Renal and circulatory effects of large volume plasma expansion in patients with hepatorenal syndrome type 1.

Abstract:

Hepatorenal syndrome type I (HRS I) may be a consequence of circulatory dysfunction in cirrhotic patients with portal hypertension. This uncontrolled interventional pilot study examines the hemodynamic and renal effects of large volume plasma expansion in HRS I. 14 cirrhotic patients (8 m, 6 f, age 60 (58-65) years) with HRS I received large volume plasma expansion with up to 400 mL of 20% human albumin solution per 12 over 48 h under hemodynamic monitoring by transpulmonary thermodilution. Creatinine clearances (ClCreat) were calculated for 12-h periods. Plasma expansion was withheld if criteria of volume overload [Extravascular lung Water Index (ELWI)> 9 mL/kg or Global End-Diastolic Volume Index (GEDI)> 820 mL/m²] were met. Paracentesis was performed according to clinical necessity and treatment continued for 48 h thereafter. Serum creatinine values were observed for 12 days. Patients received 1.6 (1.5-2.0) g of albumin per kg bodyweight and day for 48 to 96 h. During the treatment period, GEDVI [724 (643-751) mL/m² vs. 565 (488-719) mL/m²; p = 0.001], cardiac index (CI) [4.9 (4.1-6.15) L/min/m² vs. 3.9 (3.4-5.0) L/min/m²; p = 0.033], urinary output [25 (17-69) mL/h vs. 17 (8-39) mL/h; p = 0.016] and ClCreat [20 (15-47) vs. 12 (6-17); p = 0.006] increased whereas systemic vascular resistance index (SVRI), plasma renin activity (PRA) and plasma aldosterone were
significantly reduced. At 48 h there were two complete responses (serum creatinine< 133 µmol/L) and on day 12, 8 patients had a complete response. HRS I may respond to large volume plasma expansion with or without paracentesis.