HISTOCHEMICAL AND HISTOPATHOLOGICAL STUDY OF INTRACELLULAR IRON AND GLYCOGEN IN SOME CHRONIC LIVER DISEASES

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Abstract:

The histological features of several chronic liver diseases are dominated by the abnormal accumulation of metabolic products. Although hepatocytes have enormous capacity to store iron and glycogen, this capacity may eventually be exceeded causing damage to the cells and their genetic material resulting in progressive liver diseases such as fibrosis, cirrhosis, adenoma or hepatocellular carcinoma. Furthermore, previous reports proved that HCV-infected patients who have large accumulation of hepatic iron have not responded well to interferon therapy, compared with patients with normal iron stores. As hepatic iron and glycogen overload constitute well-established major risk factors for the development of cirrhosis and hepatocellular carcinoma, we aimed in this study to investigate the histochemical and histopathological changes of intracellular iron and glycogen stores of some human chronic liver diseases. Expression of cellular iron and glycogen was examined in 30 cases of chronic hepatitis, 14 cases of glycogen storage disease and 16 cases of hepatocellular carcinoma. We investigated the prevalence of liver iron and glycogen deposition using the established histochemical methods; Perls' Prussian blue reaction and periodic acid Schiff (PAS) respectively. Staining intensity of hepatocytic iron and glycogen was defined from grade 0-4. Heavy iron staining was observed in 14/30 (47%) of cases of chronic hepatitis, 10/14 (71%) of cases of glycogen storage disease and 12/16 (75%) of cases of hepatocellular carcinoma. On the other hand, heavy glycogen staining was observed in 6/30 (20%) of cases of chronic hepatitis, 14/14 (100%) of cases of glycogen storage disease and 10/16 (62.5%) of cases of hepatocellular carcinoma. Although iron deposition was in the form of diffuse intracellular fine granules in hepatocellular carcinoma, it was in the form of coarse granules in glycogen storage disease and chronic hepatitis. The present study confirms and extends the previous observations that there are some hidden factors predictive of liver disease complications. Among those factors which may play a major role are iron and glycogen status. In the future, both histochemical analysis for iron and glycogen of liver biopsies in chronic

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