

FREQUENCY OF HEPATITIS C IN TYPE 2 DIABETIC PATIENTS

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ABSTRACT

Background: Diabetic patients are at an increased risk of acquiring Hepatitis C virus infection owing to the nature of the disease and its inherent complications or frequent parenteral exposure. On the other hand HCV infection may itself contribute to the development of Diabetes Mellitus. Objective of this study was to know the frequency of HCV infection among adult diabetic patients admitted to the Hospital.

Material & Methods: This descriptive study was conducted at DHQ Teaching Hospital D.I.Khan from January 2013 to December 2013. It comprised of 84 diabetic patients admitted in the medical wards. The presence of HCV infection was detected by ELISA and confirmed by PCR. The data were recorded on a performa and analysed by descriptive statistics..

Results: Out of 84 diabetic patients, 24 (28.5%) were men and 60 (71.5%) women, with a male to female ratio of 1: 2.5. The age range was from 18 to 77 years with a mean of 54.19 ± 13.15 years. The mean duration of diabetes was 9.99 ± 6.77 (Range 1-30) years. Among the 84 diabetics 23 (27.38%) patients were positive for HCV infection. In HCV positive cases, 8 (34.78%) were males and 15 (65.22%) females. Regarding age, 10 (43.48%) patients had age up to 50 years and 13 (56.52%) had >50 years age. ($p > 0.05$) In respect to duration of diabetes, 9 (39.13%) patients had up to 10 years and 14 (60.86%) had >10 years duration ($p > 0.05$).

Conclusion: There is association between Hepatitis C infection and type 2 diabetes mellitus. HCV infection was observed in almost one third patients with type 2 diabetes mellitus in our study.

KEY WORDS: Type 2 Diabetes Mellitus; Risk factors; Hepatitis C virus.

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INTRODUCTION

Hepatitis C virus (HCV) infection is an important health problem which affects more than 170 million people.¹ It accounts for half of all cases of chronic liver disease (CLD) in USA.² The chances of chronicity after acute infection is as high as 85% and progression to cirrhosis is up to 50%.³ Pakistan is in the intermediate HCV prevalence area with approximately 10 million people infected predominately with genotype 3. The prevalence ranges from 3-4% in volunteer blood donors. About 60-70% of the patients with CLD and half of the ones with HCC in the country have HCV infection.⁴

Infection with HCV can produce hepatic and

extrahepatic manifestation including glomerulonephritis, porphyria cutanea tarda, essential cryoglobulinemia, and type 2 diabetes mellitus.⁵ A meta-analysis showed that HCV increases the risk of T2DM by 1.8%.⁶ The link between HCV and diabetes was first reported by Allison et al in 1994 and explored later by Simo and colleagues in 1996.^{7,8} The epidemiological link between T2DM and HCV has been investigated from two perspectives. Various studies have shown high HCV seropositivity among patients with T2DM as compared to the control group, prevalence being two to seven times higher in the diabetic group.⁹⁻¹¹ However, other investigators did not find such an association of HCV with T2DM.^{12,14} The pathogenesis of diabetes in patients with HCV infection remains unclear though it has been implicated that insulin resistance plays an important role and is related to fibrosis score.^{15,16} After controlling for potential confounders, Mehta et al reported that HCV infected individuals were 3.7 times more likely to have T2DM as compared to those without the infection.¹⁷

Although there is a growing body of literature

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on the link between T2DM and HCV, the studies are contradictory and the data is inconclusive.^{18,19} Moreover, there is paucity of studies on the subject from Pakistan with no study being from this region.²⁰ The present study will thus be important in elucidating any relationship between HCV and T2DM. Furthermore, the study is supposed to provide valuable insight regarding usefulness of focused screening program in T2DM as effective therapies have evolved for HCV which may prevent complications caused by HCV in this subgroup.

The objective of this study was to determine the frequency of HCV infection among adult indoor diabetic patients.

