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Research Article

## HCV INCIDENCE IN DIALYSIS PATIENTS IN DHQ HOSPITAL VEHARI

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**Objective:** To find out the rate and cause of HCV infection in maintenance hemodialysis patients. **Material and Methods:** From August 2018 to August 2019 we screened 500 patients later sent to the Dialysis Center of the DHQ Hospital in Vehari. We selected 300 CKD patients on conservative management. Renal disease etiology and stage were analyzed and we tested for HCV antibodies using immunoassay and immunoblotting viral detection by real-time PCR. **Results:** The incidence of HCV infection was 13 %. These patients showed a history of blood transfusions and major surgeries. All subjects were hepatitis B surface antigen (HBsAg)-negative. Hepatic function tests were unremarkable. **Conclusion:** We did not find any differences between these HCV-RNA-positive patients and those who were IgG HCV-negative with regard to Primitive cause of nephropathy, stage of CKD, and biochemical parameters.

**Keywords:** Dialysis, CKD, Hepatitis**Corresponding author:**

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**INTRODUCTION:**

**Background:** In maintenance hemodialysis patients, hepatitis C virus (HCV) infection is common and may be associated with poor clinical outcomes. Hepatitis C virus (HCV) is a significant problem for patients undergoing hemodialysis therapy. This situation has never been studied in DHQ Hospital Vehari, Pakistan. This study was conducted aiming to find out the rate and cause of HCV infection in maintenance hemodialysis patients in DHQ Hospital Vehari. Hepatitis C virus (HCV) infection is a long lasting public health problem. All over the world there are hundreds of studies have investigated the incidence of HCV infection, but there are only a few epidemiological studies in end stage renal failure patients on Maintenance Hemodialysis. The incidence of HCV infection was 10% in Pakistan, incidence in MHD patients ranges from 2.2% to 3.5% higher than the general population. It appears that the incidence of HCV infection is higher in the studied patient population than in the population as a whole.

Infection with the hepatitis C virus (HCV) is a major public health problem. Total global HCV prevalence is estimated about 2.5% (177.5 million).<sup>(1)</sup> In Pakistan its incidence ranges from 2.2% to 14%. HCV infection can affect the chronic kidney disease (CKD) patients more predominantly throughout the spectrum of their disease. It can lead to cryoglobulinemic glomerulonephritis and it has a negative effect on the quality of life of chronic dialysis patients, as well as renal transplant patients. Hepatitis C Virus also a risk factor for the progression of CKD.<sup>(2)</sup> All over the world there are hundreds of studies have investigated the incidence of HCV infection, but there are only a

few epidemiological studies in end stage renal failure patients on Maintenance Hemodialysis. We studied 300 subjects with pre-dialysis chronic kidney disease and after one year Maintenance Hemodialysis living in Pakistan.

**MATERIALS AND METHODS:**

From August 2018 to August 2019 we screened 500 patients later sent to the Dialysis Center of the DHQ Hospital in Vehari. We excluded 200 subjects, those with any of the following condition maintenance dialysis, HCV- positive liver cirrhosis patients, and HCV-positive and acute renal failure subject. We selected 300 CKD patients on conservative management. Renal disease etiology and stage were analyzed and we tested for HCV antibodies using immunoassay and immunoblotting viral detection by real-time PCR. The results of hepatic and renal function tests were recorded which include aspartate aminotransferase (AST), alanine aminotransferase (ALT), bilirubin, albumin, proteinuria, and creatinine and BUN.

**RESULTS:**

Among 300 CKD patients on Maintenance Hemodialysis (MHD) therapy, we identified 40 IgG HCV-positive subjects. Among these patients, four were HCV-RNA-negative and 38 were HCV-RNA-positive. The incidence of HCV infection was 13 %. These patients showed a history of blood transfusions and major surgeries. All subjects were hepatitis B surface antigen (HBsAg)-negative. Hepatic function tests were unremarkable (Table 1).

**Table 1: Characteristics of the 300 chronic kidney disease patients included in the study**

	HCV-positive, n = 40 (13%)	HCV-negative, n = 260 (87%)	P -value
Male	26	200	>0.05
Female	14	60	>0.05
Age (years)	50±10	50±10	>0.05
Transfusions and major surgery			
Prior to 2018	10	12	<0.05
Post 2018	30	20	
CKD stage			
1	2	10	>0.05
2	3	15	>0.05
3	5	17	>0.05
4	12	23	>0.05
5	18	195	>0.05
Primary cause of nephropathy			
Diabetes mellitus	12	155	>0.05

Hypertensive disease	10	60	>0.05
Glomerulonephritis	8	25	>0.05
Tubulointerstitial diseases	2	6	>0.05
Amyloidosis	2	4	>0.05
Other	2	3	>0.05
Undetermined	4	7	>0.05
Genotype			
1b	32	-	
2a/2c	8	-	
Total bilirubin mg/dl	0.9±0.4	0.7±0.3	>0.05
Albumin g/dl	3.1±0.6	3.3±0.8	>0.05
AST U/l	21±8	18±7	>0.05
ALT U/l	23±9	20±6	>0.05

HCV, hepatitis C virus; NS, not significant; CKD, chronic kidney disease; AST, aspartate aminotransferase; ALT, alanine aminotransferase.

### DISCUSSION:

Despite the screening of blood products, the incidence of HCV infection in hemodialysis treatment patients is higher than that in the general population: USA 7.4%, Japan 13.4%, Europe 11.5%, Pakistan 10% . In 2016 the incidence in Vehari was 10% (source: Dialysis center Hemodialysis Registry). Pre-dialysis CKD patients do not share some of the risk factors found in chronic dialysis patients: vascular cannulations and hemodialysis catheter use, graft and arteriovenous fistula creation and use, hemodialysis machines, and person-to-person transmission through healthcare workers. <sup>(3)</sup>

There has been no study on the incidence of HCV infection among the people of Vehari, Pakistan. It is interesting to assess the natural history of HCV infection in the renal population because of the chronic immunosuppression of renal disease patients. <sup>(4,5)</sup> It is useful to study HCV infection in pre-dialysis CKD patients for the following reasons: (1) HCV could accelerate the progression of CKD towards the final stages of renal disease; (2) dialysis patients with HCV infection have an increased mortality risk compared with HCV- negative dialysis patients; the increased risk of death in IgG HCV- positive dialysis patients may be attributed at least in part to the complications of chronic liver disease; (3) most CKD patients will progress to end-stage renal disease. <sup>(6,7)</sup>

### CONCLUSION:

In conclusion, we investigated the incidence of HCV infection in CKD maintenance therapy (MHD) patients. Our study showed 13% of patients to be HCV-RNA-positive. We did not find any differences between these HCV-RNA-positive patients and those

who were IgG HCV-negative with regard to Primitive cause of nephropathy, stage of CKD, and biochemical parameters. We highlight the nosocomial route and low immunity as the cause of HCV infection.

### ROLE OF AUTHORS:

Muneeb Khaliq: Data Collection and Writing the Paper

Ahsan Irshad: Editing and Proofreading

Samreen Ijaz: Analyzing Results

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