INTESTINAL ABSORPTION OF DIGOXIN AND INTERACTION WITH NIMODIPINE IN RATS

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It is known that digoxin, which is a liposoluble cardiac glycoside, is well absorbed from intestine. In the present study, the absorption rates of digoxin from rat duodenum and the proximal and terminal parts of small intestine were determined in vitro. The isolated everted duodenum and intestinal sacs were put into oxygenated Tyrode solution at 37°C. The Tyrode solution on the outer, mucosal side of intestinal segments contained 0.3 μM digoxin. Samples from the internal serosal side of the intestinal sacs were taken at 30, 60 and 120 min after the start of the experiments. The concentration of digoxin in the samples of fluid were determined using a radioimmunoassay method. The effect of nimodipine (0.1 and 0.2 mM) on digoxin absorption was also evaluated on the terminal segment of rat intestine. The interaction of nimodipine (0.5 mg/kg) and digoxin (0.2 mg/kg) was investigated in vivo when they were given perorally to rats. The duodenal absorption of digoxin was lower than in the small intestine. The highest absorption occurred in the terminal segment of the small intestine. Nimodipine increased the absorption of digoxin from the terminal segment of intestine in vitro, while it did not affect the serum digoxin concentration in vivo.

Key words: digoxin, intestinal absorption, nimodipine

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