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ORIGINAL ARTICLE

Etiology of Juandice and Associated Liver Diseases Among Hiv Patients

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ABSTRACT

Background and Aim: Jaundice and associated liver disease are frequently diagnosed in patients with acquired immunodeficiency syndrome (AIDS). The assessment of jaundice causes, etiology, and outcomes in human immunodeficiency virus (HIV)-infected patients with liver disease have not been addressed. The present study aimed to evaluate jaundice and associated liver disease in human immunodeficiency virus (HIV)-infected patients.

Materials and Methods: This cross-sectional study was conducted on 272 human immunodeficiency virus(HIV)-infected patients with liver disease at the Department of Gastroenterology AK CMH/ Sheikh Khalifa bin Zayad Al Nahyan Hospital Rawalakot, Medicine Medical Unit A, Hayatabad Medical Complex, Peshawar and department of Medicine, Fauji Foundation Hospital Rawalpindi for duration between 5th January 2020 and 5th December 2020. Jaundice was defined as a serum bilirubin concentration of 3 mg/dL or higher. The etiology of jaundice was determined using a pattern of liver disease biochemistry test, radiographic studies, liver biopsy and clinical follow-up.

Results: About 272 HIV-infected patients were evaluated liver disease; the prevalence of jaundice was 46 (16.9%). Drug-induced hepatitis was the more prevalent cause in Jaundice 19 (41.3%) followed by neoplasms in 14 (30.4%) patients. Out of 14 neoplasms, the extrahepatic and intrahepatic disease was present in 8 and 6 patients respectively. Alcoholic liver disease was present in 5 (10.9%). Various potential causes were present in three patients. The use of abdominal ultrasonography and CT was beneficial in determining the fundamental cause of the infection. five of these patients died as a result of liver disease.

Conclusion: Jaundice is rare and can be caused by a number of opportunistic and non-opportunistic etiologies in AIDS. The most common cause is drug-induced hepatitis, which can be fatal. Long-term survival was dismal.

Keywords: Jaundice, Liver Disease, Human immunodeficiency virus (HIV)

INTRODUCTION

Abnormalities in liver enzymes are common in HIV patients and have been reported in 20–93% of HIV-infected populations [1, 2]. The most common causes are opportunistic infections, cancer, and drug toxicity. Cirrhosis and mortality due to liver disease are significantly higher in HIV patients infected with HBV and hepatitis C virus [3–6]. Acquired immunodeficiency syndrome (AIDS) patients frequently have biochemical, serological, or morphological evidence of parenchymal liver disease. Significant increases in liver biochemistry tests (transaminases, alkaline phosphatase) have been observed in up to two-thirds of patients at some point during the disease's progression [7]. Physical examination can detect hepatomegaly in up to 73% of patients [8]. These conditions are caused by a variety of opportunistic infections or neoplasms, as well as drug-induced liver disease, alcohol use, or a combination of these factors [9, 10]. Jaundice appears to be unusual, despite the fact that abnormal liver biochemical tests are common.

The Acquired immunological disease syndrome in Human Immunodeficiency Virus (HIV) infected patients was validated with biliary affection in numerous cases. The micro-organism-specific pathogens determined this ailment with liver complications in terms of immunosuppression, primary neoplasm, hepatotoxicity, and virus infected hepatotropic. With the progression of immunodeficiency (CD4 200cells/mm3), the liver is infected by deep mycosis, atypical mycobacteriosis, and cytomegalovirus (CMV). Liver disease is not primarily caused the mortality among patients [11-13]. Jaundice, hypochondrium, anorexia, encephalopathy, and hepatomegaly are the different features of the asymptomatic hepatobiliary disease [14, 15].The current study sought out the prevalence of various liver diseases and jaundice in HIV infected patients.

