The effect of warfarin on the development of male rat offspring cerebellum

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Abstract
Warfarin is an oral anticoagulant agent prescribed for treating cardio-vascular disorder. It reduces the synthesis of vitamin K-dependent factors. As it can easily pass through the placenta, have unwilling effects on embryo. The aim of this study was to evaluate the effect of warfarin on the brain development of rat’s offspring. In this study, 30 pregnant wistar rats were randomly divided in 5 groups, control, receiving normal saline, and receiving warfarin in doses at 0.25, 0.5, 0.65 ml/kg during days 14 – 18 of gestation by gavages. 40 days after birth, 6 male newborn were randomly selected in each groups. After anesthesia, serial cross sections of the left hemisphere of the brain were prepared and histological studies were done. The data were analyzed by using one-way ANOVA and Tukey post-test. P<0.05 was considered as significant level. The results of the cerebellum histological studies showed that in warfarin treated groups, the average diagonal of cortex and purkinje cells were significantly increased compared to the control group (P<0.001) meanwhile there was a significant reduction in the number of purkinje cells in treated groups in compare to the control and sham(P<0.001). The results of this study showed that the use of warfarin during pregnancy leads to some changes in the number and diagonal of purkinje cell and cortex in the embryo of treated rats.

Keywords: Cerebellum, Embryo, Rat, Warfarin