Anti-nuclear Antibody and Liver Disease Spectral Test Results Analysis in Autoimmune Liver Disease

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Abstract: Autoimmune liver disease (ALD) is injury sustained by the body's own antibodies to the inflammatory response. Liver tissue are involved and may be the main cause of chronic liver disease, including autoimmune hepatitis (AIH), primary biliary cirrhosis (PBC) and primary sclerosing cholangitis (PSC). Laboratory tests, in particular autoimmune liver disease spectrum, antinuclear antibodies and spectral detection, diagnosis and differential diagnosis of these diseases are particularly important. We included 148 cases of common liver disease, autoimmune liver disease spectrum, anti-nuclear Antibodies and spectral detection, to observe the results and analysis, in order to improve the understanding of this disease.
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Introduction:

Autoimmune liver disease (ALD) is injury sustained by the body's own antibodies to the inflammatory response. Liver tissue are involved and may be the main cause of chronic liver disease, including autoimmune hepatitis (AIH), primary biliary cirrhosis (PBC) and primary sclerosing cholangitis (PSC). Characteristic symptoms of these diseases and the cause is unknown, the reason being the lack of clear diagnostic criteria, and sometimes difficult to identify with viral hepatitis and other liver diseases [1]. Laboratory tests, in particular autoimmune liver disease spectrum, antinuclear antibodies and spectral detection, diagnosis and differential diagnosis of these diseases are particularly important. We included 148 cases of common liver disease, autoimmune liver disease spectrum, anti-nuclear Antibodies and spectral detection, to observe the results and analysis, in order to improve the understanding of this disease and are reported below.

1. Material and Methods

1.1 General information: General information was collected in our hospital from January 2009 to May 2012. We also collected specimens of hospitalized patients, 148 cases of patients with liver cirrhosis patients in 54 cases, 45 cases of patients with liver damage, jaundice 34 patients, as well as other liver diseases 15 cases, including84 male and 64 females, aged from 15 to 79 years old, the average age was 59.2 years. Patients with liver disease in 61 cases, 15 males and 46 females, aged 2 to 86 years, with an average age of 45.98 years. The clinical diagnosis was consistent with the corresponding diagnostic criteria. Healthy subjects were 48 cases of the control group, 17 males and 31 females, aged 21 to 66, with an average age of 55 years old.

1.2 Methods:

1.2.1 Two different groups were formed. Patient group and control group. In the morning Peripheral blood 4 ml in the morning in fasting state, and the serum was separated by centrifugation.

1.2.2 Specimens

1.2.3 Autoimmune liver spectral detection: Western blot, Germany IMTEC kit, strictly according to the instructions. 6 antibody can be detected, respectively, for the anti-mitochondrial antibodies (AMA-M2) anti liver / the renal microsomal antibodies (LKM1), anti-soluble liver antigen (SLA), the anti-soluble acidic nucleoprotein antibody (SP100), anti-nuclear membrane glycoprotein antibody (gp210), anti-liver cytoplasm I antigen-antibody (LC-1).

1.2.4 Antinuclear antibody detection: By enzyme-linked immunosorbent assay, Germany IMTEC kit, strictly according to the instructions; used the instrument Statfax-2100 microplate reader, the reference value 0-1.

1.2.5 The antinuclear antibodies lines detection: Western blot, Germany IMTEC production kit, strictly according to instructions. There were 12 different antibodies were anti SSA-A/RO 60KD, anti-SSA-A/RO 52kD, anti-SSB signal, anti-SmD1, anti-U1-snRNP, anti-Scl-70, anti-JO-1, Anticentromere antibody (A-CENP-B), anti-ribosomal antibody PO (A-Rib), anti-ds-DNA,

anti-histone antibody (AHA), The anti-nucleosome antibodies (ANuA).

1.3 Statistical analysis: SPSS19 statistical package to deal with the 2 × 2 tables, and carry out the examination or using Fisher's exact test. *P <0.05* was considered statistically significant.

