct acting antiviral

Discussion

HCV is quite prevalent in MHD patients, around 32.3% in a systematic review, yet no study exists from Swat region of Pakistan regarding management issues of HCV in these patients. [5]

Our results show that HCV had similar high prevalence of 36.6% among MHD patients in Sawat.[11] Seroconversion among hemodialysis patients is a huge issue among MHD especially in the low socioeconomic status countries including Pakistan. Recent study from Sheikhupura, Pakistan by Hussain et.al. found an alarming rate of seroconversion of 53.7% among maintenance hemodialysis patients.[12.] One of the major reasons for this high seroconversion rate noted by them was the lack of adherence to the universal infection control measures rather than socioeconomic issues.

Among our 40 HCV patients 28 had positive PCR and were potential source for transmission to other MHD patients or the general population including their own household. Luckily due to the availability of DAA therapy for HCV patients all except 4 were being treated. A study from neighboring India did document the clustering of HCV among household.[13] It has been rightly stressed in the KDIGO guidelines to detect the presence of active HCV infection among MHD patients due to the fact that remission is possible in almost 95% of the patients.[14] Eradication of HCV will significantly reduce the likelihood of transmission of HCV even if there is break in the adherence to the universal precautions for infection control. Nevertheless, availability of DAA therapy should not undermine the importance of universal precautions supposed to be observed in the MHD units.

Treatment of HCV with DAA therapy is not limited to the management of HCV and prevention of development of cirrhosis; rather, it has far reaching implications on patients' and their loved ones health. Each HCV patient could be a source of transmission within the community and treatment of a single patient will prevent this further spread.[13] An important study conducted by Hsu et al. in Taiwan, divided type 2 diabetic patients into three groups, first group was treated with Peg interferon and Ribavirin, the second group was left untreated, and third group was the control group.[15] After eight years of follow up, the incidence of heart diseases and end stage kidney disease were lower in the group treated with Peg interferon and ribavirin as compared to other groups. This study highlights the health implications of HCV infection beyond the involvement of liver. Pakistan is struggling to deal with the infectious diseases and is included among list of 22 countries who are still working on developing strategy to eliminate HCV and it seems that elimination may not be possible with current healthcare policies.[16]

It is satisfying to see that all our HCV patients with PCR positive results were offered treatment through the new insurance for all policy. Only four patients were not yet being treated due to their personal reasons rather than availability of medications or support. Counselling among these patients can improve the treatment numbers to 100%. This was possible due to the basic changes in the health care coverage by the government for the low socioeconomic strata of KPK province in Pakistan. Issuance of Health insurance program for the masses in the province of KPK, has seen significant changes in management of chronic diseases.[17]

Such Insurance schemes are only effective by improving public awareness and addressing the issues related to easy access to the hospitals and health care providers. This was clearly shown by a study by Cheema et al. where resource utilization was only 0.42% in Sindh province of Pakistan where easy access microfinance health support scheme was introduced.[18] It is therefore plausible that with improvement in public awareness and administrative issues will translate into improvement in the management of chronic diseases including HCV both in general public and MHD patients.

Our study has several limitations; being a single center study and cross sectional still raises important issues in the management of MHD patients. We did not specifically ask for the seroconversion whether it was before or after initiating dialysis that could have informed about the infection control practices in our dialysis unit. The prevalence of HCV was almost similar to reported in the literature among the resource limited countries. Needless to say, it is reassuring that benefit of DAAT will appear in coming years where seroconversion rate should markedly decrease in future with decreasing number of transmissible HCV infection. Another limitation of our study is absence of HCV PCR data post treatment, but we plan to look at the remission rates and type of medication protocol for DAAT as a long term follow up study.

Conclusion

In conclusion our study helps in highlighting the high prevalence of HCV among our MHD patients and need for maintaining proper infection control measures. It is however, reassuring that majority of patients were being treated and future studies will highlight the importance of prompt management of MHD patients.

Conflict of Interest: None

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