The Cardio-Renal Syndrome

A.A.

Al-Khader

Department of Nephrology, Riyadh Armed Forces Hospital, Riyadh, Saudi Arabia

Dr. A.A. Al-Khader, Head, Department of Nephrology, Riyadh Armed Forces Hospital, PO Box 7897, Riyadh 11159 (Saudi Arabia)

Dear Sir,
Laboratory Findings

Renal impairment secondary to severely and chronically reduced cardiac output is well recognised. In our institution where there are active tertiary care cardiac and renal departments, we have had the opportunity to study many such cases and found many clinical and laboratory features in common in these patients which are outlined below. These features are so consistent and predictable that the name 'cardio-renal syndrome' is proposed to describe this condition (cf. 'hepato-renal syndrome').

Clinical Findings

(a) There is good evidence of a severely reduced cardiac output with clear clinical evidence of severe cardiac failure (including very often clinical evidence of liver congestion). The underlying cause for the cardiac output reduction is variable, but is very often due to a cardiomyopathic process, (b) The patient shows evidence of intra-vascular contraction with cold extremities, low blood pressure and low pulse pressure, (c) The patient is very often on a high dose of diuretics, (d) The urine output is usually reduced (but may be normal if the patient is on a high dose of diuretics and/or dopamine). (e) Search for other causes of renal impairment is negative.

(a) Serum urea is usually elevated out of all proportion to the rise in serum creatinine value (creatinine less than 3 mg/dl and urea more than 200 mg/dl). (b) Serum uric acid is usually very elevated (usually over 12 mg/dl). (c) Liver enzymes (SGOT and LDH) are mildly elevated as a manifestation of liver congestion, (d) Serum sodium is usually but not invariably reduced (often well below 125 mEq/l). (e) Haemocrit and haemoglobin values show evidence of haemoconcentration. (f) Fractional excretion of sodium (FENa) is less than 1%. (g) Urinary sediment is non-active, and there is very little protein in the urine.

The above clinical and laboratory findings would guide one to the diagnosis of cardio-renal syndrome, which would indicate severe cardiac lesion as the cause of renal impairment. The prognosis in this situation is very grave, unless the cardiac lesion is corrected (e.g. correction of valvular lesion). If this is not attainable, the mortality rate is over 50% in 1 year in our experience.