Increased Plasma Endothelin Levels in Patients with Liver Cirrhosis

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Fig. 1. Plasma endothelin levels in patients with liver cirrhosis.

ment of hepatorenal syndrome. Of particular interest is that endotoxin, which usually increased in the blood of patients with hepatorenal syndrome [5], has been demonstrated to stimulate endothelin release from cultured bovine thoracic endothelial cells [6]. Thus, the contribution of endothelin in the development of hepatorenal syndrome requires further investigations.

References

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Dear Sir,

The hepatorenal syndrome is defined as unexplained renal failure in conjunction with severe liver disease. Because of the preservation of tubular functions such as sodium reabsorptive capacity and of the absence of obvious renal lesions identical to renal failure, this syndrome is considered to be functional in nature. Basically, decreases in glomerular filtration rate in hepatorenal syndrome had been thought to stem from increased renal vascular resistance [1]. Several potential factors have been addressed in the pathogenesis of this clinical entity, but without persuasive answers.

Endothelin, a novel vasoconstrictive peptide [2], has recently been highlighted on its clinical implications. Since this peptide produces a powerful renal and systemic vasoconstriction [3], such effects may mediate the development of renal failure in patients with severe liver disease. Thus, we determined the plasma endothelin levels in patients with liver disease. Nine cirrhotics with ascites (decompensated; mean age ($\pm$ SEM) 63 ± 4 years) and 9 patients without ascites (compensated; 57 ± 5) and age-matched control subjects (57 ± 5) were studied. Plasma endothelin levels were measured by radioimmunoassay. The results are shown in figure 1. In compensated patients, the plasma endothelin levels (1.27 ± 0.15 pg/ml) were significantly higher compared with the control subjects (0.67 ± 0.11). Decompensated cirrhotics demonstrated further elevations in plasma endothelin levels (1.63 ± 0.13), though there was no statistical change of plasma endothelin levels between the two groups.

Because endothelin may be a potentiator of acute renal failure, probably by activating transmembrane calcium influx into vascular bed [4], these preliminary data suggest the involvement of endothelin in the establish-

Controls Cirrhosis Cirrhosis without with ascites ascites

Radioimmunoassay detection limit

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