Role of international criteria in the diagnosis of autoimmune hepatitis

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Abstract

AIM: To study the clinical and laboratory characteristics of autoimmune hepatitis (AIH), and compare them with International Autoimmune Hepatitis Group (IAHG) criteria.

METHODS: Sixty consecutive patients with AIH attended the University Clinic at Tabriz University of Medical Sciences, Iran for a 12 mo period and were assessed in a case series study. Serological and biochemical evaluations were carried out in all patients. Autoantibodies, such as antinuclear antibody (ANA), anti-smooth muscle antibody (ASMA), anti-liver-kidney microsomal antibody (ALKM-1) type I, and perinuclear anti-neutrophil cytoplasmic antibodies (P-ANCA) were evaluated in these patients. A liver biopsy was performed after diagnosis of the disease. Patients were evaluated in terms of their signs and symptoms, and laboratory results and the degree to which they corresponded with the diagnostic criteria of IAHG. In this study, both a comprehensive diagnostic scoring system and a simplified diagnostic scoring system were employed for AIH.

RESULTS: Sixty patients, 20 male, 40 female, mean age 39.45 ± 17.50 years, participated in the study. Treatment began immediately after enrolment into the study. The percent distribution of the study population into definite and probable did not change after the treatment. The most common symptoms in descending order were fatigue (100%), icter (66.7%), abdominal discomfort (33.3%), abdominal distension (28.3%), dark urine (23.3%), edema (23.3%), hematemesis (20.0%), pruritus (20.0%), melena (11.7%) and pale stool (10.0%). At the physical examination, splenomegaly, ascites, hepatomegaly, epigastric tenderness and an abdominal mass were found in 50.0%, 16.7%, 13.3%, 5.0% and 3.3% of patients, respectively. Hypogammaglobulinemia was detected in 95.0% of cases. ALKM-1, P-ANCA, ANA and ASMA were positive in 71.4%, 66.7%, 42.4% and 19.4% of cases, respectively. Portal hypertensive gastropathy (45.0%), esophageal varices (41.7%) and cirrhosis (40.0%) were the most prevalent complications of AIH, and there was no evidence of primary sclerosing cholangitis, ulcerative colitis and overlap syndrome in these patients. According to IAHG criteria, 80.0% of cases had a definite diagnosis, 15.0% had a probable diagnosis and 5.0% had no AIH. The percent distribution of the study population into definite, probable and no AIH did not change after using the simplified diagnostic scoring system for AIH.

CONCLUSION: This research showed that the majority of cases in our study were appropriately diagnosed according to the IAHG criteria and simplified scoring system. Thus, these criteria are very useful.

Key words: Autoimmune hepatitis; International criteria; Diagnosis; Clinical; Paraclinical

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INTRODUCTION
Autoimmune hepatitis (AIH) is a chronic inflammation of the liver, the cause of which is unknown. It is characterized by the presence of interface hepatitis on histological examination, hypergammaglobulinemia, and autoantibodies\(^1\). Autoimmune hepatitis occurs predominantly in women and affects all ages\(^2\). Autoimmune hepatitis afflicts 100000 to 200000 persons in the United States\(^3\), and accounts for 2.6% of transplant recipients in Europe\(^4\) and 5.9% in the United States\(^5\). Among Northern European Caucasians, the mean annual incidence of AIH is 1.9 per 100000 population, and its point prevalence is 16.9 per 100000 population\(^6\). Three types of AIH have been proposed based on immunoeroserologic markers\(^7\). The International Autoimmune Hepatitis Group (IAHG) devised and subsequently revised scoring systems to aid in the diagnosis of AIH\(^8\). The revised 1999 criteria evaluated up to 12 patient variables to derive a score which identified individuals as “not AIH”, “probable AIH” or “definite AIH”\(^9\). Despite a high degree of sensitivity and specificity, these criteria have proven cumbersome in day-to-day clinical practice. Subsequently, the IAHG published simplified diagnostic criteria, evaluating just four parameters\(^10\). This study was designed to determine a standard and reliable method for early diagnosis and close follow-up by using the IAHG simplified diagnostic criteria and comparing clinical and laboratory characteristics in Iranian AIH patients.

