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A Rare Case of Liver Failure from Autoimmune Hepatitis in a Patient with Chronic Hepatitis B Virus Infection

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Abstract

Autoimmune Hepatitis (AIH) association with hepatitis C is known and documented. However, very few cases in the literature report Hepatitis B as a cause of AIH. We present a case of a male patient with chronic hepatitis B who was diagnosed with Autoimmune Hepatitis. A 62-Year-Old African male presented to the hospital with weight loss, generalized weakness, loss of appetite, pale urine, and icteric conjunctiva. Lab findings were significant for elevated liver enzymes. Aspartate transaminase 1740 IU/L, Alanine transaminase 1393 IU/L; Alkaline phosphatase 909 IU/L; Total Bilirubin 14.4 mg/dL. Workup showed Immunoglobulin G 2411 mg/dL, with positive Anti-Nuclear antibody, and anti-smooth muscle antibody. Liver Biopsy was consistent for AIH with hepatitis and lymphoplasmacytic infiltrate. The patient recovered and liver function tests improved 6 months later. The pathogenicity of AIH and Hepatotropic viruses is not known. Direct toxicity and molecular mimicry are some of the proposed hypotheses.

Introduction

The Incidence of auto-immune hepatitis (AIH) in the world is estimated at 2 per 100,000 and prevalence is estimated at 15 per 100,000 **(**1**)**. It is a rare liver disease diagnosed based on autoantibodies, hypergammaglobulinemia, hepatitis on histological examination, and response to immunosuppression. Patients with autoimmune hepatitis can have varied presentations. Asymptomatic, acute hepatitis, fulminant hepatitis, auto-antibody negative and overlap syndrome AIH are some of the common manifestations. The international Autoimmune hepatitis group proposed a scoring system for AIH diagnosis and definitions for response to therapy. The presence of positive markers for viral hepatitis has negative scoring for AIH. Infections such as measles, Herpes Simplex Virus, Cytomegalovirus, Ebstein barr virus, and rarely Hepatitis B (HBV)and Hepatitis C virus are associated with AIH. AIH has a female predominance in the adult and child population. We present a rare case of symptomatic autoimmune hepatitis in a patient with Chronic Hepatitis B virus infection. There are very few cases reported in the literature with such presentations.

Case Presentation

A 62-Year-old African American male with a medical history of diabetes, chronic hepatitis B with cirrhosis were evaluated for acute liver enzyme elevation. The patient complained of yellow eyes, dark urine, loss of appetite, and weight loss. AST 1740 IU/L, ALT 1393 IU/L, ALP 909 IU/L, Patient Gamma-glutamyl transferase was 1238. Total Bilirubin 14.4 mg/dL. Workup for biliary stones and dilatation was negative. HBV surface antigen-positive (HBsAg), Hepatitis B surface antibody negative (Anti-HBs), HBV core IgM negative, HBV eAg negative, HBV eAb positive. HBV DNA 80 IU/mL. Anti-Nuclear antibody was positive and anti-smooth muscle antibody level was positive at 104. Immunoglobulin g was 2411 mg/dL. Anti-mitochondrial antibody-negative. The patient was started on entecavir and discharged after rapid symptomatic improvement to follow up in the clinic. One week later in-clinic labs showed, Alpha-fetoprotein was 1.8, Platelets were 236 with a Total Bilirubin of 0.9 and INR of 1. The patient had a liver biopsy which showed mild portal and peri-portal inflammation with minimal hepatocyte necrosis (Grade 1). Portal and incipient periportal fibrosis (stage 1-2) were confirmed on trichrome and reticulin stains with plasma cell infiltrates. Fibro scan showed Stage IV fibrosis. There were no lesions or masses on an ultrasound. AIH diagnosis in addition to Chronic B infection was made. The patient was started on steroids and asked to follow up in the clinic.

Discussion

Hepatotropic viruses have been associated with several auto-immune diseases. The pathogenesis of autoimmune hepatitis associated with viral hepatitis is not clearly understood. Direct toxicity of the virus on the liver causing local inflammation and Molecular mimicry are the most common hypothesis for the explanation of AIH in patients with Viral Hepatitis. **(**5**)**

Presentation is bimodal with a peak in the second and another between the fifth and sixth decade. Physical findings range from a normal physical exam to findings of cirrhosis or liver failure

Femal predominance is observed in autoimmune hepatitis in both adults and children **(**2**)**.

The most common types of antibodies in AIH are anti-nuclear antibody and anti-smooth muscle antibody categorized under type 1 AIH. Anti-Liver/Kidney microsome Type-1 antibodies are classified under type 2 AIH. There is also a serology negative auto-immune hepatitis

Auto-immune hepatitis can present as an overlap syndrome with other auto-immune diseases such as primary biliary cholangitis and primary sclerosing cholangitis.

Exclusion of viral, hereditary, metabolic, cholestatic, and drug-induced causes is necessary before making a diagnosis of AIH.

