ORIGINAL RESEARCH PAPER

Medicine

KEY WORDS:

CYTOMEGALOVIRUS- INDUCES HEPATITIS IN AN IMMUNOCOMPETENT PATIENT.

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INTRODUCTION:

Hepatitis is a descriptive term given for any inflammation of the liver. It can be characterised as inflammatory cells infiltrating normal hepatic parenchyma, which destroys their ability to perform normal physiologic functions. Hepatitis is a common disorder in immunocompetent populations, mainly attributed to viruses, alcohol, drug, or autoimmune causes.

Cytomegalovirus(CMV) is a dsDna virus belonging to the family of Herpesviridiae and subfamily Betaherpesviridiae. It is also known as HSV-V, in line with the more popular HSV-1 and HSV-II nomenclature, as they belong to the same family. CMV- associated diseases and their subsequent presentations depend mostly on the age at infection and immunity status of the patient. With respect to neonates, it is the member of TORCH group of organisms, which results in hydrops fetalis and various fetal malformations; however, after the neonatal period, CMV results in asymptomatic infection in almost 90% of the reported cases. The illness that develops in the adults usually mimics of infectious mononucleosis, but in heterophile-negative, which distinguishes it from the heterophile-positive EB virus. CMV is, in most cases, remains latent in body, similar to its herpes virus counterparts, and is benign in immunocompetent hosts. however, if the immune status of the individual declines, the virus can reactivate & can cause dysfunction in multiple organs, including but not limited to: Pneumonia and pulmonary embolism, myocarditis, encephalitis, retinitis, hemolytic anemia and portal vein thrombosis. the most common manifestations of CMV are gastrointestinal in nature and present as esophagitis and colitis.. some sporadic cases of fatal fulminant hepatits and cholecystic jaundice have also been reported.this report describes a case of hepatitis due to CMV in an otherwise immunocompetent host, which is often undiagnosed and unrecognized causative agent of hepatitis.

CASE REPORT:

Cytomegalovirus is a virus mostly affecting immunocompromised patients, resulting in infectious mononucleosis like symptoms as well as hepatits in liver transplant patients, but is generally benign in immunocompetent hosts. this report presents an unusual case of hepatitis caused by cytomegalovirus in an immunocompetent patient with previous herpes simplex virus infection.

A 15 year old indian woman presented to emergency department with chief complaint of intermittent subjective fevers and chills, sore throat, non productive cough and decreased appetite for 10-15 days. She reports never having measured her temprature at home but aftwe feelimg feverish, frequently took paracetamol for symptomatic relief. The symptoms progressively worsond over 15 days, which ultimately promted her to seek treatment. She reports feeling well 15 days ago until she developed sore throat prior to having fevers. She denied any recent contacts,travel or TB exposure. her only significant past medical history included migraines.

On admission, the patient was febrile, with temperature of 102°F. Her vital signs were significant for mild tachycardia with pulse rate of 104 bpm and tachypnoea with RR of 25 per minute. Her BP was within normal limits at 114/70 mm of Hg and she was saturating 100 % oxygen to room air. She was icteric and her liver was just palpable below right coastal margin, spleen not palpable. The rest of her physical examinations regarding abdomen , was grossly unremarkable and within normal limits. Laboratory data releaved a slighlty increased WBC count of 10,900cells/ml of blood with 10% bands and 22% atypical lymphocytes and 4% basophils. She was negative for rapid Strept test, negative monopst, and a non reactive to HIV test. Her PT was 17, INR 1.37 and Aptt 37.5. She was negative for KF ring. ANA by IF was negative. Her chest x-ray result was normal and abdominal USG revealed mildly increasd echogenecity of her portal triad. Her gall bladder and biliary system were normal in size. CT abdomen and pelvis revealed mild hepatic steatosis but was otherwise unremarkable.

