Abstract:

The present studies were designed and carried out to determine if hydrogen peroxide (H2O2) is involved in the regulation of erythropoietin (Epo) gene expression and stimulation of Epo production in the hepatocellular (Hep 3B) cells. Hep 3B cells were incubated with varying concentrations of H2O2 for periods of 6 hours or 24 hours. In other experiments Hep 3B cells were incubated for 24 hours with or without increasing concentrations of catalase and in the presence of H2O2. Culture medium levels of Epo were determined and quantitation of Epo mRNA was also made. The results indicate that H2O2 increases the levels of Epo mRNA and Epo hormone production in Hep 3B cells, and that catalase, the specific scavenger of hydrogen peroxide, inhibits Epo production in these cells. Based on these findings, it is concluded that H2O2 takes part in the signal transduction mechanisms in Epo production. It is recommended that further studies be undertaken to find out the source of the hydrogen peroxide in the hepatocellular carcinoma cells.