γ-Glutamyl transpeptidase, glutathione S-transferase, alkaline phosphatase, and glutathione levels during different stages of chemically induced hepatocarcinogenesis in the rat

ABSTRACT

Chemically induced hepatocarcinogenesis in rats with partial hepatectomy was followed morphologically and enzymatically at 4, 6, 8, 12, and 16 weeks after injection of the inducer, diethylnitrosamine. The enzymes determined were plasma and liver ɔ-glutamyltranspeptidase (GGT), alkaline phosphatase (ALP), and glutathione S-transferase (GST), The livers of the treated rats killed after 8 weeks appeared to be rough, pale, and larger compared with the control ones. After 6 weeks, large nodules were observed on the treated liver. Staining of the liver sections histochemically and immunohistochemically revealed that the enzyme-positive foci increased with time ($r=0.93$, $p<0.05$, for the placental form of GST (PGST); not significantly for GGT). The number of enzyme-positive foci per tissue surface area did not correlate with time. GGT, ALP, and GST activities in the plasma and liver of the treated rats were higher than those in the controls. Blood glutathione levels were not affected during chemically induced hepatocarcinogenesis in the rat.

Keyword: Glutathione; Hepatocarcinogenesis; Histochemistry; Marker enzymes; Rat