MATERIAL AND METHODS

This cross-sectional study was conducted on 272 human immunodeficiency virus (HIV)-infected patients with liver disease at the Department of Gastroenterology AK CMH/ Sheikh Khalifa bin Zayad Al Nahyan Hospital Rawalakot, Medicine Medical Unit A, Hayatabad Medical Complex, Peshawar and department of Medicine, Fauji Foundation Hospital Rawalpindi for duration between 5th January 2020 and 5th December 2020. Jaundice was defined as a serum bilirubin concentration of 3 mg/dL or higher. The etiology of jaundice was determined using a pattern of liver disease biochemistry test, radiographic studies, liver biopsy and clinical follow-up. Throughout the study period, all in-patients with documented human immunodeficiency virus (HIV) infection who were seen for consultation had the reason for that consultation documented on a standard form. All patients were first evaluated using either abdominal ultrasonography (US) or computed tomography (CT). The subsequent diagnostic evaluation was not

standardised and was based on the findings of abdominal imaging as well as the clinical setting.

A serum bilirubin concentration of 3 mg/dL was considered jaundice. The highest value of serum bilirubin at or before the time of consultation was used for the analysis of identified patients. Other liver biochemistry tests were performed at the same time as the bilirubin level. The clinical history, biochemistry test pattern of liver abnormalities, findings on radiographic studies (including US, CT, percutaneous transhepatic cholangiography, endoscopic retrograde cholangiopancreatography (ERCP), percutaneous liver biopsy, and clinical follow-up including liver biochemical tests), and postmortem examination were used to determine the cause(s) of jaundice. Drug-induced hepatitis was considered etiologic when (A) the patient was given a drug known to cause hepatitis and had liver biochemistry tests compatible with hepatitis, and (B) drug withdrawal resulted in improved or normalized liver tests and/or a liver biopsy or postmortem examination that was compatible with drug-induced hepatitis. Alcoholic liver disease, as well as a liver biopsy was used to make the diagnosis. Prior research was used to develop radiographic criteria for sclerosing cholangitis and papillary stenosis. The authors prospectively reviewed all radiographic and histopathology studies performed on these patients. The mean and standard deviation are used to express the values. Wherever possible, median values are provided. A two-tailed t test was used to compare continuous variables, and Fisher's Exact Test was used to compare categorical data. P values less than 0.05 were considered statistically significant.

RESULTS

About 272 HIV-infected patients were evaluated liver disease; the prevalence of jaundice was 46 (16.9%). Drug-induced hepatitis was the more prevalent cause in Jaundice 19 (41.3%) followed by neoplasms in 14 (30.4%) patients. Out of 14 neoplasms, the extrahepatic and intrahepatic disease was present in 8 and 6 patients respectively. Alcoholic liver disease was present in 5 (10.9%). Various potential causes were present in three patients. The use of abdominal ultrasonography and CT was beneficial in determining the fundamental cause of the infection. Five of these patients died as a result of liver disease. Intrahepatic was the prevalent cause of jaundice followed by Extrahepatic as shown in table 1. Table-2 illustrate the demographic details of study group patients (n=46). Liver biopsy results and findings are shown in Table-3.

Table 1: Prevalence of jaundice causes

Variables	Frequency	Percentage
Prevalence of Jaundice		
Yes	46	16.9
No	226	83.1
Causes		
Drug Induces hepatitis	19	41.3
Neoplasm		
extrahepatic	8	17.4
intrahepatic	6	13.04
Alcoholic Liver disease	5	10.9
Various potential	3	6.5
Unknown	5	10.9

Table-2 Demographic details of study group

Features	N (Range)
Age (Years)	36±8 (12-72)
Total bilirubin (mg/dL)	10.8±7 (3.1-41.9)
Alkaline phosphatase (IU/L)	803±543 (69-2187)
AST (U/L)	229±238 (17-1239)
Hepatitis B surface antibody	17
Hepatitis surface antigen	4
CD4 lymphocyte count/mL	66

Table-3 Liver biopsy findings

Biopsy Findings	N
Lymphoma	4
Alcoholic liver disease	3
Drug-induced hepatitis	3
Nonspecific changes	3
Cytomegalovirus hepatitis/chronic hepatitis and cirrhosis	2
KS	1
MAC	1

DISCUSSION

Our findings indicate that jaundice is rare in patients with AIDS. Both opportunistic and non-opportunistic diseases could be the cause of gastrointestinal complications in HIV-infected patients, and multiple coexisting disorders were common. The most common cause of jaundice was discovered to be intrahepatic disorders, with drug-induced hepatitis being the most common. Abdominal imaging was useful in the initial evaluation, often directing the subsequent diagnostic approach. Importantly, endoscopic therapy alleviated symptoms and/or cured some patients with obstructive jaundice.

