Original Paper

Effect of potassium benzoate on BALB/c mice placenta: a histopathological study

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Abstract

Background and Objective: The food additives, like sodium and potassium benzoate are used in many food products and drugs to prevent the growth of yeast and molds. There is no report about the histopathological effect of potassium benzoate. Placenta, has a critical role in embryonic development therefore this study was set up to evaluate the effects of potassium benzoate on placenta of BALB/c mice.

Materials and Methods: 45 BALB/c female mice were allocated into two experimental (1, 2) and one control groups. Experimental groups received daily intraperitoneal injection of 280 and 560 mg/kg/body weight of potassium benzoate and control group received normal saline. All injections were done during 10 days before mating and 5^{th} to 16^{th} of gestational days (GD). In GD 18 all placenta were removed via cesarean section. Macroscopic studies for morphological abnormalities were done and after measuring of placental weight and diameter, for microscopic studies the specimens were fixed and tissue passage were done. Tissue sections were stained with hematoxylin-eosin and histopathological changes were studied. Weight, diameter and percentage of agenesis of placenta in all groups were gathered. Data analyzed with using SPSS-11.5, ANOVA and Tukey tests.

Results: The mean weight and diameter of the placenta in both experimental groups 1 and 2 were significantly decreased compared to control group. Also atrophy of placenta in the experimental groups was increased significantly compared to the control group ($P<0.05$). Comparison of weight and diameter between groups 1 and 2 was not significant. Percentage of placenta agenesis in the experimental groups was increased significantly compared to the control group ($P<0.05$). Massive hemorrhage in labyrinth zone, fetal and maternal zones were seen in both experimental groups.

Conclusion: This study showed that exposure of potassium benzoate during mice pregnancy cause morphological and histopathological changes of placenta, including decrease of weight and diameter, agenesis, hemorrhage and tissue disorders.

Keywords: Potassium benzoate, Placenta, histopathology, Mice

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