

A neural basis of misbehavior of pregnant rats exposed to toxic levels of impulse noise: Experimental study

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OBJECTIVE: Intense impulse noise can damage the neurons of the brain. Neurodegeneration may cause serious behavioral disorders. In this study, neural basis of misbehaviors of pregnant rats were investigated induced by impulse noise.

MATERIALS AND METHOD: Five male and fifteen female rats family were exposed to 120 dB impulse noise at doses of 10x20 min/day for one month and then scarified and CA1 region of hippocampus were examined histopathologically. Numerical density and nuclear heights of neurons were analyzed stereologically.

RESULTS: The numerical density of neurons was 180 (168-181) cells/mm³ and nuclear height was 5.1 (4.9-6.1)µm in normal rats. And, 160 (150-169) cells/mm³ and 4.2 (3.9-4.4) µm in the non-pregnants, and 136 (135-150) cells/mm³ and 3.1 (3.1-3.3) µm in the pregnant. The differences between the all groups were statistically significant.

CONCLUSION: This study show that exposure to high level of impulse noise may be an important risk factor on the maternal behaviors secondary to neurodegenerative changes in the hippocampus.

KEY WORDS: Impulse noise, gravida, hippocampus, pregnancy, misbehavior