There have been no studies on the prevalence of jaundice in AIDS patients. Only 5 patients were described as having jaundice among the 172 patients reported in studies evaluating liver disease in AIDS cases (2.9%) [16]. In one study of HIV-infected patients who had a liver biopsy, 11% were found to be jaundiced; however, the etiologies and severity of the jaundice were not reported. Only two of the 131 patients in the three studies [17, 18] that examined liver histopathology had clinically or biochemically documented jaundice. The cause of liver disease in these patients was not specified.

The most common cause of jaundice in our patients (41.3%) was drug-induced hepatitis, with antimycobacterial agents being responsible in all cases. Based on the medication used and the pattern of liver tests, drug-induced hepatitis was suspected in these patients. Although high-dose trimethoprim-sulfamethoxazole used to treat Pneumocystis carinii pneumonia has been linked to hepatitis in up to 20% of patients [19]. It has been found only one patient with jaundice associated with high-dose trimethoprim-sulfamethoxazole therapy. Dapsone therapy for Pneumocystis carinii pneumonia prophylaxis has been linked to a sulfone reaction that can lead to fatal fulminant hepatic failure. Two of our patients developed jaundice as a result of their dapsone use [20]. Drug withdrawal resulted in clinical cure in the majority of patients; however, drug-induced hepatitis resulted in death in some patients. As a result, we cannot conclusively establish a drug-induced etiology.

Despite the fact that MAC is the most common

opportunistic infection involving the liver in AIDS patients [21, 22]. Our study found one patient whose jaundice was thought to be caused by this infection. This could be due to a lack of significant inflammatory reaction in the liver, as well as a lack of significant granuloma formation, the latter of which appears to be the cause of jaundice associated with other granulomatous disorders like sarcoidosis and tuberculosis [23].

The infrequency of jaundice associated with cholangiopathy has previously been noted [24]. Only four patients were found to have clinical and biochemical evidence of jaundice in six series totaling 86 patients [25]. About 5% Sclerosing cholangitis without papillary stenosis was the cause of jaundice in two patients, sclerosing cholangitis with papillary stenosis in one, and high-grade malignant stricture of the common bile duct in one. There has been a case report of a patient with sclerosing cholangitis who had well-documented jaundice [26]. Our findings imply that the diagnostic approach to jaundice in AIDS patients should be similar to that of other patients. In general, liver tests were ineffective in determining whether jaundice was caused by an intrahepatic or extrahepatic process. Because not all patients underwent all tests.

The outcome of jaundice in HIV-infected patients has never been studied before. Not surprisingly, patients with neoplastic disorders causing jaundice had a low survival rate; three died in the hospital and another died two months later. Importantly, we discovered that drug-induced hepatitis had a poor prognosis, with 5 patients (10.9%) dying during hospitalization due to liver failure. The high mortality rate in patients with isoniazid hepatitis has previously been documented [27], but has not been described in HIV-infected patients. Surprisingly, all of the patients who died as a result of isoniazid hepatitis were under the age of 35.

In short, jaundice appears to be uncommon in AIDS patients. The aetiology spectrum is broad, including both opportunistic and non-opportunistic disorders. In most cases, a thorough examination will reveal an underlying and potentially treatable disorder. ERCP is a useful diagnostic and potentially therapeutic modality in some patients with extrahepatic biliary obstruction. Nonetheless, overall survival is poor, and drug-induced hepatitis has a high mortality rate.

CONCLUSION

Jaundice is rare and can be caused by a number of opportunistic and non-opportunistic etiologies in AIDS. The most common cause is drug-induced hepatitis, which can be fatal. Long-term survival was dismal.

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