2. Result

2.1 Autoimmune liver spectrum detection cirrhosis of the group of anti-AMA-M2, anti-LKM1, anti-sp100 positive cases with the control group was statistically significant, compared with non-liver disease, anti-LKM1 statistically significant. The liver damage group in the anti-the AMA-M2 、 anti-gp210 anti-LC-1 of positive cases the number of with the control group comparison, were not statistically significant (P> 0.05) Illustrated in Table 1.

Table 1.Autoimmune liver disease spectrum test results [case in (%)]

Groups	Cases	AntiAMA-M2	AntiLKM1	AntiSLA	Antisp100	Antigp210	AntiLC-1
Liver Cirrhosis	54	6(11.11%)[a]	8(14.81%)[ab]	0(0%)	2(3.70%)	0(0%)	0(0%)
Liver Damage	45	4(8.89%)	0(0%)	0(0%)	0(0%)	3(6.67%)	1(2.22%)
Jaundice	34	0(0%)	0(0%)	0(0%)	0(0%)	0(0%)	0(0%)
Other Liver Diseases	15	1(6.67%)	0(0%)	0(0%)	0(0%)	0(0%)	0(0%)
Non-Liver Diseases	61	9(14.75%)[a]	0(0%)	0(0%)	2(3.27%)	6(9.84%)[a]	2(3.27%)
Control Group	48	0(0%)	0(0%)	0(0%)	0(0%)	0(0%)	0(0%)

Comparison of control group with non-liver disease group at the P <0.05

2.2 Antinuclear antibodies and spectral detection cirrhosis: ANA, anti-SmD1, A-CENP-B-positive cases compared with the control group, ANA was statistically significant, compared with non-liver disease group, were not statistically significant. Liver damage ANA, anti SSA-A/RO60KD of, the anti-SSA-A/RO52KD, anti-SSB positive cases compared with control group, ANA was statistically significant. The jaundice group only ANA 3 cases were found with non-liver disease group was statistically significant. Only ANA group of other liver diseases detected in 4 cases, compared with the control group, with statistical significance. Non-liver disease group ANA, anti-SSA-A/RO 60KD, to anti-SSA-A/RO 52kD, anti-SSB signal anti-SmD1, anti-U1-snRNP, anti-Scl-70, A-CENP-B, A-Rib, anti-ds-DNA, AHA, ANuA positive cases with the control group, ANA was statistically significant. As shown in table 2 and table 3.

Table 2. Antinuclear antibodies and spectral test results [Case(%)]

Groups	NNumber	ANA	AntiSSA-A/RO 60KD	AntiSSA-A/RO 52KD	AntiSSB	AntiSmD1	Antiu1-snRNP
Liver Cirrhosis	54	16(29.63%)*	0(0%)	0(0%)	0(0%)	2(3.70%)	0(0%)
Liver Damage	45	9(20.0%)[a]	3(6.67%)	4(8.89%)	3(6.67%)	0(0%)	0(0%)
Jaundice	34	3(8.82%)[b]	0(0%)	0(0%)	0(0%)	0(0%)	0(0%)
Other liver disease	15	4(26.67%)*	0(0%)	0(0%)	0(0%)	0(0%)	0(0%)
Non-liver disease	61	20(32.79%)*	8(13.11%)	6(9.84%)	2(3.28%)	4(6.56%)	1(1.64%)
Control Group	48	2(4.17%)*	1(2.08%)	0(0%)	0(0%)	0(0%)	0(0%)

Table3. Antinuclear antibodies and spectral test results [Case(%)]

Groups	Number	AntiScl-70	AntiJO-1	A-CENP-B	A-Rib	Anti ds-DNA	AHA	ANuA
Liver cirrhosis	54	0(0%)	0(0%)	2(3.70%)	0(0%)	0(0%)	0(0%)	0(0%)
Liver Damage	45	0(0%)	0(0%)	0(0%)	0(0%)	0(0%)	0(0%)	0(0%)
Jaundice	34	0(0%)	0(0%)	0(0%)	0(0%)	0(0%)	0(0%)	0(0%)
Other Liver disease	15	0(0%)	0(0%)	0(0%)	0(0%)	0(0%)	0(0%)	0(0%)
Non liver disease	61	1(1.64%)	0(0%)	3(4.92%)	2(3.28%)	3(4.92%)	3(4.92%)	3(4.92%)
Control Group	48	0(0%)	0(0%)	0(0%)	0(0%)	0(0%)	0(0%)	0(0%)

