

Original Article

Morphological and histological studies of artesunate on the developing cerebral cortex of wistar rat fetuses

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ABSTRACT

The longstanding use of artemisinin and its derivatives, mainly artesunate among pregnant women is recommended as first line treatment for malaria especially in endemic area like Nigeria. The present study investigated the morphological and histological effects of artesunate on the developing cerebral cortex of Wistar rat fetuses. Twenty healthy female Albino Wistar rats of average weight of 165 g were grouped into 4 with each group containing 5 rats. The rats were fed daily and water was allowed ad libitum. The animals were mated overnight with sexually matured males and were separated into different cages after confirmation of pregnancy. Oral doses of 0.2 mg/kg (low dose, LD), 0.4 mg/kg (medium dose, MD) and 0.8 mg/kg (high dose, HD) body weight of artesunate were administered to pregnant rats in LD, MD and HD groups respectively, from the 8th to the 12th day of gestation. Group 1 rats were the control, and received distilled water on the same days. The results showed a significant reduction in the morphometry of some body parts. The mean foetal body weights were 5.33 g, 5.14 g, 4.67 g and 3.78 g in the Control, LD, MD and HD groups respectively, while the mean crown-rump lengths were 3.67 cm, 3.43 cm, 3.00 cm and 3.00 cm in the Control, LD, MD and HD groups respectively. The histological examinations revealed some neurodegenerative changes in the developing cerebral cortex of Wistar rat fetuses. These neurodegenerative changes include reduction in thickness of the cortical zones, cell clustering and chromatolysis of the cells of cerebral cortex. The results showed that artesunate when administered in high dosages could be dangerous to the developing fetuses.

Keywords: Artesunate, Wistar Rats Fetuses, Cerebral Cortex, Morphology, Histology
