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Liver Functional Tests in Patients with Liver Cirrhosis and Chronic Hepatitis Diagnosed by Operative Biopsy of the Liver

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ABSTRACT

The results of the liver functional tests in 45 cases of liver cirrhosis (LC) and 29 cases of chronic hepatitis (CH) confirmed by liver biopsy during operation were compared and studied. It was recognized that there were significant differences of albumin ($p<0.05$), prothrombin time ($p<0.01$), cholinesterase ($p<0.01$) and KICG ($p<0.05$) between LC and CH. The rate of hospital death in LC group proved to higher that that in CH group. Therefore, in the cases where LC is diagnosed before or during operation and the decrease in the above four parameters were low, careful consideration for the selection of surgical formulas and post-operative treatment are required.

So far the authors[2], when an operation was given to the digestive system, have performed operative biopsy of the liver for the cases suspected to have lesions in the liver by preoperative liver functional tests or by operative diagnosis. After the histopathological diagnosis of the biopsied liver, the outcome was divided into three groups of LC, CH and normal/mild lesion, and the relationship with the rate of hospital death was examined. The results showed that LC was significantly high (17.7%) followed by 3.4% of CH and 3.9% of the normal/mild lesion. Thus, the hospital death due to LC was higher than that due to CH, and therefore if both could be differentiated before operation, it may be useful for the selection of the surgical formula and postoperative management. Since liver diseases are morphologically difined, it is considered most appropriate when various examinations are made to perform it on the cases diagnosed histopathologically. Accordingly in the present study, the results of the preoperative liver functional tests of LC and CH confirmed with liver biospy were compared retrospectively.

MATERIALS AND METHODS

From among 226 patients on whom liver biopsy was performed during operation, 45 patients with LC and 29 patients with CH confirmed by histopathological diagnosis were selected for the subjects. And the results of the liver functional tests performed immediately before operation were compared between both groups. The liver function tests were total bilirubin (TB), serum albumin (Alb), transaminase (GOT, GPT), cholinesterase (ChE), prothrombin time (PT) and KICG.

RESULTS

The results of the liver functional tests in patients with LC and those with CH before operation are shown in Figs. 1 through 7. As shown in them, TB was 1.16 ± 0.66mg/dl (mean ± SD) in LC patients, and 2.24 ± 2.11 in CH patients, Alb was 3.53 ± 0.56g/dl in LC patients, and 3.89 ± 0.61 in CH patients, GOT was 79.9 ± 52.2U in LC patients, and 57.1 ± 25.2 in CH patients, GPT was 60.1 ± 40.9U in LC patients, and 66.4 ± 54.3 in CH patients, ChE was 2540 ± 870U/1 in LC patients, and 3190 ± 930 in

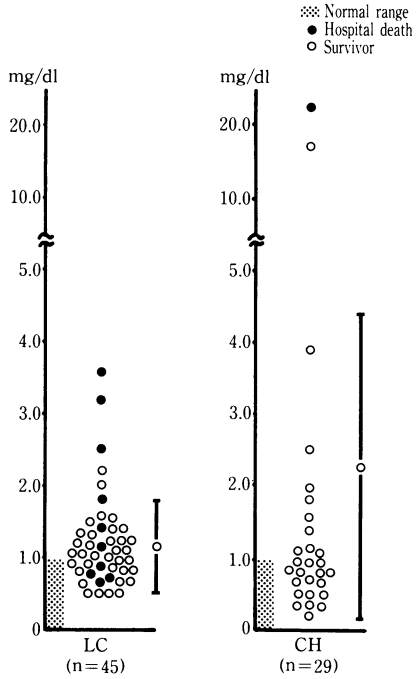

Fig. 1. Total bilirubin level in patients with liver cirrhosis (LC) and chronic hepatitis (CH).

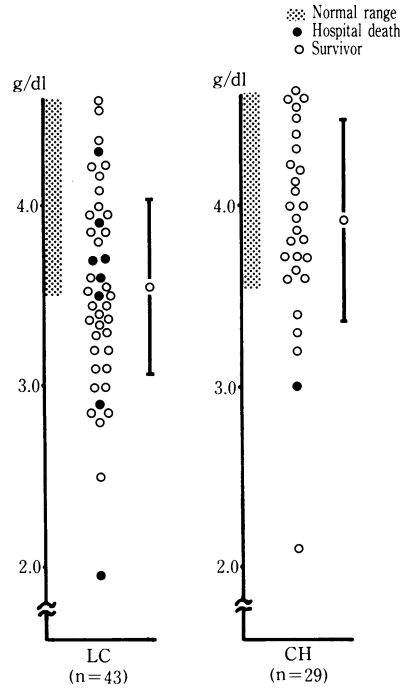

Fig. 2. Serum albumin level in patients with liver cirrhosis (LC) and chronic hepatitis (CH).

