ORIGINAL ARTICLE

Variable Outcome of Acute Viral Hepatitis in Diabetic and Non Diabetic Patients

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ABSTRACT

Objective: The purpose of this study is to evaluate the clinical and biochemical parameters among patients of acute viral hepatitis in diabetic and non-diabetic cases.

Study Design: Observational/Prospective study

Place and Duration: In the department of Medicine, Northwest General Hospital & Research Centre, Hayatabad Peshawar and DHQ and Teaching Hospital KDA, Kohat during the period from January, 2021 June, 2021.

Methods: There were one hunded and eight cases of acute viral hepatitis were included in this study. Included cases were aged between 18-65 years. A patient's demographic information, such as age, gender, BMI (Body Mass Index), residence, and education status, was collected once the patient provided written consent and informed consent was obtained. Patients categorized in two groups. Group I had 54 diabetic patients and group II had 54 non diabetic patients with AVH. Smoking history and etiology among both groups were assessed. Patients' clinical and biochemical parameters were evaluated during hospital stay among both groups. SPSS 22.0 was used to analyze all data.

Results: There were 72 (66.7%) males and 38 (33.3%) females among 108 cases. In group I mean age was 42.13±6.45 years with mean BMI 25.11±6.34 kg/m^2 while in group II mean age was 39.88±11.56 years and had mean BMI 24.7±14.62 kg/m^2. Majority of the cases among both groups were from urban areas 32 (59.3%) and 28 (51.9%) cases. There were 35 (64.9%) patients were married in group I and in group II 30 (55.6%) patients were married. Among both groups 25 (46.3%) and 29 (53.7%) patients were literate. Hepatitis E was the most common etiology among both groups followed by B and A. ALT and albumin levels were substantially lower in diabetics than nondiabetics, while mean blood bilirubin levels were significantly higher in diabetics than nondiabetics. Hospital stay in diabetic patients was also greater than that of non-diabetic patients with p value <0.05. Mortality in group I was 2 (3.7%) because of liver failure and in group II there was not any mortality found.

Conclusion: According to the results of the current study, diabetic individuals with AVH had lower ALT levels, higher bilirubin levels, a greater risk of liver failure, and longer hospital stays than non-diabetics.

Keywords: Diabetes, Acute Viral Hepatitis, Mortality, Clinical Outcomes

INTRODUCTION

An icteric phase is followed by a prodromal phase in acute viral hepatitis (AVH), which is frequently a self-limiting illness. Acute liver failure or cholestatic phase may complicate the course in rare individuals. The severity of consequences depends on a variety of factors, including the kind of virus, the age of infection, the host's immunological condition, and the presence of other immune-suppressive viruses. [1-4] A common cause of death and disability in the country is AVH. It's not uncommon for this country to record cases of Acute Vesicular Hypertension (AVH). Hepatocellular carcinoma and chronic liver disease are both exacerbated by the metabolic condition diabetes mellitus (DM) (HCC). [5,6] DM is prevalent in Bangladesh, a country of 160 million people, despite the fact that adequate epidemiological studies have not been conducted there yet. In Bangladesh, there may be as many as 20 million persons suffering with diabetes mellitus, based on available information. According to doctors and even hepatologists in Bangladesh, AVH is self-limiting pathological disease and minimal care is offered for follow-up of these patients [7].

Diabetes mellitus, thyroiditis, arthritis, and mixed cryoglobulinemia (MCG) are only a few of the EH symptoms of HCV infection that have been linked to HCV infection in the general population [8–9]. The incidence of clinically severe EH symptoms are modest, but they can cause considerable morbidity and even death. One of the most important factors in the early detection and treatment of these problems is the ability to recognize these signs and symptoms.[10]

As the world's population grows faster and more sedentary, the prevalence of type 2 diabetes (T2D) is on the rise [11]. Study results on T2D in noninfected persons and patients with various HCV genotypes support this conclusion. [12]Risk factors for type 2 diabetes include a family history of the disease as well as a person's body fat distribution, age, gender, smoking, and physical activity.[13]

People with chronic hepatitis C (HCV) are more likely to develop type II DM than patients without the disease (13-33%). [14]Patients with liver cirrhosis had a higher rate of diabetes than those with chronic hepatitis [15]. A distinctive EH symptom of chronic HCV infection appears to be diabetes mellitus (DM).

