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HEMODYNAMIC AND RENAL EFFECTS OF ATRIAL NATRIURETIC PEPTIDE IN NORMAL MAN  
G. Müller-Esch, J. Potratz, J.M. Heim, P. Ball, R. Lawrenz, P.C. Scriba  
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We studied the hemodynamic and renal actions of atrial natriuretic peptide ( $\alpha$ -hANP) in 7 healthy volunteers.

**Methods:** 200  $\mu$ g of  $\alpha$ -hANP were given as an intravenous bolus injection. M-mode-echocardiography was performed and serum levels of ANP and cGMP as well as cGMP-, sodium- and potassium excretion were determined.

**Results:** Within 2 min, a transient heart rate increase of 34% together with a fall of mean arterial blood pressure of 11% was observed. Stroke volume increased from  $77.5 \pm 15.1$  to  $90.3 \pm 10.2$  ml and cardiac index from  $2.44 \pm 0.41$  to  $2.88 \pm 0.41$  l/m<sup>2</sup>/min. Ejection fraction rose from  $62.9 \pm 1.8$  to  $73.5 \pm 3.8\%$  ( $p < 0.01$ ). Hemodynamic changes were most pronounced from 10 to 15 min after injection and reached baseline values another 15 min later. Serum ANP rose 20fold; exogenous ANP had cleared after 45 min from the circulation. cGMP rose 8fold within the first 15 min and normalized after 1 hour. Correspondingly, urinary cGMP excretion increased nearly 8fold. Urine volume increased 9fold, sodium excretion 5fold and potassium excretion doubled. These renal effects - in contrast to the hemodynamic changes - showed a maximum within the first 30 min, but were still present for at least 90 min later. No severe side effects were observed.

**Conclusions:** Improved myocardial performance together with sustained diuresis and natriuresis may be of therapeutic benefit in the treatment of congestive heart failure. The role of cGMP as a marker for ANP action is confirmed.

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