

Investigating the effect of demyelination on hypothalamic-pituitary-gonadal axis activity and spermatogenesis in adult male rats of multiple sclerosis model: a histological and serological study

Objective: Multiple sclerosis (MS) is an autoimmune demyelinating disorder of the CNS. It is followed by neuropathy discomfort, especially in reproductive age. Therefore, this research aimed to investigate the effect of demyelination on the activity of hypothalamus axis, hypophysis gonad and spermatogenesis.

Findings: The results of movement tests using Footprint and MNSS analysis showed that the studied parameters of the injury group were significantly different from the sham and saline groups. Serological findings showed that the serum levels of FSH, LH, and GNRH in the injury group were significantly reduced compared to the sham and saline groups. Investigating the effect of demyelination on the ratio of testis weight to body weight of rats, the difference in weights from the first to the last day was calculated and it was shown that it has decreased. Examining the quality of sperms in the injury group compared to the sham and saline groups showed that the sperm count and motility decreased and the morphology of the sperms underwent significant changes. And in the histological examination of the corpus callosum brain, inflammation is evident in the damage group compared to the other two groups. In the examination of the survival of neurons in the Darkcell damage group, it is clearly more in the hippocampus and hypothalamus area, and in the examination of myelin tissue destruction, the damage group is more evident than the other two groups of myelin tissue destruction. In the histological examination of the testis, the number of germ cells in the toxic nephron tube of the injured group was significantly reduced.

Discussion and conclusion: The results showed that the effect of demyelination has a significant effect on the activity of the hypothalamus-pituitary and gonads and causes a decrease in the serum level of LH, FSH, GNRH and a decrease in germ cells and changes in the number and morphology of sperms. Findings After demyelination has an effect on male fertility and causes a decrease in adult male fertility.

Keywords: multiple sclerosis, demyelination, ethidium bromide, spermatogenesis