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The teratogenic effects of Lorazepam on the organogenesis of the rat fetus

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Abstract:

Lorazepam has in increasingly being used in our country in recent years. Pharmacologically, lorazepam belongs to the benzodiazepines known for their wide neurotropic properties. There have been several studies on the side effects of the drug as stress disorders, tumors, preconvulsive activities in case of epileptic attacks, overdose, and behavioral problems, but little is known regarding the teratogenicity of the drug and its effects on the craniofacial development. In this study, a group of adult wistar rats of definite average of age and weight were selected and exposed to 2 mg/kg/day to 20 mg/kg day of lorazepam after conception (during the organogenesis in the days 9 to 18) in case and control groups. The fetuses were first studied macroscopically regarding gross anomalies, and then histologically and histochemically to exactly inspect the defects of tissue organogenesis. According to the results obtained, there was significant difference in the weight and length of the cases compared to the control group. Several anomalies of the eyes and ears (Coloboma of the eyelids with protruded globes and absence of the auricle and external auditory meatus), anomalies of the skull (Acrocephaly, and large rhombencephalon) were found. The craniofacial organs such as the nasal epithelium, tongue, salivary glands and the palates were also affected. According to the final analysis, there is a significant difference between the case and control groups. It was also found that taking the drug in the second half of pregnancy could affect the migration of the neural crest cells (being very sensitive) and change the mesenchymal structure of the neural crests. It also promotes the synthesis of proteins like growth hormone and growth factors. The fast, uncontrolled growth, defects the normal maturing process of the tissues during organogenesis, which ends in irreversible malformations.

Keywords:

[Ocular organogenesis](#) , [Rat fetus](#) , [Lorazepam](#)

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