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Research Article

**HEPATITIS C VIRUS INFECTION AND NON INSULIN
DEPENDENT DIABETES MELLITUS; A TWO WAY
ASSOCIATION****¹Dr. Naima Shehzadi Qazi, ²Dr. Bisma Fater Bakhsh, ³Dr. Irum Iqbal**¹Rawalpindi Medical College, Rawalpindi, Pakistan²DHQ, Hospital Jhelum³THQ, Hospital Burewala**Abstract:****Objective:** To find the frequency of NIDDM in hepatitis C infected individuals.**Methods:** The study follows descriptive cross sectional design. It was conducted on a sample population of 200 hepatitis C patients, either males or females. The patients were from age group 18 to 60 years. Those with past history of DM were excluded. PCR qualitative method was used to detect the hepatitis C in all cases. The fasting BSR >126mg/dl was labelled diabetic. SPSS version 20 was made in use for data analysis. Chi square test was applied. P value <0.05 was considered significant.**Results:** 200 chronic hepatitis C patients were included in study. The male to female ratio was 120 and 80, respectively (60%, 40%). The age range was 35 to 74 years with mean age, 47.2±11 years±SD. 56 patients had DM, 28% of total sample. 30 patients had positive family history of diabetes mellitus, making 53.4%. P value was 0.001, statistically significant. BMI less than 25kg/m² was observed in 14 individuals while remaining had BMI more than 25kg/m². P value was 0.009.**Conclusion:** Many chronic hepatitis C patients were diagnosed to have NIDDM. BMI and family history also had a strong association with occurrence of NIDDM.**Keywords:** NIDDM (non-insulin dependent diabetes mellitus), hepatitis C, frequency, diagnosis.**Corresponding author:****Dr. Naima Shehzadi Qazi.**

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INTRODUCTION:

Chronic hepatitis B and C virus infections are commonly present in our country. These lead to life threatening states like, cirrhosis and hepatocellular cancer. The association between diabetes mellitus and hepatitis infection is not known till date. However, some association must have been observed by many scientists and researchers as the blood glucose level abnormalities have more commonly been observed in those who have chronic hepatitis B or C than those who do not, irrespective of the family history [1]. One possibility about this association can be the role of liver in glucose metabolism, which is disturbed in end stage liver disease caused by chronic hepatitis B and C virus infection. A few studies have also stated that hepatitis C infection outcomes are worse in those who already have diabetes mellitus [2]. A few studies do not support this theory. However, positive association has been concluded by majority of studies. A few scientists have compared the liver failure caused by causes other than hepatitis B and C virus infection and association with DM prevalence.

A meta- analysis study conducted by Naing C, et al reported the combined result of 35 studies about the association between hepatitis C infection and NIDDM rate. Out of these 32 studies, 17 were performed to find comparison between NIDDM and HCV while 17 studies compared NIDDM and HBV association. The conclusion supported association between HCV and NIDDM [3]. Another hypothesis was formulated regarding pathophysiology of understudy title, the HCV has its effect on extrahepatic tissues as well, so it was suggested that association of NIDDM high prevalence was possibly due to extrahepatic effect of HCV [4]. The possible pathogenic mechanisms of HCV which could lead to high NIDDM association were studied by Lecube A, et al [4]. HCV triggers beta cell autoimmunity, it directly damages beta cells, increase serum ferritin level have been observed in HCV infected individuals, this high ferritin level can cause increased insulin resistance, hepatic steatosis has more frequently been associated with HCV than HBV, in addition high BMI also worsen the condition and increases the risk, hepatic steatosis could possibly be one of the reasons for lowering the ability of insulin to lower serum glucose levels in body, release of pro-inflammatory cytokines in HCV infected individuals can also be the causative factor.

MATERIALS AND METHODS:

This study was conducted at Services Hospital Lahore, during the period of January to July 2017. Study design is descriptive cross sectional. 200

patients were chosen through non probability consecutive sampling. The study included 200 diagnosed cases of chronic hepatitis C infection patients who had no previous history of diabetes mellitus. The age group was 18 to 60 years. Hepatitis C virus was detected by qualitative PCR method. Fasting BSR more than 126 mg/dl was labelled as diabetic. Data analysis was done using SPSS version 20. Chi square test was used to detect the effect of effect modifiers. The p value of less than 0.05 was considered significant.

RESULTS:

200 chronic hepatitis C patients were included in study. The male to female ratio was 120 and 80, respectively (60%, 40%). The age range was 35 to 74 years with mean age, 47.2 ± 11 years \pm SD. 56 patients had DM, 28% of total sample. 30 patients had positive family history of diabetes mellitus, making 53.4%. p value was 0.001, statistically significant. BMI less than 25kg/m^2 was observed in 14 individuals while remaining had BMI more than 25kg/m^2 . P value was 0.009.

DISCUSSION:

A hospital based study in Egypt over the population of 389 diagnosed HCV infected cases concluded that positive association is present between type 2 DM and HCV infection. Smoking status, BMI were the other related factors [5]. Case control study design was followed in Ethiopia in order to compare patients with HCV and non HCV infection and DM prevalence. The prevalence in non HCV and HCV was 9.9% and 3.3%, respectively [6]. 426 indo-American women were studied. 13 had HCV, 22 were suffering from NIDDM. Out of 13 HCV positive women, 4 were diabetic, while 18 out of 413 women were diabetic. In logistic regression model an independent correlation between obesity, age and HCV status was present in causation of NIDDM, Wilson C, et al. reported [7].

Another case control study results favored the understudy hypothesis related to association of NIDDM with HCV infection, with statistically significant p value of 0.002 [8]. A case control study on South Asian population conducted in 2013, reported 31.5% sample with HCV had NIDDM. Total sample size was 361, out of which 58% were cirrhotic while 41% were non-cirrhotic. Cirrhotic individuals were more frequently suffering from NIDDM as compared to non- cirrhotics [9]. Thus, a correlation is present between chronic hepatitis C virus infection and type 2 diabetes mellitus, regardless of family history of DM. however, there is

need to search for the pathophysiology of this correlation. The mortality rate in diabetic patients suffering from hepatitis C virus infection is more than non-diabetics. So, after knowing the mechanism involved, better treatment and control would be provided [10].

CONCLUSION:

Many chronic hepatitis C patients were diagnosed to have NIDDM. BMI and family history also had a strong association with occurrence of NIDDM.

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