Synthetic Retinoid Am80 Improves the Low-anxiety Behavior of SAMP8 Mice

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Introduction: A synthetic retinoid Am80, which has been used for patients with APL, has been reported to affect the brain and neurons. Senescence-accelerated mouse P8 (SAMP8) has been proposed as a model for the study of learning and memory deficits, and shows an emotional disorder characterized by reduced anxiety-like behavior. It is pointed out that there are relationships between low anxiety and learning and memory in SAMP8. Furthermore, most patients with senile dementia show low-anxiety behavior according to the progress of the disease. SAMP8 can be a senile emotional and mental disorder model.
Aims: We investigated whether Am80 improved low anxiety behavior in SAMP8.
Methods: Male SAMP8 and SAMR1 (senescence-resistant) were used. Am80 was given in feed corresponding to 2 mg/kg/day for 1.5 months. The behavioral tests were performed at the age of 7-8 months. Monoamines and their metabolites were measured in the brain.
Results: In the open-field and hole-board tests, the number of ambulations, rearing, and head dipping, and the distance moved in SAMP8 significantly increased compared to in SAMR1, and in the light and dark box test, the latencies in SAMP8 significantly decreased, suggesting the low-anxiety condition in SAMP8. In Am80-treated SAMP8, these endpoints as emotion has restored to the same level as those in SAMR1. The 5-HT metabolic turnover in the amygdala, hypothalamus and cingulate gyrus of Am80-treated SAMP8 increased compared to in SAMP8.
Conclusion: Am80 improved low anxiety behavior in SAMP8, which may be explained in part that Am80 increases monoamine metabolic turnover in SAMP8.