

Renal and hepatic support in severe septic shock from leptospirosis: a "Case Series" and the adoption of a new dialysis protocol



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Background

Leptospirosis is a zoonosis caused by a gram-negative bacterium of the Spirochetales family (leptospiraceae) associated with high mortality if not treated in time. The infection is contracted through direct exposure with the urine of carrier animals [1]. Clinical manifestations can range from pauci-symptomatic flu-like pictures, to manifestations with renal tubular damage (25-40%), to extremely severe conditions with potentially fatal multi-organ involvement (10-15%) known as Weil's disease [2]. The aim of this work is to analyze the benefit in applying our treatment protocol in patients with septic shock with AKI and ALF in the ICU, in terms of dose reduction of vasopressors and improvement of blood chemistry parameters.

Methods

The patients were all subjected to mechanical ventilation and the circulation supported by inotropes. All had severe AKI (Stage 3) and ALF (MELD Score > 16 or Bilirubin > 20 mg/dL). Patients underwent a combined treatment of CVVH (Amplia Medtronic ©) together with the use of CytoSorb ©. The CVVH was performed with Qb 150 ml/min, with a dialysis dose of at least 40 ml/kg/h (70% in pre-dilution). In two patients citrate was used as anticoagulant in the third patient the treatment was performed with a high pre-dilution (80%). The cartridge was replaced every 24 hours for three consecutive cycles. Antibiotic therapy was adequate considering an estimated removal of 40-50% of the recommended effective dose. Blood samples were taken to determine the rate of reduction of bilirubin, creatinine, WBC and PCR for each session.

Results

Three patients, all male, mean age 57 years, were enrolled following the diagnosis of leptospira-related septic shock. The starting conditions appeared homogeneous (Saps II 78 ± 6, SOFA 15 ± 5, Apache II 34 ± 6) with high total bilirubin values (> 20 mg/dl) and high inflammation indices (WBC, PCR, ESR). In all patients there was a progressive improvement in vital parameters with a reduction in the dose of vasopressors, ventilatory performance and in blood chemistry parameters (Total Bilirubin, RRS = 37.4%). All 3 patients survived after a prolonged stay in the ICU (LOS 31 +/- 3 dd).

Conclusion

Supportive treatment of hepatic and renal function in AKI and ALF performed with CVVH and CytoSorb was safe and effective.

Reference

1. Levett PN. Leptospirosis. Clin Microbiol Rev. 2001;14(2):296.
2. Yang C-W, Wu M-S, Pan M-J. Leptospirosis renal disease. Nephrol Dial Transplant. 2001;16(Suppl. 5):73-77.