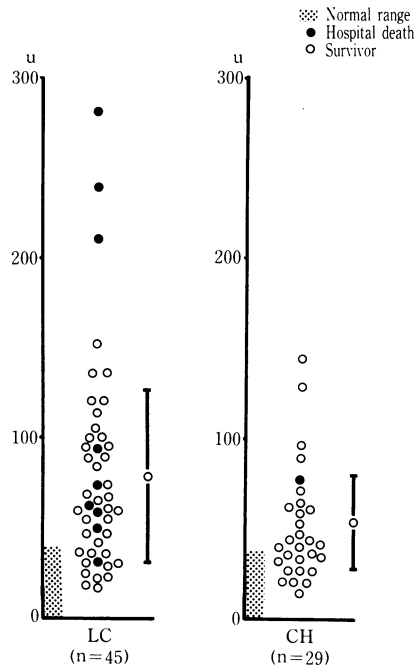

Fig. 3. Glutamate oxaloacetate transaminase (GOT) level in patients with liver cirrhosis (LC) and chronic hepatitis (CH).

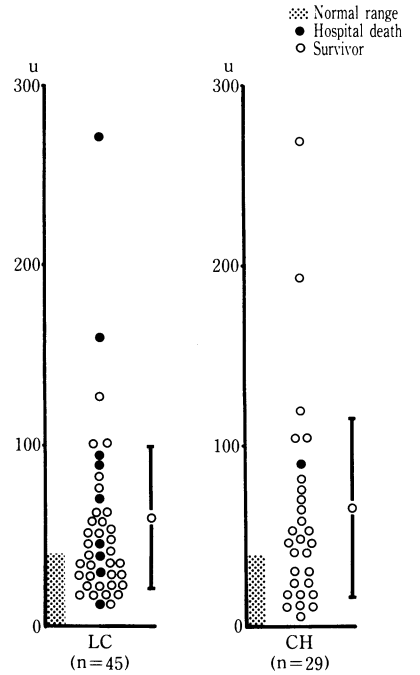

Fig. 4. Glutamate pyruvate transaminase (GPT) level in patients with liver cirrhosis (LC) and chronic hepatitis (CH).

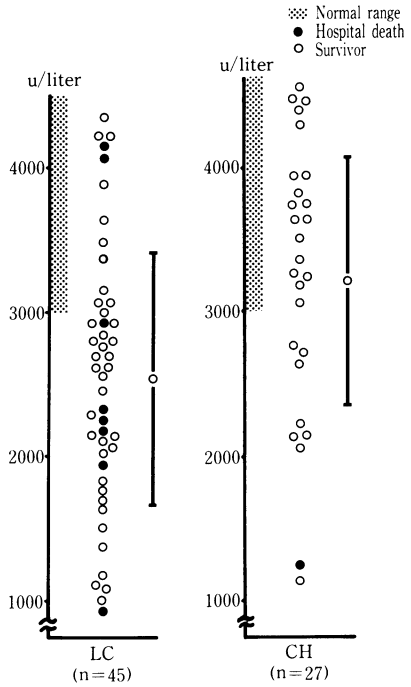

Fig. 5. Cholinesterase level in patients with liver cirrhosis (LC) and chronic hepatitis (CH).

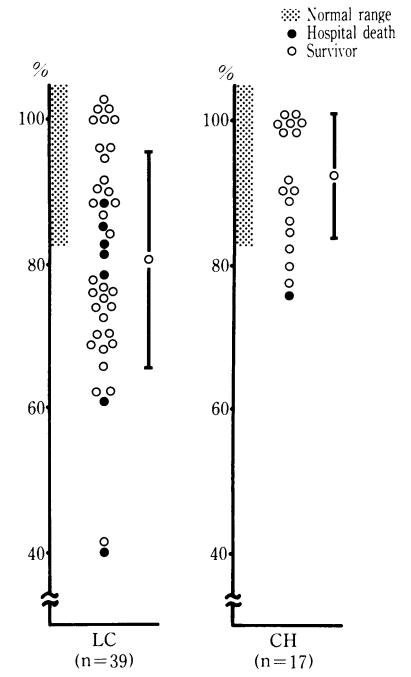

Fig. 6. Prothrombin time in patients with liver cirrhosis (LC) and chronic hepatitis (CH).

