1-P-018

Poster Sessions

Acute treatment with cyclophosphamide in childhood suppresses hippocampal neurogenesis in the adulthood.

Yusuke Onaka¹, Kotaro Iwai¹, Miki Higuchi¹, Taro Yamaguchi¹, Masanori Yoneyama¹, Kiyokazu Ogita¹

¹*Lab. Pharmacol., Setsunan Univ.*

Chemotherapy for childhood cancer can cause late-appearing side effects in survivors that affect multiple organs, including the brain. Cyclophosphamide is used in childhood cancer and has the blood brain barrier permeability. The present study aims to reveal whether an acute treatment with cyclophosphamide in childhood affects the mental function and hippocampal neurogenesis in the adult mouse. Cyclophosphamide (50, 100 or 200 mg/kg) were intraperitoneally once injected to 3 weeks old male ddY mice. Five weeks after injection, the behavioral test battery was performed. After the test battery, mice were received 2 consecutive injections of BrdU (50 mg/kg) with a 12-h interval. BrdU positive cells in the hippocampal dentate gyrus were counted after immunostaining for BrdU. Treatment with cyclophosphamide had the ability to decrease the number of BrdU-positive cells in the dentate gyrus 5 weeks afterward. However, cyclophosphamide failed to change emotional and cognitive functions. These data suggest that the acute treatment with cyclophosphamide in childhood exhibits the prolonged suppressive effect on hippocampal neurogenesis, but not affecting emotional and cognitive functions under physiological conditions.