The Chronic Liver Diseases from Autoimmune cause, Autoimmune Hepatitis (AIH): Updating Review

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Abstract

The classic autoimmune liver diseases (AILDs) are one of the main causes of chronic liver disease; which include primary biliary cirrhosis (PBC), autoimmune hepatitis (AIH) constitute and primary sclerosing cholangitis (PSC).This pathological condition represents an immune attack on the bile epithelial liver cells, which leads to chronic inflammation in the liver, due to the proliferation of cells and the deposition of the matrix proteins between the hepatocytes and their types. Then the liver cells gradually lose their functions until the liver reaches the stage of myofibroblasts.

The liver lost its functions inevitably and gradually gets until the liver loses its normal size leads to high blood pressure in the hepatic portal vein and from here begins the rapid deterioration of the liver condition so this requires follow-up and monitoring of liver cirrhosis and at this stage requires a liver biopsy examination In this case, liver transplantation is the effective and golden treatment option for liver disease at this stage. The abundance of MHC receptors class II in the surface liver cells, genetic predisposition or due to acute infection of the liver, leads to an immune response in the body, which leads to autoimmune hepatitis. This abnormal immune response leads to persistent hepatitis, which may lead to more symptoms and complications such as fatigue and cirrhosis. The disease may be related to race or age, diagnosis is often after the age of 40 years.

Key words: Autoimmune Hepatitis (AIH); Immune response; Chronic liver disease

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Introduction

Chronic liver diseases are fatal diseases that affect humans. There are many causes for these diseases such as viral hepatitis, consumption of alcohol, autoimmune disease or for unknown causes. Chronic liver disorders with autoimmune cause include autoimmune hepatitis (AIH), primary biliary cirrhosis (PBC) and primary sclerosing cholangitis (PSC). In

general, all diseases correspond to “multiple hit hypothesis”; as diseases are associated with several symptoms leading to other complications and diseases as a result of the deterioration of steps resulting from autoimmune diseases [1]. Autoimmune hepatitis (AIH) is a chronic idiopathic immune disease [1-3] It is associated with increased levels of circulating antibodies and an excessive increase in liver enzymes and hypergammaglobulinemia in the bloodstream.

AIH was first discovered by Amberg at 1942 [2] and then at 1950, Waldenstr O¨ record a form of chronic hepatitis in young women related to jaundice, rise in serum immunoglobulins concentration, and amenorrhea [3]. Many names were suggested to this condition (such as plasma cell hepatitis & lupoid hepatitis) [3, 4], Mackay *et al*. at 1965 described these conditions as (autoimmune hepatitis) [5]. AIH is differentiate by increase liver enzymes levels, with positive result for (ANA: non-disease-specific antinuclear antibodies) and also give positive result for SMA: smooth muscle antibodies, which are the histological hallmark of AIH interface hepatitis on liver biopsy, and an optimal response to steroids in most patients [6].

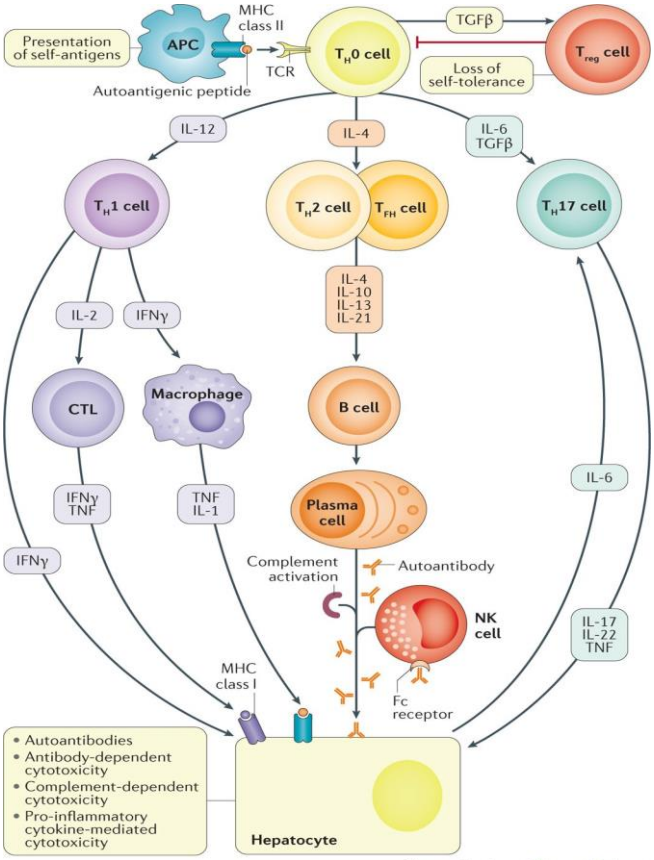

Figure 1.

Autoimmune hepatitis and immune response [6].

Epidemiology and Etiology

Autoimmune liver disease is the cause about 20% from all cases of chronic liver disease [7] and the possibility of developing the disease of 1: 5,000–1: 10,000 around the world [8]. Chronic liver disease caused by autoimmunity is less than that caused by viral hepatitis [9]. Studies show that in chronic liver disease; women are more likely to be infected than men, 8 female patients from every [10] although AIH, females make up 75.7% of the patients [11]. Autoimmune diseases of the liver usually affect young people in greater proportions than the elderly, only 20% of the patients is over 60 years old [12].

