EFFECT OF MELATONIN AND STOBADINE ON MATERNAL AND EMBRYOFOETAL TOXICITY IN RATS DUE TO INTRAUTERINE HYPOXIA INDUCED BY PHENYTOIN ADMINISTRATION

Ujházy E.1, Mach M.1, Dubovický M.1, Navarová J.1, Šoltés L.1, Juránek I.1, Brucknerová I.2, Zeman M.3

1Institute of Experimental Pharmacology, Slovak Academy of Sciences, Bratislava
21st Children’s Hospital School of Medicine, Comenius University, Bratislava
3Department of Animal Physiology and Ethology, Faculty of Natural Sciences, Comenius University, Bratislava, Slovak Republic

SUMMARY

The aim of the present study was to test the hypothesis that the natural antioxidant melatonin (MEL) and the synthetic antioxidant stobadine (STO) could reduce the incidence of maternal and embryofoetal toxicity in rats due to intrauterine hypoxia. Chronic hypoxia was induced pharmacologically by the administration of the anticonvulsant phenytoin (PHT) during the entire period of pregnancy. PHT disturbed the normal course of pregnancy, affected reproductive parameters and increased the incidence of skeletal anomalies. MEL did not protect the PHT-induced development toxicity in rats. On the other hand, STO partially prevented PHT-induced reduction of foetal and placental weights. Administration of STO also decreased the frequency of pre- and post-implantation loss and resorptions in the PHT group. We concluded that pretreatment of pregnant rats with STO prevented to a certain extent reproductive and foetal development alterations caused by chronic intrauterine hypoxia.

Key words: intrauterine hypoxia, phenytoin, developmental toxicity, rat, melatonin, stobadine

Address for correspondence: E. Ujházy, Institute of Experimental Pharmacology, Slovak Academy of Sciences, Dúbravská 9, SK-84104 Bratislava, Slovak Republic. E-mail: exfaujha@savba.sk