

Original Article

On the effect of the injection of potassium phosphate in vivo inducing the precipitation of serum calcium with inorganic phosphate

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Abstract: High concentrations of inorganic phosphate (Pi) resulted from the hydrolysis of ATP is strongly associated to the weakness of the contractile mechanism of muscles due to its attractiveness to calcium. The majority of the experiments to study such effect are conducted in vitro. This work investigates the effects of different concentrations of Pi, induced by the injection of potassium phosphate in live animals, in the precipitation with serum calcium and the generation of calcium phosphate composites. The experiments were also designed to find out the ideal amount of potassium phosphate to induce an effective reaction. Potassium phosphate was injected in Wistar rats, randomly separated and distributed into seven groups. Group I was injected with 0.5 ml of saline solution (control) and groups II through VII were injected with 0.5, 1.5, 2.5, 5.0, 7.5 and 10.0 mg/kg of potassium phosphate, respectively. Blood collected from the inferior vena cava was submitted to biochemical analyses to measure the concentrations of calcium, Pi, urea and creatinine. The results showed that Pi, induced by the injection of potassium phosphate in live animals, causes precipitation with serum calcium, with statistically significant differences between the control and the treatment groups for doses up to 5.0 mg/kg. No statistically significant differences were found between the different doses and the concentration of urea and creatinine in the plasma. We conclude that potassium phosphate can be used to induce serum calcium precipitation in-vivo, with minor effects on other physiological variables, and the ideal dose to do so is 5.0 mg/kg. (IJPPP1310003).

Keywords: In vivo, potassium phosphate, inorganic phosphate, serum calcium, muscle fatigue

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