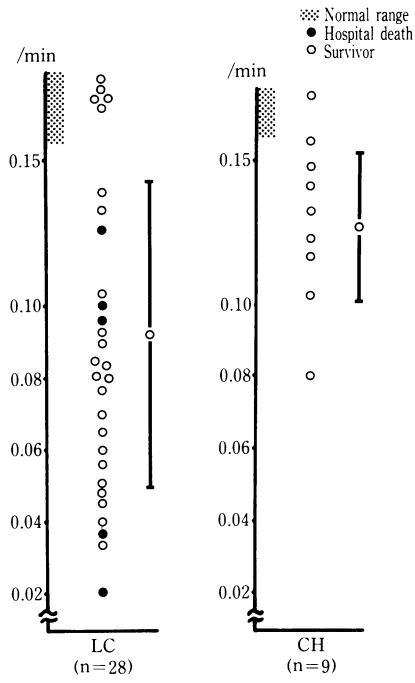

Fig. 7. KICG in patients with liver cirrhosis (LC) and chronic hepatitis (CH).

CH patients, PT was 80.3 ± 14.5% in LC patients, and 91.1 ± 8.5 in CH patients, and KICG was 0.092 ± 0.046/min in LC patients, and 0.127 ± 0.022 in CH patients. Significant differences were noted in four items of Alb ($p<0.05$), ChE ($p<0.01$), PT ($p<0.01$), and KICG ($p<0.05$) between patients with LC and with CH.

DISCUSSION

The majority of the operations on patients with LC were nonshunting operations for esophageal varices or portal hypertension. According to the authors' own investigation[3,5], the operative mortality after nonshunting operations on patients with LC was high, and the morbidity of postoperative complications was high. Although it is considered necessary to take the difference of operative method into consideration, hospital death of patients with LC confirmed with liver biopsy was more in number than that of those with CH. Accordingly, it is important to have an accurate diagnosis of LC before operation, and to know the residual function of the liver.

Dissociation is sometimes observed between

diffusive liver disease, liver functional tests, and its clinical symptoms, which may mislead the preoperative diagnosis of LC. Ludwig[4] found out LC in 95 patients (19%) in which previous diagnosis had been given that there was no hepatic dysfunction, among 513 patients with LC confirmed by operation or by autopsy, and he named these cases latent hapatic cirrhosis. In the present comparison of the results of the liver functional tests in patients with LC and with CH, differences were noted in their Alb, ChE, PT and KICG, but differential diagnosis is difficult only with these parameters.

Even when preoperative diagnosis is not easy for the cases like latent hepatic cirrhosis, operative diagnosis enables surgion to diagnose LC to some extent, and if a quick diagnosis can be given during operation, confirmed diagnosis is obtainable. Therefore, in the cases where LC is diagnosed during operation, and the decrease in the above four items is recognized, carefull consideration for the selection of operative methods and postoperative treatment are indicated.

Reviewing the hospital death of patiets with LC and survivor, the author observed the high risks for the operation: TB above 2.0mg/dl, Alb below 3.0g/dl, GOT above 200U, GPT above 200U, ChE below 2500U/liter, PT below 60%, and KICG below 0.04/min. In recent years, however, caution should be paid since the administration of fresh frozen plasma (FFP) and other plasma preparations will cause an apparent rise in Alb, ChE and PT. Furthermore, the Child's Classification[1] decided for the indication for esophageal varices added clinical symptoms (ascites and neurological symptoms) to TB and Alb, but, according to the studies of Kodama[2] in our department, the Child's Classification is considered to be convenient and useful.

There was one patient who died of CH was found to have had carcinoma of the bile duct complicated with obstructive jaundice. The patient received experimental laparotomy since he had a progressive carcinoma. When GOT or GPT is above 200U and unstable among the cases of CH, the case is most probably chronic active hepatitis (CAH), and the operation is desired to give at the stable stage of transaminase.

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