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TYPE II DIABETES MELLITUS PREVALENCE IN CHRONIC HEPATITIS C VIRUS INFECTED PATIENTS

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Abstract:
Objective: *The main objective of this research was to establish the prevalence of type II diabetes mellitus in hepatitis c virus infected patients.*
Place and duration of study: *This research was performed from june 2019 to january 2020 for eight months in Nishtar Hospital Multan.*
Materials and Methods: *200 patients of 18 to 60 years of age in total were chosen for this review. This research included both men and women with a positive hepatitis c virus infection and having no previous or insignificant history of DM (diabetes mellitus). For HCV identification, a qualitative PCR test was performed. Patients were labelled as diabetics having fasting level blood glucose higher than 126 mg/dl. For collecting the details, a proforma of pre-designed was used. All the patients were given informed consent. The approval of the Ethical Committee was adopted. Using the 20th version of SPSS, data were analysed.*
Results: *In this study, 200 patients were included having the history of chronic HCV infection. Of these, 40 per cent (80 patients) were women, and 60 percent (120 patients) were men. The mean age of patients was 47.25 years. In 56 per cent of the patients, diabetes mellitus was seen, and it was 28 per cent proportionally. In 30 cases with a good family history, representing 53.57 per cent of the total, signs of diabetes mellitus were seen. The significant p-value was 0.001. In the 14 patients, BMI<25kg/m2 was seen, while in the 42 patients, BMI >25 was seen.*
Conclusion: *Type II diabetes mellitus has been documented frequently in HCV patients already diagnosed. It is Also contributing to a strong association of type II diabetes mellitus with the positive or any previous family history and an increased BMI above 25.*

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INTRODUCTION:

HCV infection is primarily caused by chronic liver disease, and it also leads to severe liver cirrhosis and liver cancers. Latest figures have shown that about 3% of the population of the world is contaminated with HCV, reaching up to 170 million people worldwide. HCV primarily affects the liver, but there are also other liver diseases such as cryoglobulinemia, sialadenitis, glomerulonephritis, and porphyria cutanea tarda. Glucose metabolism is impaired primarily by chronic DM. Currently, 171 million people around the world are affected by diabetes, and this figure is expected to grow to 366 million by 2030. Jayawardane in 2012 found that 3-7.2 percent of Pakistan's population is affected by this when doing meta-analysis and study of South Asia. In South Asia, the prevalence of DM is four to six times higher than in Europe.

Several studies have shown the relation between HCV and diabetes mellitus. In developed countries, between 2% and 9.4%, an increased percentage of type II diabetes is seen, especially in patients with chronic HCV. Allison's association between hepatitis C and DM was first seen in 1944. Several studies on this subject have been carried out since then. The key risk factors contributing to diabetes that are further affected due to HCV are positive family history, age, sex, ethnicity and HIV infection. Resistance to insulin and diabetes can be seen at any point of hepatitis C infection. The hindrance of the signalling pathway of insulin to the hepatocytes, which contributes to increased inflammatory response and cytokine production such as IL-6, oxidative stress and TNF alpha, further increases insulin resistance.

To demonstrate the prevalence of diabetes and HCV infection, several studies have been performed. In his 2011 study, Elhawary demonstrated that the incidence of type II DM is 13.84 in HCV patients with an additional risk factor for DM cirrhosis. The main objective of our research was to establish the prevalence of type II diabetes in chronic HCV patients. A valid link between type II diabetes and HCV infection must be shown for this to be true. The hindrance of the signalling pathway of insulin to the hepatocytes, which contributes to increased inflammatory response and cytokine production such as IL-6, oxidative stress and TNF alpha, further increases insulin resistance. To demonstrate the prevalence of diabetes and HCV infection, several studies have been performed. In his 2011 study, Elhawary demonstrated that the incidence of type II DM is 13.84 in HCV patients with an additional risk factor for DM cirrhosis. The main objective of our research was to establish the prevalence of type II diabetes in chronic HCV patients. A valid link between type II diabetes and HCV infection must be shown for this to be true.

MATERIALS AND METHODS:

For this study, a total of 200 patients were chosen between the ages of 18-60 years. This research included both men and women with a positive history of HCV infection and no prior history of diabetes mellitus. For HCV identification, qualitative PCR was performed. People with diabetes were labelled in patients with fasting blood glucose levels higher than 126mg/dl. For a collection of the details, a pre-designed proforma was used. Many of the patients were given informed consent. Approval by the Ethical Committee was approved. Using SPSS version 20, the data was analysed.

RESULTS:

This study involved 200 patients who had a chronic history of HCV. Of these, 80 (40%) were female patients, and 120 (60%) were male patients. The patients had a mean age of 47.25 years. In 56 per cent of the cases, diabetes mellitus was seen, and it was 28 per cent proportionally. In 30 patients with a good family history, representing 53.57 per cent of the total, signs of diabetes mellitus were seen. The significant p-value was 0.001. In 14 patients, BMI<25kg/m2 was seen, while in 42 patients, BMI >25 was seen.

DISCUSSION:

Owing to long-standing diabetes and chronic hepatitis C virus, long-term complex and debilitating complications occur. The fundamental cause that contributes to type II diabetes is insulin resistance, and cirrhosis is mostly caused by chronic hepatitis C infection. A factor well known is the association between DM type II and hepatitis C. Cross-sectional studies across the globe have shown that these two diseases are associated. The relation between Hepatitis C and DM type II has been shown in previous studies. In recent research, the presence of type III diabetes in hepatitis C infected patients is hugely beneficial in people who have already been diagnosed with diabetes and hepatitis C. In his analysis, Qureshi showed that in 24.5% of patients with chronic hepatitis C infection, diabetes has already been identified. Similar research conducted in Islamabad has shown a rate of 18%. Our study findings are comparable to those conducted in Italy, Korea, China, and Los Angeles, showing a percentage of 32.5%, 24%, 19.05%, and 21%. Allison and his colleagues found that patients with a history of

HCV and liver cirrhosis had a 5-fold increased chance, excluding sex and BMI, of developing type II DM. According to current research, increased age of over 45 years is also a risk factor for the production of type II DM. In their analysis, this was demonstrated by Mitchell and Shruti. More than 50 per cent of patients have experienced a healthy family history of DM and hepatitis. Samir performed a similar study in which he reported 41.08% of patients with a healthy family history of DM along with HCV. Obesity plays a significant role in diabetes type II. In previous studies, a BMI of > 25kg/m2 was reported. Of the HCV and DM cases, 20% were in the obese category. In those patients, steatosis and fibrosis were found. Nevita also showed the association between obesity, hepatitis C, BMI, and type II DM in his research.

CONCLUSION:

Type II diabetes mellitus has been documented frequently in HCV patients already diagnosed. Often leading to a close correlation with type II diabetes is a good family history and an elevated BMI above 25.

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