Diabetes and non-diabetes individuals were studied side by side to see how the aetiological pattern, clinical and biochemical picture and the outcome of AVH differed.

MATERIAL AND METHODS

This prospective study was conducted at the department of Medicine, Northwest General Hospital & Research Centre, Hayatabad Peshawar and DHQ and Teaching Hospital KDA, Kohat during the period from January, 2021 June, 2021 and comprised of 108 patients. A patient's demographic information such as age, gender, BMI (Body Mass Index), residence and education status was collected once the patient provided written consent and informed consent was obtained. Patients having a recent history of acute hepatitis, a history of alcohol use, probable ischemic hepatitis and pregnancy were also precluded from participation in the study.

Included cases were aged between 18-65 years. After admission, a semi-structured questionnaire incorporating data from the patient's medical history, physical examination, and any relevant investigative results was used to conduct a bedside interview. On-the-job documentation of future investigations was kept on file in the hospital. HBs Ag, IgM anti-HBc, IgM anti-HEV, and IgM anti-HAV were all detected in the serum of each patient. Chemiluminescence immunoassay (CMIA) was used for HBs Ag, IgM anti-HBc, and IgM anti-HAV. Anti-HEV IgM testing was completed. All patients were monitored for at least a year or until

they had completely recovered. On all patients, an upper gastrointestinal endoscopy was done as a preventative measure. Additionally, all patients had an abdominal ultrasound. A fibroscan was also carried out in order to discover the degree of hepatic fibrosis present.

Patients categorized in two groups. Group I had 54 diabetic patients and group II had 54 non diabetic patients with AVH. Smoking history and etiology among both groups were assessed. Patients' clinical and biochemical parameters were evaluated during hospital stay among both groups. SPSS 22.0 was used to analyze all data. SPSS 22.0 was used to analyze all data.

RESULTS
There were 72 (66.7%) males and 38 (33.3%) females among 108 cases.(fig 1)

Figure-1: Gender distribution among all cases
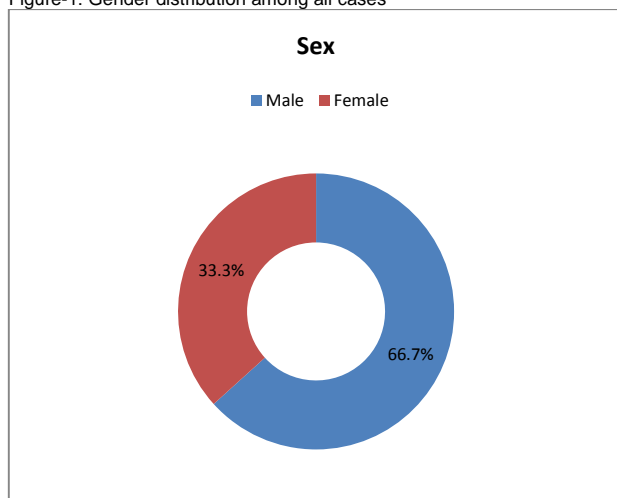
In group I mean age was 42.13±6.45 years with mean BMI 25.11±6.34 kg/m² while in group II mean age was 39.88±11.56 years and had mean BMI 24.7±14.62 kg/m². Majority of the cases among both groups were from urban areas 32 (59.3%) and 28 (51.9%) cases. There were 35 (64.9%) patients were married in group I and in group II 30 (55.6%) patients were married. Among both groups 25 (46.3%) and 29 (53.7%) patients were literate.(table 2)

Table-2: Detailed demographics of both groups

Variables	Group I	Group II
Mean Age (years)	42.13±6.45	39.88±11.56
Mean BMI (kg/m²)	25.11±6.34	24.7±14.62
Residency		
Urban	32 (59.3%)	28 (51.9%)
Rural	22 (38.5%)	26 (44.2%)
Marital Status		
Married	35 (64.9%)	30 (55.6%)
Unmarried	19 (35.1%)	24 (44.4%)
Education status		
Literate	25 (46.3%)	29 (53.7%)
Illiterate	29 (53.7%)	25 (46.3%)

