

青春期マウスの情動関連行動に対する、 出産前後期に負荷されたストレスの影響

徳毛孝至、平居貴生、西尾廣昭

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Effects of perinatal stress on the emotion-related behavior of the adolescent mouse.

Kohji Tokumo, Takao Hirai and Hiroaki Nishio.

ABSTRACT : We examined the effects of perinatal stress on the emotion-related behavior of the mouse during their adolescent period. Firstly, we applied the sound noise and/or the forced swim stress to the maternal pregnant mice in the pregnant mice at 10 to 18 days gestation. The stress applied during the fetal period did affect neither the spontaneous locomotor activity of the offspring mice in a new environment at an age of 4 weeks, nor those sound-induced changes in the locomotor activity. Secondly, we applied the stress to the neonatal mouse during the late lactation period, 14 to 18 days after birth. The mice that underwent the forced swim stress accompanied by the sound noise stress showed a significant reduction of the locomotor activity. On the other hand, the mice that underwent the forced swim stress during the lactation period showed a significant increase in the locomotor activity after the stimulation by the sound noise. Lastly, we applied the stress to the neonatal mouse immediately after the weaning period, 21 to 25 days after birth. The spontaneous locomotor activity of the mice was not changed compared to that of the non-stressed group. Thus, it was found that the stress applied to the mice during the lactation period, thought to be the critical period of mouse brain development, selectively influenced the emotion-related behavior in the subsequent adolescent period. These results suggested that second postnatal week may be the critical period for establishing proper behavioral responses to emotional stress in the adolescent mouse.

抄録 妊娠期マウスおよび新生児マウスに騒音刺激あるいは強制水泳ストレスを負荷し、生後4週目において騒音刺激に対する反応性などの情動関連行動の測定を行った。マウス脳発育における臨界期と考えられる授乳期に負荷されたストレスは、その後の青春期におけるマウスの情動関連行動に選択的に影響を与えることが明らかとなった。生後2週目という期間が、青春期マウスにおける情動ストレスに対する適切な反応性を確立するための臨界期である可能性が示唆された。