Patients with Viral hepatitis can have some positive auto-immune markers. This is a more frequent occurrence than Autoimmune hepatitis with positive viral markers. Response to immunosuppressive therapy instead of antiviral drugs helps to establish the diagnosis of Autoimmune hepatitis.

According to the American Association for the study of liver diseases treatment for AIH is required in patients with AST > 10 × upper limit of normal (ULN) or AST > 5 × ULN and a serum IgG > 2 × ULN. Bridging necrosis or multiacinar necrosis on histology. Incapacitating symptoms such as fatigue, arthralgia also requires treatment. **(**6**)**

Treatment with prednisone with or without azathioprine is usually associated with high rates of remission and favorable outcomes from previous studies. **(**3**)** Patients with a history of viral hepatitis receiving treatment with immunosuppressive medications require close monitoring and regular serological testing for reactivation of infection. **(**4**)** Response to immunosuppressive therapy further establishes auto-immune mechanism as the cause for hepatitis.

References

1. Danielle Eagan, DO, RD, Endocrinology Fellow at the University of Florida and patient with AIH, and Craig Lammert, MD, Assistant Professor of Medicine, Department of Gastroenterology, Indiana

University Health University Hospital, for the preparation of this report. Autoimmune hepatitis. National organization for rare disorders.

2. Mack CL, Adams D, Assis DN, Kerkar N, Manns MP, Mayo MJ, Vierling JM, Alsawas M, Murad MH, Czaja AJ. Diagnosis and Management of Autoimmune Hepatitis in Adults and Children: 2019 Practice Guidance and Guidelines from the American Association for the Study of Liver Diseases. Hepatology. 2020 Aug;72(2):671-722. doi: 10.1002/hep.31065. Epub 2020 May 12. PMID: 31863477

3. Terziroli Beretta-Piccoli B, Mieli-Vergani G, Vergani D. Autoimmune hepatitis: Standard treatment and systematic review of alternative treatments. World J Gastroenterol. 2017 Sep 7;23(33):6030-6048. doi: 10.3748/wjg. v23.i33.6030. PMID: 28970719

4. Terrault NA, Lok ASF, McMahon BJ, Chang KM, Hwang JP, Jonas MM, Brown RS Jr, Bzowej NH, Wong JB. Update on prevention, diagnosis, and treatment of chronic hepatitis B: AASLD 2018 hepatitis B guidance. Hepatology. 2018 Apr;67(4):1560-1599. doi: 10.1002/hep.29800. PMID: 29405329

5. Czaja AJ. Examining pathogenic concepts of autoimmune hepatitis for cues to future investigations and interventions. World J Gastroenterol. 2019 Dec 7;25(45):6579-6606. doi: 10.3748/wjg. v25.i45.6579. PMID: 31832000

6. Lowe D, John S. Autoimmune hepatitis: Appraisal of current treatment guidelines. World J Hepatol. 2018 Dec 27;10(12):911-923. doi:10.4254/wjh. v10.i12.911. PMID: 30631396

7. Vanessa Sostre, Hiren G Patel, Abdalla Mohamed, Ariy Volfson. A Case of Acute Autoimmune Hepatitis Superimposed on Chronic Hepatitis B Infection. Case Rep Gastrointest Med. 2018 Apr 1; 2018:2139607. doi: 10.1155/2018/2139607. eCollection 2018. PMID: 29805819

8. Eirini I Rigopoulou, Kalliopi Zachou, Nikolaos Gatselis, George K Koukoulis, George N Dalekos. Autoimmune hepatitis in patients with chronic HBV and HCV infections: patterns of clinical characteristics, disease progression and outcome. Ann Hepatol. 2013 Jan-2014 Feb;13(1):127-35. PMID: 24378276

9. Pawłowska M, Halota W. Acute liver failure caused by concurrent autoimmune hepatitis and hepatitis B in a 16-year-old girl. World J Hepatol. 2010 Oct 27;2(10):392-4. doi: 10.4254/wjh. v2.i10.392. PMID: 21160949

10. Murakami C, Hino K, Okazaki M, Fujii K, Okuda M, Hanada H, Yamasaki T, Okita K. Hepatitis B virus carrier status linked to autoimmune hepatitis. Intern Med. 1996 Jun;35(6):468-71. doi: 10.2169/internalmedicine.35.468. PMID: 8835598

11. Alvarez F, Berg PA, Bianchi FB, Bianchi L, Burroughs AK, Cancado EL, Chapman RW, Cooksley WG, Czaja AJ, Desmet VJ, Donaldson PT, Eddleston AL, Fainboim L, Heathcote J, Homberg JC, Hoofnagle JH, Kakumu S, Krawitt EL, Mackay IR, MacSween RN, Maddrey WC, Manns MP, McFarlane IG, Meyer zum Büschenfelde KH, Zeniya M, et al. International Autoimmune Hepatitis Group Report: review of criteria for diagnosis of autoimmune hepatitis. J Hepatol. 1999 Nov;31(5):929-38. doi: 10.1016/s0168-8278(99)802979. PMID: 10580593