

Effect of tempol on delivery outcomes in L-name-induced preeclampsia in rat

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Background and Aims: Preeclampsia is a major cause of maternal and fetal morbidity and mortality. The etiology of this disorder is not clear but it seems that reactive oxygen species production has a critical role in the manifestations and complications of this syndrome. In the present study, the effect of tempol, on some of fetus complications is studied in the experimental model of preeclampsia in rat.

Methods: Preeclampsia was induced by oral administration of L-NAME (50 mg/kg/day) from day 11 of pregnancy to day 22. One group of preeclamptic rats received L-NAME alone. Three others received L-Name with three different doses of tempol (20, 60, 180 mg/kg/day, orally). A group of normal pregnant rats received only tap water. Studied parameters were number and weight of offsprings, oxidative stress(placental isoprostane), malformation and hemorrhage.

Results: L-NAME administration caused placental oxidative stress, weight decrease, hemorrhage and limb defects of fetuses. Tempol at doses of 20 and 60 mg/kg/day significantly decreased placental isoprostane, fetal teratogenicity, fetal weight reduction. Tempol, only in dose of 60mg/kg/day significantly attenuated Fetal hemorrhage. High dose (180 mg/kg/day) had no significant effect and in some cases intensified the effect. The number of fetuses did not show significant difference between preeclamptic and control groups.

Conclusion: Experimental preeclampsia can result in decrease of delivery outcome and caused complications on fetuses. Tempol in low and moderate doses decreased fetal teratogenicity and fetal weight reduction. Tempol at high dose had no significant effect on these complications.

Keywords: Preeclampsia, L-NAME, Rat, Tempol