Complete metabolic profile revealed an elevation in alanine Transaminase (ALT) at 614 U/L, aspartate Transaminase (AST) at 594U/L, and an alkaline phosphatase of 107U/L. The AST/ALT ratio, often a useful diagnostic marker for hepatic dysfunction was not significant, as ratio was 1.03. a total bilirubin level was well within normal range. the symptoms of the patient and the mild steatosis, with increase in both ALT & AST, clearly suggested hepatitis. further work up with pan culture of her blood and urine were ordered on admission. the patient was started on the sysytemic inflammatory response syndrome (SIRS) criteria protocol & was given a 500 cc bolus of normal saline followed by maintenance fluid at 1500 cc/hour. she was placed on gastrointestinal prophylaxis.

Throughout her in patient stay, the patient remained stable with the exception of continuous spikes in temperature causing fevers as high as 103°F in the evenings and onset of diarrhoea. A workup of the diarrhoea was initiated with cultures of her stool, which was also sent for ova and parasite testing; both were normal and as well as a fecal occult blood test (FOBT). With the backdrop of strong suspicion for hepatitis, a hepatitis panel for A, B & C as well as ANA profile to rule out autoimmune causes, were done and both were negative. A CBC was performed with Peripheral smear and flow cytometry, revealing atypical lymphocytosis with no evidence of clonality. serology was positive for CMV IgM at 1.6 and HSV IgM, IgG and EBV IgG were not detected. Quantitative PCR is the criterion standard for the early detection and management of CMV infections. The presence of specific (1000 to 100000 copies/ml) CMV DNA is in a clinical specimen may suggest active infection, reactivated infection, or latent infection without disease. However due to unavoidable circumstances, CMV PCR was not done in this patient. Given the acute nature of hepatitis and all the causes of hepatitis being excluded, it can be inferred that the patient had an acute CMV infection due to IgM positive and a negative IgG for CMV, resulting in elevation of her LFT and subsequent hepatitis, despite the lack of CMV QPCR results.

DISCUSSIONS:

Hepatitis is a common disease entity caused by a multitude of processes. Drug and other environmental factors such as acetaminophen overdose or other chemical exposure, autoimmune phenomenon such as hemochromatosis, Wilson's disease or Primary Biliary Cirrhosis, idiopathic physiologic occurrence such as non-alcoholic steatotic hepatitis(NASH) or most commonly as manifestation of chronic viral illness with hepatitis B & C, are all possible factors including hepatitis. However reports of CMV induce hepatitis are rare especially in immunocompetant individuals. Much of medical literature implicating CMV as the causative agent for hepatitis involves either immunocompromised host or previous orthotopic liver transplant recipients. In these caes, the incidence of CMV hepatitis runs from as low as 2 to 17% to as high as 34%. The viral burden is compounded by a series of factor, including immunosupressive regimens, the serological status of a positive donor and a high viral load in peripheral blood.

Acute Fulminant Hepatitis due to CMV requiring emergency Liver transplant in an immunocompetant patient has benn described, but these two are rare occurrences. More commonly seen, those still infrequent, are the sporadic cases of CMV- induced hepatitis not resulting in fulminant hepatic failure. The first such case of CMV related hepatitis was reported by Lamb and Stern. Like most of the reported cases, the disease presents with abnormal LFTs, including a slight increase in serum total bilirubin and serum alkaline phosphatase, as well as concurrent transaminitis of ALT & AST not exceeding 5 times f the nromal value. Again, the disease process in immunocompetant patient is usually- Self limiting in nature. In our case, the patient presented with a high fever and few other symptoms without serology for CMV it would have been impossible to determine the cause, indicating its importance in differential diagnosis after all other likely causes have been ruled out.

CONCLUSIONS:

We present a case of hepatitis caused by CMV in a young and immunocompetant female patient. Although there are a few cases of fatal fulminant hepatitis caused by CMV, this is one of the few cases of CMV induced hepatitis in immunocompetant patient that followed an otherwise subclinical course. This report emphasis the need to investigate CMV as a causative agent irrespective of immune status in a patient with hepatitis when clinical signs and history warrant such testing.

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