분류번호	III-P-30

제목	Selective Toxicity to Central Serotonergic Nervous System in Prenatally and Postnatally Lead-Exposed Rats
연구자	서동욱, 정은영, 정재훈, 신찬영, 오우택, 고광호
소속	서울대학교 약학대학
내용	

Possibility whether lead ingestion can cause selective toxicity to central serotonergic nervous system in rats was tested. Three groups of wistar rats; 1)Control, 2) Low dose and 3) High dose groups, were prepared. In prenatally lead-exposed rats, until parturition from dams, rat pups were intoxicated via placenta of mother rats having received drinking water containing either 0%(control), 0.05%(low dose) or 0.2%(high dose) of lead acetate respectively. In postnatally lead-exposed rats, right after parturition from dams rat pups received drinking water containing either 0% (control), 0.05%(low dose) or 0.2%(high dose) of lead acetate. At 2, 4, 6 and 8 weeks of age, tryptophan hydroxylase (TPH) activity and Na^+/K^+-ATPase activity were measured in 4 areas of rat brain; Telencephalon, Diencephalon, Midbrain and Pons/Medulla. TPH activities were assayed by modified method of Beevers et al. (1983) using L-[5-^{3}H]-tryptophan as substrate. TPH activity was determined as a criterion of lead poisoning to central serotonergic nervous system and Na^+/K^+-ATPase activity as a criterion of non specific lead poisoning to any kinds of tissues. Selective toxicity of lead poisoning to central serotonergic nervous system was evaluated by the changes of TPH activities without concomitant changes of Na^+/K^+-ATPase activities. In prenatally lead-exposed rats, this selectivity was found in Telencephalon (2 weeks of age), Diencephalon/Midbrain (2 weeks of age), Midbrain (4 and 6 weeks of age), Pons/Medulla (2, 4 and 6 weeks of age) in rats exposed to low dose of lead and Pons/Medulla (2 weeks of age) to high dose of lead. In postnatally lead-exposed rats, this selectivity was found in Telencephalon (8 weeks of age), Diencephalon(8 weeks of age), Pons/Medulla (6 and 8 weeks of age) in rats exposed to low dose of lead and Pons/Medulla (8 weeks of age) to high dose of lead. These results suggest that lead poisoning may exhibit selective toxicity to central serotonergic nervous system.