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## CORRESPONDENCE

# Intravenous glycyrrhizin improved serum transaminases rapidly in a chronic hepatitis B patient with acute exacerbation

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Taiwan is an endemic area of hepatitis B virus (HBV) infection. The survival rate is 35% in cases of acute fulminant hepatitis B.<sup>1</sup> Glycyrrhizin is a natural compound derived from the roots of the licorice, *Glycyrrhizin glabra*. The aqueous solution of glycyrrhizin is stronger Neomiphagen C (SNMC), which is given intravenously. It can lower the serum level of transaminases significantly.<sup>2</sup> Here we present a case of dramatic improvement of serum transaminases after the treatment of SNMC in a patient with decompensated hepatic failure.

A man 39 years of age who was an hepatitis B carrier was referred to our hospital for general malaise for 1 week. Five days before admission, elevated liver enzymes [aspartate aminotransferase (AST)/alanine aminotransferase (ALT) 929/1722 IU/L; normal reference limit 37/41 IU/L] were noted. The serum level of total bilirubin (T-bil) was 1.4 mg/dL (normal reference limit, 1.5 mg/dL). The profiles for viral hepatitis B markers were as follows: HBsAg, positive; HBeAg, negative. Other viral markers such as anti-HAV IgM and anti-HCV were negative. The serum level for HBV DNA was  $1.29 \times 10^7$  IU/mL. Antiviral agent with entecavir (0.5 mg per tablet) was initiated under the impression of chronic hepatitis B with acute exacerbation.

Progressive elevation of liver enzyme was noted the sixth day (AST/ALT: 1830/3450 IU/L) after the usage of entecavir. The serum level of T-Bil increased from 1.4 to 4.2 mg/dL. The international normalized ratio (INR) of prothrombin time (PT) was 2.05 on the sixth day. The patient was admitted due to decompensated hepatic failure.

SNMC 100 mL was given intravenously for 5 days since the second day of hospitalization.

The liver transaminases improved dramatically on the second day (AST/ALT: 925/2383 IU/L) and the sixth day (AST/ALT: 119/708 IU/L) after the usage of SNMC. The change with regard to serum level of T-Bil was 5.9 and 4.3 mg/dL and the INR of PT decreased from 1.62 and 1.5 on the second and sixth day, respectively. During the follow-up period of more than 1 year, the patient was treated with entecavir. The HBV DNA level was undetected. The patient's liver function became normalized without episode of hepatitis.

This patient was expected to be a case of fulminant hepatitis B even with the use of antiviral agents. This can lead to acute hepatic failure and death. Liver transplantation is generally the only choice with regards to life-saving treatments. A Japanese product, SNMC, contains 0.2% glycyrrhizin, 0.1% cysteine, and 2% glycine. Glycyrrhizin has anti-inflammatory, antioxidant properties<sup>3</sup> and a membrane stabilizing effect.<sup>4</sup>

Dramatic improvement of serum ALT was noted within 6 days after the usage of SNMC. The possible mechanism

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of SNMC for decreasing serum transaminases is stabilizing the cell membrane of hepatocyte. We demonstrated a rapid recovery of chronic hepatitis B with acute exacerbation by SNMC in combination with entecavir. Further large randomized study may prove its efficacy in such patients.

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