

The Expression of Insulin-like Growth Factor II, Hepatitis B Virus X Antigen and p21 in Experimental Hepatocarcinogenesis in Tree Shrews

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Abstract

The purpose of this paper was to study the mechanism of synergistic effect in hepatocarcinogenesis induced by hepatitis B virus (HBV) infection and aflatoxin B1 (AFB₁) intake. Immunohistochemical staining was used in formalin-fixed, paraffin-embedded sections of cancer and liver tissues. The incidence of hepatocellular carcinomas (HCCs) was 52.9% in experimental tree shrews that received both HBV and AFB₁. It was significantly higher than that of animals exposed to HBV (11.1%, Group B), or (AFB₁) (15.8%, group C) alone. HCC was not found in the control animals (group D). The expressions of insulin-like growth factor II (IGF-II) were 82.4%, 22.2%, 26.3% and 0 in groups A, B, C and D, respectively. The significant differences of IGF-II were observed between groups A and B, C and D (P < 0.05). The expressions of p21 were 29.4%, 11.1%, 15.8% and 0 in group A, B, C and D, respectively. The positive rate of hepatitis B x antigen (HbxAg) was significantly higher in the group A than that in the group B (52.9% vs. 11.1%, P < 0.05). The parallel relations between the incidence of HCC and the overexpressions of these genes protein have been found in each group. On the other hand, the expressions of these genes in tumour-bearing tree shrews were significantly higher than that in nontumour-bearing animals. These findings suggest a synergistic effects of HBV and AFB₁ in activation of these genes in tree shrews. Overexpressions of these genes may take an important role in the course of hepatocarcinogenesis in tree shrews.

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Key words: Hepatitis B x antigen, Hepatocellular carcinoma, Insulin-like growth factor II, p21, Tree shrew