

ENHANCEMENT OF CIRCULATORY ANTIOXIDANTS BY α -KETOGLUTARATE DURING SODIUM VALPROATE TREATMENT IN WISTAR RATS

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Enhancement of circulatory antioxidants by α -ketoglutarate during sodium valproate treatment in Wistar rats. V. MURUGESAN, P. SUBRAMANIAN. Pol. J. Pharmacol., 2003, 55, 31–36.

The effects of α -ketoglutarate (α -KG) on sodium valproate-induced hyperammonemia and hepatotoxicity were studied in biochemical experiments in rats. The levels of ammonia, urea, serum transaminases, hydroperoxides and thiobarbituric acid reactive substances were significantly increased in sodium valproate-treated rats. These levels were significantly decreased in α -KG- and sodium valproate-treated rats. Further, non-enzymatic (vitamins C and E) and enzymatic (superoxide dismutase and catalase) antioxidants were significantly decreased in sodium valproate-treated rats and were increased in α -KG- and sodium valproate-treated rats. These biochemical alterations during α -KG treatment could be due to (i) its ability to act as an ubiquitous collector of amino groups in body tissues, (ii) the participation of α -KG in the non-enzymatic oxidative decarboxylation in the hydrogen peroxide decomposition process and (iii) enhancing the proper metabolism of fats which could suppress oxygen radical generation and, thus, prevent the lipid peroxidative damages in rats.

Key words: *α -ketoglutarate, sodium valproate, hyperammonemia, antioxidants, lipid peroxidation*

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