Case Report: Shock Septic from Descending Necrotizing Mediastinitis - Experience with Immunoglobulins and Polymixin B Hemoperfusion

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Background: Acute mediastinitis (AM), because of its high mortality rate, is one of the most dangerous forms of infection in a human organism. It is a severe acute inflammation of the connective tissues located in the middle thoracic cavity. Descending necrotizing mediastinitis (DNM) represent the 20% of case of AM. DNM is a diffuse and progressive polymicrobical infection involving neck and chest with a high death rate. (10% to 40). There are no guidelines or published articles with high level of evidence (above level III) on the treatment of descending necrotizing mediastinitis. We describe here a case of septic shock due to DNM sustained by gram positive and gram-negative bacteria and treated with a multidisciplinary and multimodal approach.

Case Report: A previously healthy caucasian 38-year-old male presented to the Emergency Room in a peripheral hospital with fever, chest pain, dyspnoea, nausea and vomiting. A chest and neck computer tomography with contrast medium was done and it showed a wide abscess in left parotid-masseter region, that extended from the mouth’s floor up to the ipsilateral inferior parapharyngeal compartment; such lesion appeared of liquid consistency with aeerei contextual nucl; severe bilateral pleural effusion; abscess in the anterior mediastinum that extend form median to left paramedian area. The patient was transferred to the Intensive Care of University of Campania âœL. Vanvitelliâ• because of the necessity of Chest Surgery dedicated Intensive Care Unit. He immediately underwent to bilateral thoracotomy and left cervicotomy with abscess drainage and also 2.8 and 3.8 tooth avulsion and then he was admitted to Intensive Care Unit because of Septic Shock. (qSOFA 3, SOFA SCORE 12). All the cultural exams were done (Chest drain samples, blood cultures, bronchial aspirate colture, urine sample), and particularly the blood sample culture revealed the presence: Methicillin-resistant Enterococcus Raffinosus, Carbapenem-resistant Acinetobacter Baumanii (CRAB) and Carbapenem-resistant Klebsiella pneumonia (CR-Kp). The blood samples revealed also: WBC 17500/ml (Neu 85%, L 8%); PCR 12,3mg/dl; PCT 12ng/ml, EAA 0,72; body temperature 40°. Haemodynamic parameters: CCO 2.1 l/min Systemic vascular resistance 400 dynes sec/cm5 ; PAM 50mmHg (with dobutamine 8 microg/kg/min and norepinephrine 0,3microg/kg/min). The blood gases showed P/F 171 Lac 10mg/dl. He started an antibiotics therapy with: Linezolid 1,2gr/Die; Colestin 9000000UI/Die, Rifampicin 600mg/die, Tigecicline 100mg/die.. 36 hour after the surgical and antibiotics therapy we didn't notice a significant improvement so we decided to start a combined therapy with 250 ml/kg/day IgM enriched immunoglobulin preparation (Pentaglobin) for 3 consecutive day, together with Direct hemoperfusion therapy with polimixin B immobilized fiber cartridges for 2hours a day for 2 consecutive days. (Blood Flow 100ml/min). About three days after the beginning of this multimodal intensive and progressive treatments a gradual improvement in hemodynamic (PAM 85mmHg
without norepinephrine), blood gases and inflammatory markers (PCR 2.3 mg/dl, PCT 1 ng/ml, EAA < 0.6, body temperature 36.5°C), so the weaning from mechanical ventilation started. About three weeks after the ICU admission, successful weaning from the mechanical ventilation was achieved, and finally after five weeks the patient was transferred to Rehabilitation Institute.

Conclusion: Despite the contrasting data on the use of immunoglobulins and polymixin B hemoperfusion in septic shock and acute mediastinitis caused by either Gram negative and gram-positive multidrug resistant bacteria, we obtained an improvement of clinic conditions and the survival of the patient against all odds.