In addition to age and gender, the possibility of contracting the disease is affected by environmental factors, race, and geographical distribution, as Japan is the highest prevalence the other countries. In Iraq, the incidence of immune liver disease as a cause of chronic liver disease has not been documented within approved statistics.

The Classification of AIH according to Serological parameters

Liver disease autoimmune classified into two types: AIH1 &AIH2. The type 1 was occurred in all ages and accounts for 80% from the total Probability of disease incidence. Usually, the diagnosis occurs between age 20 to 40. Type 1 give positive results in ANAs and SMAs but these tests were non-specific test to detect this case but they can use to monitor the development of disease [13]. Anti-liver kidney microsomal type 1 (LKM1) antibody another serological parameter can be detect AIH-2 which make about up to 11% from the HCV-infected subjects. Anti-liver cytosol type 1 (LC1) antibodies are less common, but it is part of the serological tests profile to diagnose chronic liver diseases caused by autoimmune reason.

Anti-Soluble Liver Antigen (SLA), the detection of these antibody was very useful in diagnosis because this test was highly specific to detect the AIH. Antineutrophil Cytoplasmic Antibodies (ANCA, MPO, PR3) were used to diagnosis ad following the autoimmune disorder that causes inflammation [14].

Diagnosis

Autoimmune liver disease can be diagnosis by several ways, but it requires the presence of most of the diagnostic indicators in order to be sure of the disease. The indicators approved in the diagnosis are as shown below [15]:

1. Blood tests:

Serological examination is one of the approved methods of diagnosis, including LKM1, ANAs, SMAs, SLA and ANCA. ANAs and SMAs may also give positive staining in both chronic hepatitis B & C and non-alcoholic fatty liver disease (NAFLD).

The p-ANCAs and LKM-1 have also been detected in of chronic hepatitis C patients. Based on that, we can say that the serological tests are non-specialized tests, although it cannot be dispensed with the diagnosis, but the diagnosis must be strengthened with other tests [16].

Parameters/features	Score	Notes
Female sex	+2	
ALP : AST (or ALT) ratio:		
<1.5	+2	1
1.5–3.0	0	
>3.0	–2	
Serum globulins or IgG above normal		
>2.0	+3	
1.5–2.0	+2	
1.0–1.5	+1	
<1.0 0		
ANA, SMA, or LKM-1		
>1 : 80	+3	2
1 : 80	+2	
1 : 40	+1	
<1 : 40	0	
AMA positive	–4	
Hepatitis viral markers:		
Positive	–3	3
Negative	+3	
Drug history:		
Positive	–4	4
Negative	+1	
Average alcohol intake		
<25 g/day	+2	
>60 g/day	–2	
Liver histology:		
Interface hepatitis	+3	
Predominantly lymphoplasmacytic infiltrate	+1	
Rosetting of liver cells	+1	
None of the above	–5	
Biliary changes	–3	5
Other changes	–3	6
Other autoimmune disease(s) +2 7		
Optional additional parameters:		8
Seropositivity for other defined autoantibodies	+2	9
HLA DR3 or DR4	+1	10
Response to therapy:		
Complete	+2	11
Relapse	+3	
Interpretation of aggregate scores:		
Pretreatment:		
Definite AIH	>15	
Probable AIH	10–15	
Posttreatment:		
Definite AIH	>17	12
Probable AIH	12–17	

2. Clinical Examination

Clinical examination is very similar to the symptoms and signs of cirrhosis which are involved ascites, hepatic encephalopathy, portal hypertension and variceal bleeding [17].

3. Liver Biopsy

A liver biopsy is recommended for the final diagnosis for AIH. Also, doe to distinguish between AIH and other liver diseases [18].

Treatment

The AIH treatment is more commonly achieved (about 80% of patients) within 2 years of immune-suppressive therapy. The AIH therapy is classified into two phases, which include of the induction of remission and the subsequent remain of the remission. The classic treatment is depending on either eight Autoimmune Diseases the use of corticosteroids alone or in combination with azathioprine (AZA), which alleviates the side effects that are associated with steroids. Both regimens are equally effective [19]. Prednisolone and prednisone are initiated at a dose of 1 mg/kg with a maximum of 60mg per day in prednisolone or one therapy or a at upper dose of 20– 30 mg/day in combination therapy. Azathioprine is initiated at a dose of 1-2mg/kg. After the ALT and AST levels normalize, the prednisolone dosage can be reduced by 10mg on a weekly basis until a dose of 20 mg per day is achieved; a slower reduction of the dose is advisable after this point [20]. A strict adherence to the treatment regimen is important to achieve remission. A systematic review of randomized controlled trials on the treatment of AIH has shown that prednisolone monotherapy and combination therapy with AZA are both effective induction therapies for first-time treatment and relapses, whereas prednisolone in combination with AZA or AZA monotherapy is the superior maintenance therapy [21, 22].

Ethical Approval

The study was approved by the Ethical Committee.

Conflicts of Interest

The author declare that he has no competing interests.

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