

Clinical Analysis of Virological Tests for Patients with Hepatitis B

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ABSTRACT

Objective: Objectives: To discuss the results of virological tests for patients with hepatitis B, improve the correctness and accuracy of virological tests for hepatitis B and accumulate experience in clinical diagnosis and testing work for hepatitis B. **Methods:** By selecting 206 patients with hepatitis B who underwent virological and serological tests in the laboratory department at our hospital to analyze the materials of virological and clinical laboratory results for their hepatitis B. **Results:** HBsAg positive takes up 84.0%, HBsAb positive 10.7%, HBeAg positive 45.6%, HBeAb positive 57.8% and HBcAb positive 78.2%. **Conclusion:** It is of crucial importance to perform virological tests for patients with hepatitis B, examine five markers of hepatitis B virus accurately and take timely and effective preventive and therapeutic measures.

Introduction

Hepatitis B is Hepatitis B virus-related disease, an infection caused by the Hepatitis B virus (HBV). It is transmitted via blood and bodily fluids and can lead to chronic disease. The prevalence of HBV-related diseases in China with high rates of HBV infection is highly linked to eating habits of our country. This disease has a long incubation period with diversified clinical features, as well as typical clinical symptoms in most of patients, therefore it is generally found after examined. In this paper, blood specimens of patients who conducted hepatitis B testing are analyzed and summarized with a reported now outlined as follows:

1. Materials and methods

1.1. General materials

Materials of Hepatitis B virological and clinical laboratory

results for 206 patients with hepatitis B who underwent virological and serological tests in the laboratory department of our hospital were selected. Among them are 123 men and 83 women, between the ages of 14 and 58, with a mean age of 37.4 years.

1.2. Methods

A fasting blood sample is collected in the morning and it should be ensured that patients get enough sleep, do not drink alcohol and do not take drugs before blood collection to prevent the correctness of the examination results from being affected. After the serum is separated through centrifugation, detections are carried out on each blood specimen according to the requirements of the detection kit. Negative or positive results are recorded in the order of five markers of HBsAg, HBsAb, HBeAg, HBeAb and HBcAb.

1.3. Observation indexes

The positive rates of serological and virological markers for all the subjects are compared. The detection rates of the “three big positives” and “three small positives” of the patients are comprehensively compared. Here the three big positives mainly means HbsAg positive, HBeAg positive and HBsAb positive, and the three positives means HBsAg positive, HBeAb positive and HBcAb positive.

1.4 Statistical treatment

With the professional statistical software SPSS 20.0, the

count materials in the data were calculated in X2 test and the measuring materials in the data calculated in t-test, and there is statistically significant difference when $p < 0.05$.

2. Results

The proportion of HBsAg positive is 84.0%, the proportion of HBsAb positive 10.7% and HBeAg positive 45.6%, HBeAb positive 57.8%, and HBcAb positive 78.2%,. See Table1.

Table 1. Results of two-and-a-half pair' HBV tests for patients with Hepatitis B

Five markers of liver function	Postive cases	Postive rate (%)
HBsAg	173	84.0
HBsAg	22	10.7
HBsAg	94	45.6
HBsAg	119	57.8
HBsAg	161	78.2

Postive detection rates of virological tests for two groups

Group	HBsAg (%)	HBsAb (%)	HBeAg (%)	HbeAb (%)	HBcAb (%)
Experimental Group	71 (88.75)	17 (21.25)	38 (47.50)	51 (63.75)	60 (75.00)
Control Group	9 (30.00)	2 (6.67)	5 (16.67)	7 (23.33)	10 (33.33)

From comparison, it can be seen that there is significant difference between the positive detection rates of virological tests for patients in the experimental group and the control group, and there is statistical significance at $p < 0.05$.

3 Discussion

In clinical medicine, hepatitis B virus is a virus with heap features, which will cause great damage to liver cells in patients and continues to replicate itself in liver cells in patients and resides in liver cells in patients permanently. It easily causes damage to liver cells leading to fibrillation of liver cells and thus death of liver cells in patients, with the occurrence of inflammatory reactions.

