Chemiluminescent and respiratory responses related to thyroid hormone-induced liver oxidative stress

Fernandez, V.

Llesuy, S.

Solari, L.

Kipreos, K.

Videla, L. A.

Boveris, A.

Chemiluminescent and respiratory responses were studied in the liver of rats treated with 0.1 mg of triiodothyronine (T)/kg for I to 7 days. Hyperthyroidism resulted in significant increments in the spontaneous chemiluminescence of the in situ liver in animals exhibiting a calorigenic response. Microsomal NADPH-dependent oxygen uptake was enhanced by T, treatment for 2 days. an effect that was completely abolished by the antioxidant cyanidanol. A similar microsomal antioxidant-sensitive respiratory component was observed in this situation aftcr the addition of t-butyl hydroperoxide (t-BHP). However, basal rates of microsomal oxygen uptake and light emission in liver homogenates and microsomes were decreased by t-BHP, probably related to thyroid hormone-induced diminution in the content of cytochrome P-450 (Fernändez ei a/.) In addition, liver superoxide dismutase and catalase activities as well as the total content of glutathione were depressed by T, These results indicate that the cal