

Hepatic Fibrosis in Cholesterol and Sodium Cholate Diet-Fed Rats

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Abstract: Mostly, hypercholesterolemia has been focused on atherosclerosis and coronary heart disease and can be produced by intake of high cholesterol diet. However, toxic effects of cholesterol itself on liver and relationship between intake of high cholesterol diet and hepatic fibrosis have not been clearly investigated. Male Wistar rats were fed diet supplemented with 1.0 % cholesterol and 0.3 % sodium cholate for 12 weeks. Rats were sacrificed at 0, 3, 6, 9 and 12, respectively. Histopathological and blood chemical studies were performed on these animal sets. Total cholesterol, AST, ALT and LDH levels increased from week 3 and maintained around that level throughout the experiment compared to control. However, TG and albumin levels were the same or lower than those of control. Intake of high cholesterol and sodium cholate diet caused hepatic necrosis, macrophage infiltration, steatosis and fibrosis. Following feeding this diet to rats, hepatic necrosis, macrophage infiltration and steatosis markedly increased throughout the experiment, comparing to control. Collagen deposition and myofibroblasts were detected from at week 9 to 12 in the liver. Mast cell increased in proportion to the degree of hepatic damages. In conclusion, these results suggest that intake of high cholesterol diet is a risk factor on hepatic steatosis and fibrosis as well as atherosclerosis and coronary heart disease. Furthermore, this animal model for hepatic fibrosis can be use for application of anti-fibrogenic agents screening in vivo.