3-P-051

Poster Sessions

Role of HPA axis on the development of ethanol dependence in mice

Hideaki Kato¹, Minoru Tsuji¹, Kazuya Miyagawa¹, Hiroshi Takeda¹

¹*Dept. Pharmacol., Sch. Pharm., Int. Univ. Health and Welfare*

Our previous study indicated that the HPA (hypothalamic-pituitary-adrenal) axis plays a critical role in the expression of ethanol withdrawal symptoms, including emotional abnormality and impaired recognition, in mice. To clarify the role of HPA axis on the development of ethanol dependence, mice were chronically treated with 4% ethanol-containing milk for 14 days using liquid diet method. A significant increase in the serum corticosterone concentration was observed in ethanol-treated mice compared with control mice. As with the stress response, hypertrophy of thymus and spleen, and atrophy of adrenal glands were observed in ethanol-treated mice, respectively. The present study was also designed to ascertain the changes in the protein levels of glucocorticoid receptor (GR) and TrkB in the mouse brain were evaluated on day 0, 3, 7, 10 and 14. In the Western blot analysis, we demonstrated that the level of GR and the ratio of GR/TrkB were significant increase in hypothalamus, but not hippocampus, in ethanol-treated mice. These results suggested that the HPA axis may play an important role not only on the expression of ethanol withdrawal symptoms but also on the development of ethanol dependence in mice.