

ANP in the prevention of acute renal failure after transplantation

P. Gianello

Kidney and Pancreas Transplant Unit, University of Louvain Medical School, 10 Avenue Hippocrate, B-1200 Brussels, Belgium

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Sir: Smits et al. [1] report that an α human atrial natriuretic peptide (α -h-ANP) infusion immediately after declamping in cadaveric kidney transplantation does not seem to be of value in the prevention of acute renal failure (ARF).

This human study was undertaken following previous experimental ones in both dogs and rats in which ANP appeared to be able to protect the kidney against ischemia-induced lesions. The most interesting aspect of this human study is that the authors clearly demonstrate that intravenous α -h-ANP infusions of up to 0.08 μ g/kg per minute appear to be safe in anesthetized patients receiving a kidney allograft (group 1). Indeed, mean blood pressure remains stable despite high α -h-ANP plasma levels, and an additional fluid infusion produces, in all cases, a prompt return to normal blood pressure values.

However, the comparison between the two groups of patients receiving, in the first case, an α -h-ANP infusion into the renal artery of the transplanted kidney (0.05 μ g/kg per minute) followed by an intravenous α -h-ANP infusion at unknown dosages and, in the second case,

an intravenous α -h-ANP bolus injection with an additional mannitol injection (20%; 250 ml) before declamping, appears to lead to an erroneous interpretation. There was, in fact, no control group of patients that did not receive an α -h-ANP infusion. Therefore, in the two groups studied, the additional mannitol infusion was the only variable that could be analyzed.

Moreover, in this small study ($n = 11$ versus $n = 9$), mannitol does not influence the incidence of ARF, a finding that is contrary to what the authors have previously reported in a good prospective study in similar kidney recipients.

Furthermore, in the two groups compared in this study, the investigators used two different types of infusions, i.e., a continuous α -h-ANP infusion in group 2, versus a bolus injection in group 3.

I believe that while this study is of interest on several points (e.g., hemodynamic changes with high α -h-ANP doses in anesthetized patients), it is nevertheless erroneous to conclude that α -h-ANP does not seem to be able to prevent ARF after transplantation, especially if one takes into account both the small number of patients studied and the methodology used.

Reference

1. Smits P, Huymans F, Hoitsma A, Tan A, Koene R (1989) The effect of α -human atrial natriuretic peptide on the incidence of acute renal failure in cadaveric kidney transplantation. *Transplant Int* 2: 73-77