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Research Article

### OCCURRENCE OF HCV INFECTION AMONG ADMITTED PATIENTS SUFFERING FROM CHRONIC KIDNEY DISEASES

Dr Samra Ramzan, Dr Khadija Asif, Dr Aqsa Hameed

Allied Hospital Faisalabad

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**Abstract:**

**Objectives:** The most common problems of health in the whole world are HCV infections and chronic renal diseases, the prevalence of these diseases in our country Pakistan is very high. There is very less information available on the occurrence of HCV infection in the patients of chronic renal diseases but not under dialysis. This research work aimed to find out the rate of HCV infection in the admitted patients suffering from CRD in the Allied Hospital Faisalabad.

**Methodology:** This research work was a transverse study. Patients having the age of twenty to eighty year of age with chronic renal diseases with no past renal replacement treatment and got admission in the department of nephrology were the part of this research work. The third-generation enzyme associated immune-sorbent assay as ELISA was in use of the testing of HCV infection. PCR (polymerase Chain Reaction) was in use for the testing of the RNA of hepatitis C among the patients who found positive for ELISA.

**Results:** One hundred and eighty patients were the part of this research work. The average age of the included patients was  $48.70 \pm 14.90$  years. Total 58.30% (n: 105) patients were from male gender & 41.70% (n: 75) patients were females. About 84.40% (n: 152) patients were available with hypertension, 62.80% (n: 113) patients found with diabetes mellitus & 14.90% (n: 26) found with the complications of cardiovascular anomalies. Average eGFR was  $11.40 \pm 9.40$  ml/min/1.730 m<sup>2</sup> in the patients. Total 27.20% (n: 49) patients found with positive for hepatitis C in the method of ELISA. We carried out the testing of PCR for hepatitis C in thirty-nine patients who were positive in method ELISA and 74.40% (n: 29) patients found positive in this test. Clinical traits and risk aspects with or without positive antibody of hepatitis C were same in ELISA.

**Conclusion:** An important amount of admitted chronic liver disease patients found with infections of HCV. Severe measures to universally control the infections in the departments of nephrology are the need for the prevention of the transmission of the infections because of HCV.

**KEY WORDS:** Cardiovascular, Diabetes Mellitus, Hypertension, Enzyme, Hepatitis C, Polymerase, Antibody, Chronic Liver Disease.

**Corresponding author:**

Dr. Samra Ramzan,  
Allied Hospital Faisalabad

QR code



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**INTRODUCTION:**

The infections of HCV and CRD are very common health issues of the whole world. It is a report that more than one hundred and eighty-five million people of the world are suffering from the infections of HCV. Among these, 50.0% to 85.0% develop the chronic infections [1]. Hepatocellular carcinoma is the outcome in large amount of these patients [2]. The occurrence of infection of HCV in our country Pakistan is from 6.80% with up to 25.0% in the non-urban regions [3]. The occurrence of CRD depending on the health camps of screening and Pakistan was available from 12.50% to 25.0% [4-6]. There is a clear association of Infection of HCV and different kidney diseases. Various glomerular abnormalities also have association with infections of HCV [7].

Many case studies explored the occurrence of the HCV infections among patients under dialysis. The occurrence of HCV infections in the patients under dialysis in our country Pakistan is 23.70% to 56.60% [8-11]. But there is very little information available on the occurrence of HCV infections among the patients under dialysis and international case works showed various outcomes. The incidence of HCV infection antibody has its range from 1.01% to 20.0% in CRD patients in Italy, Turkey, Peru & Spain [12-18]. This research work aimed to find out the rate of HCV infections in the admitted patients suffering from kidney diseases in the department of nephrology.

**METHODOLOGY:**

This was a transverse research work. Patients having the age of twenty to eighty years with CRD were the part of this research work. All the patients gave informed consent to participate in the research work. CRD defined eGFR (Estimated GFR) of lower than 60.0 ml/min/1.730 m<sup>2</sup> or determined proteinuria by urinary dipstick for three months or more duration [19]. We reviewed all the clinical records and

information of laboratory to get the data regarding age off patient, gender, past background of hypertension, DM, cardiovascular complications and eGFR. We also gathered the information about the risk factors for infections of HCV before history of transfusion of blood, drug addiction and past surgery. We also carried out the test of functions of liver in the positive HCV infected patients. ELISA was in use for the testing of hepatitis C in the patients. PCR method was in use for the testing of RNA of hepatitis C among the patients found positive with ELISA.

