Atrial Natriuretic Factor in Hemodialysis patients:Effect of Dialy sate sodium concentration and Duration of Dialysis

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Atrial natriuretic factor (ANF) is the term that is most commonly used to describe a group of vasoactive natriureticpeptides that have been isolated from mammalian atrialcardiocytes. Because of its potent effects on distant tissues, it has been presumed that ANF acts as a circulating hormone. It is found within ultrastructural granules in theatria that anatomically resembles secretory granules ofendocrinal tissues and is derived from a large precursormolecule as are many peptide hormones.The present study was done in a trial to study the effect of duration of renal failure and hemodialysis on cardiac release of ANP and to study the effect of different sodium concentrations in the dialysate used in hemodialysis on plasma ANP level.The study was performed on 20 patients with end stage renal failure on regular hemodialysis. They were categorized into two groups:Group 1 which included 10 patients on regular hemodialysis more than 5 years duration. Dialysis was performed using variable sodium concentrations (from 130-140 mmol/L) and group II which included 10 patients on regular hemodialysis less than one year. In both groups : blood pressure, body weight, increase above dry weight were recorded and blood samples for plasma ANP, serum sodium and albumin were collected before dialysis. Another sample was taken at the end of dialysis in group II patients. Group II patients were dialyzed under different conditions using two dialysate sodium concentrations:- High sodium dialysate (140 mmol/L) in group IIH.- Low sodium dialysate (130 mmol/L) in group II L.Plasma ANP estimation was done by radioimmunoassay.The results showed that plasma ANP levels were higher before hemodialysis sessions than values present in normal subjects and these levels decreased during dialysis but levels at the end of dialysis were still higher than valuespresent in normal subjects. This decrease in ANP level during dialysis was associated with weight loss and intravascular volume contraction. This decrease was more significant when low sodium dialysate was used (130 mmol/L) although the nearly equal weight loss during dialysis in both grous I1H and IIL.The study also showed significantly higher plasma ANP levels in patients on hemodialysis for less than 1 year than patients on hemodialysis for more than 5 years although there was significantly higher interdialytic weight gain in the latter group.It was concluded that :1-Plasma ANP level is elevated in chronic renal failure patients on, regular hemodialysis probably due to inadequate degradation of ANF -by the diseased kidney.2-Plasma ANP level decreases after long years of hemo

dialysis probably due to decreased ability of the myocardium for ANP release.3-Low sodium dialysis seems to magnify the response to volume contraction.