Blood pressure, circulating atrial natriuretic peptide and sodium excretion responses during acute saline infusion in patients with essential hypertension

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摘要

Abstract

In order to examine whether changes in circulating atrial natriuretic peptide (ANP) and sodium excretion during saline infusion in patients with essential hypertension (EH) could be modulated by the severity of resting arterial blood pressure (BP), 30 subjects with EH and nine normotensive subjects were given 2 L of isotonic saline infusion at a rate of 500 mL/hour. Plasma ANP concentrations in EH increased significantly from 64.9±5.1 (mean±SEM) to 92.5± 12.8 pt/mL at the first hour and peaked at the second hour. In normotensives, the increase of plasma ANP was not significant until the fourth hour of inusion. Hypertensive subjects sustained a greater percentage increment of mean BP (MBP) than normotensives at the end of infusion. Those with pre-ssline MBP exceeding 107 mmHG (group A) exhibited a faster and greater rise in plasma ANP after saline loading than those having less than or equal to 107 mmHg (group B). The post-saline four-hour natriuresis was appreciably higher in group A than group B, while the percentage increment of MBP at the fourth hour was significantly greater in the latter as compared to normal controls. These results indicate that patients with higher basal arterial pressure attain a faster and greater ANP response following saline infusion than those with lower BP. This phenomenon may be responsible for the maintenance of short-term fluid-volume and BP homeostasis during acute sodium loading in established EH.#0481#.