Average  $\pm$  SD values were in use for the representation of continuous variables. The expression of categorical variables carried out with the help of percentages. The division of patients carried out in 2 groups depending upon the availability of antibody of hepatitis C as diagnosed by ELISA. Chi square method was in use for the comparison of categorical variables and T test was in use for the comparison of the continuous variables. SPSS V. 20 was in use for the statistical analysis of the collected information. P value of greater than .050 was the significant value.

**RESULTS:**

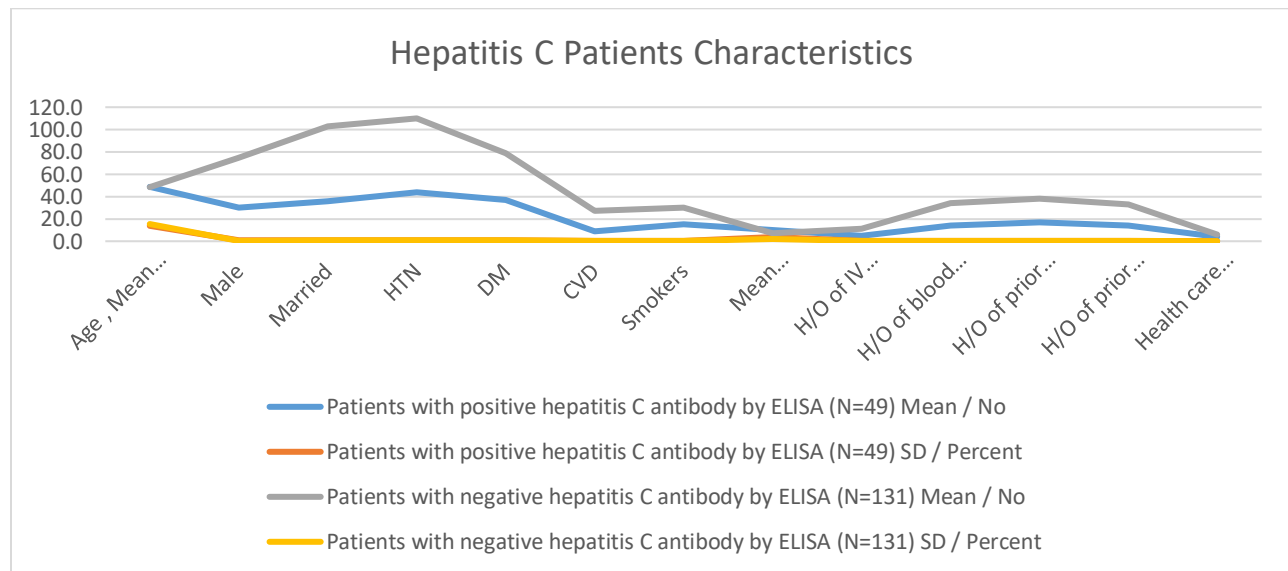
One hundred and eighty patients were the part of this research work. The average age of these included patients was  $48.70 \pm 14.90$  years. There were 58.30% (n: 105) male patients and 41.70% (n: 75) were female patients. Total 77.20% (n: 139) patients were married, 26.70% (n: 32) patients were available with the habit of smoking, 17.20% (n: 31) patients found with dyslipidemia, 84.40% (n: 152) patients were suffering from hypertension, 62.80% (n: 113) patients found with diabetes mellitus & 14.90% (n: 26) patients were suffering from complications of cardiovascular anomalies. The average eGFR was  $11.40 \pm 9.40$  ml/min/1.730 m<sup>2</sup>. Among these patients, 77.5% (n: 134) patients had stage-5 CRD, 15.60% (n: 27) had stage-4 CRD and 5.20% (n: 9) had stage-3 CRD.

