(36.2%) and hippocampus (127%). Although the levels of dopamine and serotonin were not altered, the turnover rates of serotonin were increased in entorhinal cortex (27.7%) and hippocampus (22.7%). However, the levels of dopamine (22.8%) and serotonin (13.5%) were decreased and the levels of dihydroxyphenylacetic acid were increased (76.6%) in frontal cortex. The turnover rates of dopamine were increased in frontal cortex (131.5%) and striatum (24.2%) and that of serotonin was increased (19.6%) in frontal cortex. However, the levels of total glutamate were not changed in all examined regions. These results indicate that the lesions of entorhinal cortex induced the impairments of learning and memory and the alteration of the monoamine metabolisms in various brain regions. The results suggest that serotonergic activities in entorhinal cortex and hippocampus may contribute in the memory processes.

[PB3-2] [04/19/2001 (Thr) 15:30 - 16:30 / Hall 4]

The effects of tributyltin compounds on dopamine content and L-DOPA-induced neurotoxicity in PC12 cells

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There is little information concerning the effects of tributyltin compounds such as tributyltin acetate (TBTA) and tributyltin chloride (TBTC), which are the endocrine disrupters on living organisms. In this study, the effects of tributyltin compounds on dopamine content and L-DOPA-induced neurotoxicity in PC12 cells were investigated. TBTA and TBTC at concentration ranges of 0.05-0.75 μM decreased dopamine content in a concentration-dependent manner in PC12 cells. TBTA (0.1 μM) and TBTC (0.5 μM) showed 57.2% and 55.1% inhibition of dopamine content for 48 hr. IC50 values of TBTA and TBTC were 0.12 μM and 0.6 μM. Treatment of PC12 cells with L-DOPA at concentration ranges of 10-50 μM increased dopamine content and the increase in dopamine levels by L-DOPA were in part inhibited by TBTA (0.05-0.5 μM) and TBTC (0.5-5.0 μM). TBTA and TBTC did not show a up to 0.25 μM and 1.0μM, respectively. However, at concentrations higher than 0.5 μM and 1.5 μM, TBTA and TBTC caused a neurotoxicity through an apoptotic process. In addition, TBTA (0.05-0.5 μM) and TBTC (0.5-5.0 μM) also enhanced L-DOPA-induced neurotoxicity (L-DOPA concentration, 10-100 μM). These results suggest that tributyltin compounds inhibit dopamine biosynthesis and stimulate L-DOPA-induced neurotoxicity in PC12 cells.
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[PB3-3] [04/19/2001 (Thr) 15:30 - 16:30 / Hall 4]

The effects of protoberberine alkaloids on L-DOPA-induced neurotoxicity in PC12 cells

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It has been reported that berberine and palmatine decrease dopamine content by inhibition of TH activity, and the IC50 values were 18.6 μM and 7.9 μM, respectively. In this study, the effects of berberine, palmatine and coptisine on L-DOPA-induced neurotoxicity were investigated by using PC12 cells. Berberine and palmatine showed concentration-dependent decrease in dopamine content, however, coptisine did not. L-DOPA at concentrations of 10-50 μM increased dopamine content, but, the increased dopamine levels were in part inhibited when L-DOPA (10-50 μM) were associated with berberine or palmatine. L-DOPA (20-50 μM), berberine (10-20 μM), palmatine (20-50 μM) or coptisine (10-20 μM) did not affect the cell viabilities, which were determined by the MTT