Brain and liver lipid peroxidation levels following acute and short-term lindane administration in the rat

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Oxidative stress-related parameters in rat brain and liver were evaluated following acute (60 mg/kg i.p., 2 and 24 h after dosing) or short-term (1000 ppm in the diet for 90 days) lindane administration. Both treatments elicited a significant accumulation of lindane in brain and liver, with convulsions observed in short-term and 24-h lindane-treated rats. In these conditions, lindane exposure did not alter brain lipid peroxidation, assessed as thiobarbituric acid reactants formation and spontaneous chemiluminescence, parameters that were enhanced in the liver. The activities of antioxidant enzymes in the brain (Superoxide dismutase, catalase, glutathione peroxidase, glutathione reductase and glucose 6-phosphate dehydrogenase) were not modified by acute lindane treatment, while brain glutathione content was significantly reduced by 13%. It is concluded that lindane does not alter the oxidative stress status of the brain as occurs in liver, regardless of the time of exposure of rats to e