In study groups, hepatitis E was the most common etiology among both groups followed by B and A.(table 2)

Table-2: Association of etiology among both groups

Variables	Group I	Group II
Etiology		
Hepatitis E	42 (77.8%)	33 (61.1%)
Hepatitis B	8 (14.8%)	16 (29.6%)
Hepatitis A	4 (7.4%)	5 (9.3%)
Total	54 (100)	54 (100)

ALT and albumin levels were substantially lower in diabetics than nondiabetics, while mean blood bilirubin levels were significantly higher in diabetics than nondiabetics.(table 3)

Table-3: Comparison of biochemical parameters among both groups

Variables	Group I	Group II	P value
Biochemical Parameters			
ALT (U/L)	744.16±71.8	1331.19±194.1	0.04
Albumin (U/L)	581.51±71.11	1102.45±216.5	0.02
Bilirubin (mg/dl)	16.563±5.432	9.823±5.581	0.01

Hospital stay in diabetic patients was also greater than that of non-diabetic patients with p value <0.05. Mortality in group I was 2 (3.7%) because of liver failure and in group II there was not any mortality found.(table 3)

Table-3: Comparison of hospital stay and mortality among both groups

Variables	Group I	Group II
Hospital stay (days)	10.7±11.51	20.7±13.42
Mortality		
Yes	2 (3.7%)	0
No	52 (96.3%)	54 (100)

DISCUSSION
Within 4-6 weeks of the start of acute viral hepatitis (AVH), the condition is frequently linked with full spontaneous clinical, biochemical, and viral recovery. Even while AVH was once thought to be completely harmless, more research and careful monitoring of those who have it now indicate that it may not be. Acute liver failure (ALF), subacute hepatic failure (SHF), or a protracted icteric phase have been found in 1% to 5% of individuals with AVH. Certain viral etiologies and host variables including immunological condition, age, existence of underlying chronic liver disease are known to have a role in such a complex natural course. [17]

In current study 108 patients were evaluated both diabetic (group I) and non-diabetic (group II). There were 72 (66.7%) males and 38 (33.3%) females among 108 cases. In group I mean age was 42.13±6.45 years with mean BMI 25.11±6.34 kg/m² while in group II mean age was 39.88±11.56 years and had mean BMI 24.7±14.62 kg/m². Results of our study was comparable to the previous studies.[18,19] Majority of the cases among both groups were from urban areas 32 (59.3%) and 28 (51.9%) cases. There were 35 (64.9%) patients were married in group I and in group II 30 (55.6%) patients were married. Among both groups 25 (46.3%) and 29 (53.7%) patients were literate.[20]

In study groups, hepatitis E was the most common etiology among both groups followed by B and A.[21] When it comes to HCV, our findings that HCV Ab (+) and diabetes go hand in hand are consistent with the majority of prior investigations. A combined OR of 1.68 for diabetes was found in a meta-analysis of 17 trials comparing persons with and without HCV infection. [22] The degree of liver fibrosis in biopsies from individuals with chronic HBV or HCV infection and increased liver enzymes was strongly linked to diabetes in one investigation, although there were no differences between the two infections in the study. [21] Patients with chronic HCV infection who have cirrhosis and are above the age of 65 are more likely to develop diabetes, according to an Italian study.[23]

ALT and albumin levels were substantially lower in diabetics than nondiabetics, while mean blood bilirubin levels were significantly higher in diabetics than nondiabetics. Hospital stay in diabetic patients was also greater than that of non-diabetic patients with p value <0.05. Mortality in group I was 2 (3.7%) because of liver failure and in group II there was not any mortality found. These results were in line with previous study.[24] Diabetes patients with HCV had more severe liver damage based on their liver tests and biopsy results [22]. HCV infection itself may not be a risk factor for diabetes, but the liver's persistent inflammation following infection may. Early chronic HCV infection causes a

malfunction of the -cells, although diabetes does not develop until cirrhosis has taken hold.[25]

CONCLUSION

According to the results of the current study, diabetic individuals with AVH had lower ALT levels, higher bilirubin levels, a greater risk of liver failure, and longer hospital stays than non-diabetics.

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