MATERIALS AND METHODS
All patients who had been diagnosed with autoimmune hepatitis and had been referred to the outpatient clinic of Tabriz University of Medical Sciences from 2010 to 2011 were evaluated for clinical and laboratory parameters and compared with the diagnostic criteria of IAHG. Patient evaluation started by recording their medical history, and performing a physical examination and complete blood count. Serological and biochemical evaluation included aspartate aminotransferase, alanine aminotransferase, alkaline phosphatase, serum γ-globulin, serum albumin, total and direct bilirubin, erythrocyte sedimentation rate, prothrombin time, serum creatinine, triglyceride, total cholesterol and fasting blood sugar. The researchers also evaluated the autoantibodies such as antinuclear antibody (ANA), anti-smooth muscle antibody (ASMA), anti-liver-kidney microsomal antibody (ALKM-1) type 1 and peri-nuclear anti-neutrophil cytoplasmic antibodies (P-ANCA) by indirect immunofluorescence. A titer of $\geq 1:40$ was considered to be positive. Chronic viral hepatitis, Wilson’s disease and hemochromatosis were also assessed using hepatitis B core antibody, hepatitis B surface antibody, hepatitis C antibody, serum ceruloplasmin, urine copper, serum iron and total iron-binding capacity. Hepatitis B surface antigen was detected by enzyme-linked immunosorbent assay (Stat Fax Awareness Technology Inc., Palm City, FL, United States) and hepatitis C virus (HCV) antibody was analyzed using a third generation enzyme linked immunosorbent assay test (Ortho-Clinical Diagnostics, Amersham, United Kingdom).

A percutaneous liver biopsy was taken from all patients for histology after diagnosis of the disease. Specimens were fixed in 10% formalin, embedded in paraffin, and stained with hematoxylin and cosin, Masson’s trichrome, and reticulin. All specimens were evaluated by a single pathologist. Liver biopsies were adequate if there were at least 6 portal tracts per high-power field. A modified Hepatitis Activity Index was used to score specimens, in which necroinflammation was graded from 0 to 18 and fibrosis from 0 to 6\(^11\).

An abdominal ultrasound examination was performed in all patients, and liver size and echogenicity, splenomegaly, gallstones and ascites were assessed. The exclusion criteria were having viral (hepatitis B and C), metabolic (Wilson’s disease, hemochromatosis), or drug-induced liver disease or overlap syndrome. Continuous variables are expressed as mean ± SD Statistical analysis was carried out using SPSS, version 16.0 (SPSS Inc., Chicago, IL, United States). The study protocol was approved by the Ethics Committee of the Liver and Gastrointestinal Diseases Research Center of Tabriz University of Medical Sciences, and informed consent was procured from all patients before enrolment in the study.

RESULTS
Sixty patients with AIH were evaluated, of whom 40 (66.7%) were female. The mean age was 39.45 ± 17.50 years (range, 19-75 years). Twelve patients had a familial history of liver disease (20.0%) and 8 patients had a familial history of AIH (13.3%). Four patients (6.7%) were diagnosed with other simultaneous autoimmune diseases. None of the patients had a history of hepatotoxic drug use. Patient characteristics are described in Table 1.

The most common symptoms in descending order were fatigue (100%), icterus (66.7%), abdominal discomfort (33.3%), abdominal distension (28.3%), dark urine (23.3%), edema (23.3%), hematemesis (20.0%), pruritus (20.0%), melena (11.7%) and pale stools (10.0%). At the time of physical examination, splenomegaly, ascites, hepatomegaly, epigastric tenderness and abdominal mass were found in 50.0%, 16.7%, 13.3%, 5.0% and 3.3% of the patients, respectively. Portal hypertensive gastropathy (45.0%), esophageal varices (41.7%) and hepatic cirrhosis (40.0%) were the most common complications in the patients.

The proportion of patients seropositive for ALKM1, P-ANCA, ANA and ASMA patients was 71.4%, 66.7%,
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Background

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In summary, the range of antibody positivity in the above-mentioned studies were: ANA 15.0%-98.0%, ASMA 3.0%-80.0%, ALKM1 0%-6.0% and P-ANCA 2.6%-81.0%. The ranges in the present study are mostly in the reported ranges. Although technical differences in measurement of antibodies in different centers can produce some variability in the results, these wide differences may be a sign of racial differences in patients with AIH. This issue requires more controlled studies. Also, the present study had a small sample of patients and larger studies are required in future to examine the applicability of antibody measurements.

In the present study, 95.0% of patients were diagnosed using the diagnostic criteria of the IAHG. Several studies which had been conducted around the world that insisted on using these criteria, including Heurgué et al[21] in Italy, Koay et et al[13] in Taiwan (China), Lee et al[22] in Southern Korea, Michalska et al[23] in Poland, Primo et al[24] in Spain, Zhao et al[25] in China, McFarlane et al[26] in England and Yatsuji et al[27] in Japan.

In conclusion, this research showed that the majority of cases in the present study were diagnosed according to the criteria of IAHG and the simplified scoring system. There were some deficiencies in autoantibodies assessment; therefore, recommendations are made for controlled studies to diagnose the probable causes of these deficiencies.

REFERENCES


