

Neuronal changes induced by chronic toluene exposure in the cat

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Chronic toluene inhalation provokes significant deleterious neurological effects in young glue sniffers and exposed workers. We have developed a chronic toluene inhalation model in the cat to address this issue. Neuronal changes using Loyez and acid fuchsin-eosin-gallicianine stainings were studied at prefrontal cortex, cerebellum and hippocampus. All these structures showed varying degrees of neuronal degeneration to necrosis. Even if injury signs were widespread, the neuronal layers were not equally affected and there were clear differences in injury severity. In the prefrontal cortex, injured neurons were observed in layers II, III and V/VI extending over several gyri. Lesions were time related, as was more clearly observed in Purkinje cells. In dorsal hippocampus alterations were particularly severe in CA1 and CA3. In ventral hippocampus damaged neurons were scarce and located mainly in CA2. The possible relation of this findings with behavioral changes observed during chronic toluene in