

Interaction between NiCl₂ and Selenium on Energy Profiles in Wistar albino Preimplanted Rats

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Abstract : The present study was conducted to investigate the interaction between selenium (Se) and chloride nickel (NiCl₂) on energy profiles in Wistar albino preimplanted rats. NiCl₂ was given on day 3 of pregnancy either in distilled drinking water at a dose of 20 mg/L/day for 16 consecutive days or as a single subcutaneous (s.c.) dose of 25, 50, or 100 mg/kg. Se was given as a s.c. injection (0.3 mg/kg) together with the higher dose (100 mg/kg) of NiCl₂. Changes in energy profiles were evaluated in treated and control groups on days 5 and 20 of gestation. NiCl₂ s.c. induced a significant increase in plasma glucose on day 20 of pregnancy. NiCl₂ s.c. induced on day 5 and 20 of gestation a significant decrease in plasma triglycerides, with the higher dose. This decrease was maintained at day 20 of gestation with doses of 50 mg/kg. In addition, NiCl₂ s.c. caused on day 5 of gestation a significant decrease in plasma total cholesterol with the low and medium doses. The pretreatment with Se reversed the effects of NiCl₂ on plasma glucose, total cholesterol and triglycerides levels. NiCl₂ administered in the drinking water augmented significantly the plasma triglycerides and total cholesterol levels and slightly the plasma glucose on day 20 of gestation, while on day 5 of gestation NiCl₂ s.c. induced a significant decrease in cholesterol. Three doses of NiCl₂ (sc) induced severe alterations in liver and architecture which are markedly improved by Selenium. These results suggested that selenium has protective effects on energy profiles against the toxicity induced by NiCl₂ administered subcutaneously in preimplanted rats.

Keywords : hepatotoxicity, nickel chloride, preimplanted rat, biochemical parameters

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