**Table-I: Comparison of Characteristics of Patients Based on Status of Hepatitis C Antibody by ELISA.**

Characteristics	Patients with positive hepatitis C antibody by ELISA (N=49)		Patients with negative hepatitis C antibody by ELISA (N=131)		P value
	Mean / No	SD / Percent	Mean / No	SD / Percent	
Age , Mean (Years)	48.7	1380.000%	48.7	1540.000%	0.99
Male	30.0	61.200%	75.0	57.300%	0.63
Married	36.0	73.500%	103.0	78.600%	0.16
HTN	44.0	89.800%	110.0	83.700%	0.21
DM	37.0	75.000%	79.0	60.200%	0.06
CVD	9.0	18.400%	27.0	20.600%	0.76

Smokers	15.0	30.600%	30.0	22.800%	0.29
Mean duration of CKD (months)	9.9	390.000%	7.4	210.000%	0.72
H/O of IV drug use prior to hospitalization	5.0	10.200%	11.0	8.500%	0.72
H/O of blood transfusion	14.0	27.700%	34.0	26.000%	0.83
H/O of prior hospitalization	17.0	34.700%	38.0	29.200%	0.48
H/O of prior surgery	14.0	28.600%	33.0	25.300%	0.41
Health care worker	4.0	8.500%	6.0	4.700%	0.34

There were 27.20% (n: 49) positive patients of hepatitis C as diagnosed by ELISA. PCR testing of hepatitis C carried out on thirty-nine patients with positive hepatitis C status with the ELISA, 74.40% (n: 29) patients found positive again in this test. Average serum whole bilirubin was  $0.88 \pm 0.90$  mg/dl, average direct bilirubin of serum was  $0.5 \pm 0.7$  mg/dl, average ALT was  $39.10 \pm 28.60$  IU/L, average AST was  $34.70 \pm 12.30$  IU/L, average amount of alkaline phosphatase was  $240.80 \pm 77.70$  IU/L. The different traits of the patients suffering from HCV infection antibody or without it are available in Table-1.



### DISCUSSION:

The results of this case work showed that rate of HCV antibody with the help of ELISA in the patients of CRD was 27.20%. Kumar in his research work conducted in Pakistan in 1994 stated the rate of HCV infection antibody was 6.0% in forty-eight patients suffering from chronic kidney diseases [12]. One research work conducted in Italy on prior-dialysis patients of chronic renal diseases, the prevalence of HCV infection was 6.250% in three hundred and twenty patients [13]. In one case study of Spain, antibody of HCV was present in 7.90% of two hundred and twenty-six CRD patients [14]. Fabrizi in his work concluded the antibody of hepatitis C was available in 20.0% CRD patients [16]. In some other research

works. Antibody of hepatitis C was available in 3.90% & 7% [17, 18].

The rate of the antibody of hepatitis C in the patients under dialysis was from 23.70% to 56.60% [8-11]. In another case work, antibody of HCV was available in 19.70% patients even prior the onset of dialysis [10]. In this research work, the results of PCR of hepatitis C were present for 39 patients out of 49 because the left the follow up during the study period. PCR of hepatitis C was positive in 74.0% patients, which is also much high in comparison with the general population. Some other case works on CRD patients have showed low clearance of creatinine [14], transfusion of blood in past [17, 18], long period of CRD [17], past history of usage of drugs in intravenous [18] & raised levels of

ALT [18] to be have association with the HCV infections. The infection of HCV has an association with the high danger of development of the chronic renal diseases [21]. There are some limitations of this case work as this research work conducted in single hospital and with limited size of samples. We can apply these results on CRD patients available in outpatient's department. We were also unable to identify the particular risk factor for HCV infection in the CRD patients.

### CONCLUSION:

The rate of HCV infections among the patients getting treatment in the hospital for chronic renal diseases was very high. There is a need of severe control measures for the prevention of the transmission of HCV infections among the patients getting treatment in the departments of nephrology. Future research work are the need to see the outcome of the impacts of these prevention will be able to reduce the morbidity and mortality rates of these diseases.

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