عنوان مقاله:

The effect of sodium thiopental as a GABA mimetic drug in neonatal period on expression of GAD۶۵ and GAD۶۷ genes in hippocampus of newborn and adult male rats

محل انتشار:

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خلاصه مقاله:

Objective(s): Development of the nervous system in human and most animals is continued after the birth. Critical role of this period in generation and specialization of the neuronal circuits is confirmed in numerous studies. Any pharmacological intervention in this period may result in structural, functional or behavioral abnormalities. In this study, sodium thiopental a GABA mimetic drug was administrated to newborn rats and their GAD۶۵ and GAD۶۷ expression in hippocampus was evaluated before and after puberty. Materials and Methods: Newborn male Wistar rats were received sodium thiopental (۳۵ mg/kg) daily for ۱۱ days (from ۴ to ۱۴ days after birth). Expression of GAD۶۵ and GAD۶۷ in their hippocampus was compared with control groups in ۱۵ and ۴۵ days after birth with RT-qPCR method. Results: Significant down regulation of GAD۶۵ and GAD۶۷ gene expression was observed in treated rats compared with control group in ۴۵ days after birth animals. But no significant difference was shown between experimental and control groups ۱۵ days after birth animals. Conclusion: The effect of sodium thiopental on GAD۶۵ and GAD۶۷ expression only at adult rats showed a latent period of influence which can be attributed to dosage or intension of sodium thiopental neurotoxicity. Significant down regulation of GAD۶۵ and GAD۶۷ showed unwanted effect of sodium thiopental as GABA mimetic drug in critical period of development.

کلمات کلیدی:

Gamma aminobutyric acid, Glutamate decarboxylase ۱, Glutamate decarboxylase ۲, Real-time polymerase chain reaction, Thiopental