

Lanthanum effects on the adult rat brain antioxidant status and adenosinetriphosphatase activities: Modulation by L-cysteine

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Abstract

The aim of this study was to investigate the effect of the antioxidant L-cysteine (Cys, 7mg/kg) on the changes caused by La-administration (as La-chloride, 53mg/kg) on the adult rat brain total antioxidant status (TAS) and the activities of Na⁺,K⁺-ATPase and Mg²⁺-ATPase. Twenty-eight male Wistar rats were divided into four groups: A (saline-treated control), B (La), C (Cys), D (La and Cys). All rats were treated once daily with intraperitoneal injections of the tested compounds, for 1-week. One hour after the last injection, rats were sacrificed by decapitation and whole brain parameters were measured spectrophotometrically. Our findings revealed a partially protective role for Cys towards the oxidative effect of La on the adult rat brain. However, Cys could not (at least under the examined experimental conditions) significantly alter the Na⁺,K⁺-ATPase La-induced inhibition, while it further enhanced the Mg²⁺-ATPase La-induced inhibition.