MATERIAL AND METHODS

This descriptive study was conducted at DHQ Teaching Hospital D.I.Khan, from January 2013 to December 2014.

Patients with known diabetes mellitus already on treatment whether oral or insulin were included in this study. The presence of HCV infection was detected by 3rd generation ELISA (STAT Fax 2600) and confirmed by HCV RNA by polymerase chain reaction (PCR) using Smart Cycler Real time PCR. The data were recorded on a performa and analysed by descriptive statistics.

RESULTS

Out of 84 diabetic patients, 24 (28.5%) were men and 60 (71.5%) women, with a male to female ratio of 1: 2.5. The age range was from 18 to 77 years. The mean age was 54.19+13.15 years. The mean duration of diabetes was 9.99+6.77 (Range 1-30) years.

Among the 84 diabetics 23 (27.38%) patients were positive for HCV infection. In HCV positive cases, 8 (34.78%) were males and 15 (65.22) females ($p>0.05$). (Fig. 1)

Regarding age, 10 (43.48%) patients had age upto 50 years and 13 (56.52%) had >50 years age. The difference between the two genders was statis-

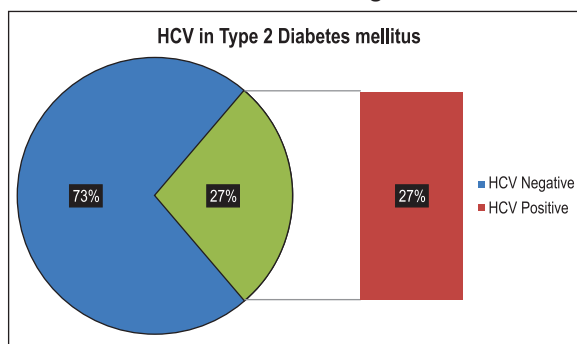


Figure 1: Showing HCV positive cases among type 2 diabetics (n=84)

tically not significant ($p>0.05$).

In respect to duration of diabetes, 9 (39.13%) patients had up to 10 years and 14 (60.86%) had >10 years duration ($p>0.05$).

DISCUSSION

In this study we found a high prevalence of HCV infection (27.38%) in patients with T2DM. The study thus establishes the presence of T2DM as a risk factor for HCV infection in this region. In a study done by Sadik et al²¹ the prevalence rate was 31.5% which is close to the result of our study. However, these results are in contrast to a study from Karachi Pakistan in which Qureshi et al¹⁰ reported in a sample of 196 type 2 diabetics the frequency of HCV to be 1.8%. Another local study by Khakar et al²² showed the prevalence of HCV infection in diabetics to be 17.27%. The reason for this difference may be increasing prevalence of HCV infection in our community as the said studies were performed back in 2002.

Analysis of HCV seropositivity rate with respect to gender in our study revealed that HCV infection was more prevalent in ladies but the difference was not statistically significant. These results are in contrast to the ones by Memon et al²¹ which showed male predominance.

It was observed in our study that advancing age was not associated with increased frequency of HCV in diabetics. These results are in contrast to the results of Memon et al²¹ which showed increased frequency of HCV infection with age >40.

In our study the increasing duration of diabetes was not associated with increased prevalence of HCV infection. These results are similar to that by Simo et al.²³

The study had some important implications. The increased risk of HCV infection in patients with T2DM warrants screening diabetics for HCV. The study will help to increase the awareness regarding association of HCV and diabetes, which will help in reducing the associated morbidity and mortality in the long run. Prospective multi-centre studies are needed to establish the temporal association and to establish the mechanism as well as elucidate the reasons of association.

This study had certain limitation and strengths. The study has relatively small sample size as compared to the earlier studies. We were able to confirm the results by using polymerase chain reaction to detect HCV-RNA.

CONCLUSION

There is association between hepatitis C infection and type 2 diabetes mellitus. HCV infection

was observed in almost one third patients with type 2 diabetes mellitus in our study.

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CONFLICT OF INTEREST

Authors declare no conflict of interest.

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None declared.