Enhancement of lindane-induced liver oxidative stress and hepatotoxicity by thyroid hormone is reduced by gadolinium chloride

Simon-Giavarotti, Karin A.

Giavarotti, Leandro

Gomes, Ligia F.

Lima, Alessandra F.

Veridiano, Adriano M.

Garcia, Eduardo A.

Mora, Oswaldo A.

Fernández, Virginia

Videla, Luis A.

Junqueira, Virginia B.C.

The role of Kupffer cells in the hepatocellular injury and oxidative stress induced by lindane (20 mg/kg; 24h) in hyperthyroid rats (daily doses of 0.1 mg L-3,3?,5-triio-dothyronine (T3)/kg for three consecutive days) was assessed by the simultaneous administration of gadolinium chloride (GdCl3; 2 doses of 10 mg/kg on alternate days). Hyperthyroid animals treated with lindane exhibit enhanced liver microsomal superoxide radical (O2 ?-) production and NADPH cytochrome c reductase activity, with lower levels of cytochrome P450, superoxide dismutase (SOD) and catalase activity, and glutathione (GSH) content over control values. These changes are paralleled by a substantial increase in the lipid peroxidation potential of the liver and in the O2 ?- generation/SOD activity ratio, thus evidencing a higher oxidative stress status that correlates with the development of liver injury characterized by neutrophil infiltration and necrosis. Kupffer cell inactivation by GdCl3 suppresses liver injury