GLUCOSE 6-PHOSPHATE DEHYDROGENASE: IN VITRO AND IN VIVO EFFECTS OF DANTROLENE SODIUM

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In our study, effects of dantrolene sodium on glucose 6-phosphate dehydrogenase (G6PD) were examined in the human erythrocytes in vitro and in rat erythrocytes in vivo. Human erythrocyte G6PD was purified using ammonium sulfate fractionation and 2',5'-ADP Sepharose 4B affinity chromatography. The enzyme activity was determined by Beutler’s method. The overall purification procedures gave the human G6PD having the specific activity of 97.6 EU/mg of protein, which was purified 9760-fold with a yield of 39%. Dantrolene sodium inhibited the enzyme activity under in vitro conditions and the I₅₀ value (drug concentration which produces 50% inhibition) of this drug was 0.91 mM. In vivo studies were performed in rats (Sprague-Dawley). Dantrolene sodium at 10 mg/kg inhibited the enzyme activity significantly (p < 0.05) 3 h after dosing. We conclude that dantrolene sodium showed inhibitory effect on G6PD activity both in vitro and in vivo.

Key words: glucose 6-phosphate dehydrogenase, erythrocytes, human, dantrolene sodium

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