3. Discussion

Autoimmune liver disease is a group of abnormal liver pathological damage and liver function tests as the main manifestation of autoimmune diseases, laboratory tests, in particular autoantibody detection, diagnosis and differential diagnosis of these diseases is particularly important. AIH patients ANA, ASMA (anti-smooth muscle antibodies), anti-LKM-1, anti-SLA / LP antibodies, anti-LC-1 antibody and other autoantibodies; ANA seen in a variety of connective tissue diseases and other autoimmune diseases, and therefore does not have specificity for the diagnosis of AIH. ANA, ASMA, highly prompted AIH. Anti-SLA / LP

antibody is a the AIH most specific diagnostic marker. ASMA mainly in type I AIH, anti-LKM-1 antibody, anti-LC-1 antibody specific marker of type II AIH [1], the two can co-exist, but also can stand alone. PBC can also be a variety of autoantibodies such as anti-gp210, anti-p62, anti-LBR, anti-SP10 in [2], often accompanied by ANA positive, and if the anti-SSA-A/RO 60KD anti-SSA-A / RO 52kD, anti-SSB, anti-ds-DNA, anti-nucleosome antibodies, suggesting overlap other types of autoimmune disease [3]. It is more helpful in the diagnosis of atypical PBC. But its diagnosis is mainly dependent on the detection of serum AMA, the M2 subtype diagnosis of PBC has a higher specificity and diagnostic value of PBC iconic antibody positive rate can reach more than 90% [4], this antibody earlier than the clinical years, early diagnosis is important. AMA in many diseases such as drug damage, cardiomyopathy, systemic lupus erythematosus, as well as some infectious diseases such as tuberculosis, hepatitis C, etc. can be positive, and the detection result is also affected by the methodology [2]. So the positive in the AMA needs to be combined with other indicators to diagnosis and differential diagnosis. One of the signs of anti-LKM-1 antibody is of primary biliary cirrhosis, has been widely used for the diagnosis or autoimmune chronic hepatitis; such the anti-LKM1 antibody rapidly develop into cirrhosis, 3 years up to 82% [5].

The experimental spectrum of autoimmune liver disease, antinuclear antibodies and spectral test results of 148 patients with common liver disease, cirrhosis group of anti-AMA-M2, the anti-LKM1, ANA positive rate were 11.11%, 14.81%, 29.63 %, compared with the control group was statistically significant, indicating that part may be highly suggestive of ALD is caused detect antibodies for the early diagnosis will have some help in patients with liver cirrhosis. Group of liver damage, liver disease, liver disease group ANA positive rate was 20.0%, 26.67%, 32.79%, compared with the control group, with statistical significance; the cirrhosis group anti-LKM1, jaundice group ANA positive rates were 14.81%, 8.82%, compared with non-liver disease group, with statistical significance; non-liver disease group of anti-gp210 positive rate was 9.84%, compared with the control group, with statistical significance. We note that a number of projects in non-liver disease group higher positive rate, which is related to patient selection; 61 cases, connective tissue disease, there are as many as 16 cases.

Main clinical manifestations of liver damage associated with extrahepatic autoimmune diseases, and a variety of autoantibody-positive patients, should be highly suspected the possibility of ALD. However, a variety of liver diseases may occur autoantibodies, blood biochemistry, histopathology, clinical manifestations comprehensive consideration not only to the diagnosis of ALD, has to be combined.

Unexplained so patients with hepatic impairment should be timely joint detection spectrum of autoimmune liver disease and anti-nuclear antibody and lines, which helps early diagnosis and differential diagnosis of the disease, to reduce the misdiagnosis, enable more autoimmune patients with liver disease early to get the right treatment and medication in a timely manner, so as to prevent its development, and prolong survival.

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