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Plasma and brain catecholamines in experimental uremia: acute and chronic studies.

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Abstract

To evaluate the role of catecholamines (CA) in uremia, we used "high performance" liquid chromatographic technique with electrodetection to determine plasma and brain concentration of dopamine (DA), norepinephrine (NE) and epinephrine (E) in rats with acute and chronic uremia. The results revealed a steady elevation in plasma CA (p less than 0.05) in both acutely and chronically uremic rats when compared to the level of these neurotransmitters in controls. The highest changes were observed in DA and the least in NE (16.8 +/- 3.2 vs. 0.5 +/- 0.2 ng/ml and 93.2 +/- 11.1 vs. 68.1 +/- 16.3 ng/ml). There was a positive correlation between plasma CA and the duration of uremia (r = 0.97; p less than 0.05). The elevations were more pronounced in acutely uremic rats than in chronically uremic rats. This was followed by a concomitant depletion in the concentration of DA, NE and E in the brain. The defects in catecholaminergic neurotransmission as evidence of dysfunction in the autonomic nervous system may contribute to the development of neuropathy