When a patient with hepatitis is examined clinically, if HBsAg in the patient is positive after the examination, it means the patient has been infected with hepatitis B virus. An important indicator of infection with hepatitis B virus is HBsAg in patients is positive. If HBsAb in a patient is positive, it means there are antibodies against hepatitis B inside the patient, in other word, the patient will not be infected with hepatitis B virus. HBeAg mainly represents

the infectious capacity of patients with hepatitis B or indicates related cases of its core factors. If HBeAg has great content, it means the patient have a strong infectious capacity; otherwise it means the patient has a weak infectious capacity. If HBeAb in a patient is positive, it is verified that the hepatitis virus in the patient basically cease to reproduce itself in cells, and to some extent, it suggests that the patient is lowly infectious. If HBcAb in a patient is positive, it means the patient has a history of hepatitis B infection and is currently in the process of rehabilitation.

In clinical examination, the three big positives means HBsAg, HBcAb and HBeAg are positive and it also indicates there are a large number of hepatitis B viruses in patients with high replication performance and strong infectious capacities. The three small positives means HBsAg, HBcAb and HBeAb are positive. If the examination shows a patient is with three small positives, it means there are a relatively small amount of hepatitis B viruses inside the patient. If the patient remains in this state for a long period of time, there is a possibility to develop a cancer in the patient. During the clinical treatment, fiver markets of the tested patient are negative,

and then it means the patient does not have a history of hepatitis B infection and there are no antibodies against hepatitis B, and it suggests that the patient is easy to get infected, so at this point, the patient needs to receive the hepatitis B vaccine. Qualitative tests for three main types of hepatitis B are used to judge whether a patient gets infected with hepatitis B or conduct a rough estimation and check and is less referential to the assessment of conditions of patients, hence when patients with hepatitis B undergo qualitative tests for three main types of hepatitis B, it is required to combine liver function tests, Hepatitis B virus (HBV) testing, B-scan ultrasound examination etc. to determine the conditions of patients.

Hepatitis B highly prevails in our country with the rate of HBV infection over 50% in most regions, therefore, if intervention treatment is not carried out on patients timely, then after the deterioration of conditions, organic and functional lesions in many organs such as cirrhosis and cancer appear, posing a threat to the life safety of patients. So in the case of hepatitis B, the accomplishment of early examination and early diagnosis can effectively improve the effectiveness of clinical diagnosis. With this study, it can be concluded in the analysis on the results of virological tests that HBsAg is mainly an important mark of the body getting infected, and therefore when a test is performed on the HBsAg, protective antibodies will come to being on the surface of hepatitis B virus after the body is infected with a virus, so that it is possible to defend against the invasion of virus cells to change the body tissues of patients, and thus achieve immunity against hepatitis B virus.

If HBsAg is positive, it means hepatitis B virus activities are more frequent and it also indicates the liver of patients is largely damaged, the condition of patients is assessed and effective interventions were conducted. If hepatitis B virus core antigen is positive, it means patients carry hepatitis B virus and are not in the infection state. Comprehensive testing of five markers of hepatitis virus can realize the diagnosis of patients and effectively assess the condition of patients. This method of diagnosis can greatly improve the positive detection rate of hepatitis B virus and better realize the assessment on the post cure cases of conditions, and also has an important significance in the clinical testing of hepatitis B virus.

In virological tests, and due to the ease of hepatitis B virus to mutate plus limitations on methods for qualitative detection of hepatitis B, false negative results will appear so that hepatitis B infection cannot be found timely and a timely therapy cannot be achieved, resulting in a threat of

being infected to medical staff and other patients. Quantitation of five markers of hepatitis B is detected using current cutting-edge chemiluminescence, which avoids false negative and missing problems and accurate, and especially offers a basis for curative effect observation on patients with hepatitis B. It is a trend in the development of tests.

In short, detailed virological inspection on hepatitis B patients can effectively promote a more accurate detection of five markers of hepatitis B in patients with hepatitis B, which have an effective clinical role and value in the prevention of hepatitis B.

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