
MECHANISM OF THE INCREASED SERUM LEVEL OF HYALURONIC ACID IN RATS TREATED WITH NITROSODIMETHILAMINE.
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Outline

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Abstract SS-B-4

It has been reported that serum levels of hyaluronic acid (HA) increase in various liver diseases, especially in cirrhosis. The elevation of serum HA levels in liver diseases may be due to the increase in the synthesis of HA by hepatic stellate cells or decrease of degradation by sinusoidal endothelial cells. However, the precise mechanism of the increase of serum HA levels in patients with liver disease is not clear. In this study, we investigated the mechanism of increased serum HA levels in cirrhotic rat induced by nitrosodimethylamine (NDMA).

Methods: Rats were injected NDMA intraperitoneally every day for 7 days. Serum levels of HA and ALT were measured, and HA, [alpha]-smooth muscle actin ([alpha]-SMA) as a marker for activated hepatic stellate cells, CD44 as a marker for HA receptor of sinusoidal endothelial cells, in liver specimens were stained immunohistochemically.

Results: After NDMA injection, severe hepatic necrosis was observed at 5th, 6th and 7th day and liver cirrhosis was observed at 14th and 21st day. Serum levels of HA and ALT increased gradually and peaked at 7th day after NDMA injection. Serum HA levels decreased to almost normal level at 14th day. [alpha]-SMA was stained clearly from 3rd day. A number of [alpha]-SMA positive cells increased by 7th day, but decreased at 14th and 21st day. The staining pattern of CD44 and HA was the same as that of [alpha]-SMA. A number of CD44 positive staining cells in cirrhotic liver increased compared with normal control liver.

Conclusions: These results clearly suggest that the elevation of serum HA levels in liver diseases may be due to the increase in the synthesis of HA by activated hepatic stellate cells, but not the decrease of HA receptor (CD44) of sinusoidal endothelial cells. The number of HA receptors of sinusoidal endothelial cells may increase due to degrade increased serum HA.

Section Description

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