

CRITICAL ILLNESS POLYNEUROPATHY IN PATIENTS WITH SEPTIC SHOCK

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In critically ill patients, a distinct form of polyneuropathy, termed critical illness polyneuropathy (CIP), has been increasingly recognized. Despite a large number of investigations the onset and etiology of CIP is still unclear, especially in a group of patients at high risk for developing multiple organ failure. A prospective study was undertaken to evaluate the incidence and the onset of CIP, in a group of patients with septic shock.

Methods and results

Twenty-two patients (16 M/6F, mean age 57 years) with an established septic shock according to the criteria of Bone (1) were analyzed. The exclusion criteria were age above 80 years, coexistent diseases associated with polyneuropathy, or death within five days of inclusion. All patients received inotropic circulatory support and antibiotics (three patients received aminoglycosides in doses controlled by determinations of blood levels), were mechanically ventilated, and were sedated with midazolam infusions. There was no use of muscle relaxants. Multi system organ failure (MSOF) score (2) was calculated at inclusion and regularly thereafter. A complete neurological examination and electromyographic studies were performed within 24 hours and five days, respectively, and weekly thereafter. Diagnosis of polyneuropathy was based on a decreased conduction velocity, amplitude reduction of compound muscle potentials and the demonstration of spontaneous activity (3). Nineteen of 22 patients developed MSOF with a mean MSOF score of 4.8 +/- 1.1 points. In 11 patients (50%), the first neurological examination showed a generalized, symmetrical weakness, and absent or decreased tendon reflexes. Electromyographic studies demonstrated polyneuropathy in 19 patients (86%). In 17 patients, this condition was diagnosed at the first examination, performed within 5 days of onset of septic shock. In two patients, polyneuropathy was observed one week later. None of the patients revealed biochemical values suggestive of myopathy. All patients with MOF developed CIP, and on the other hand only 2 patients with CIP did not get MSOF. CIP paralleled the development of encephalopathy, as registered by EEG.

COMMENT

Our results indicate that CIP might be an early complication of septic shock, occurring more frequently than previously thought. Development of MSOF was unequivocally accompanied by CIP in this study, suggesting that the latter might be an integral part of MSOF. Previous studies have estimated the onset of CIP on 2-4 weeks (4, 5), when actually the difficulties in weaning from ventilation become apparent.

It seem reasonable to speculate that the same mechanisms leading to MSOF also are involved in CIP, such as malperfusion and hypoxemia. Patients with diabetes and renal failure are particular at risk. Remarkable is that nothing is known about the backgroundincidence of CIP in a hospital or ICU population.

Similar to Guillain-Barre syndrome a trial with plasmasubstitution in patients with proven CIP now under way.

Keywords: Critically illness neuropathy- septic shock- onset- electromyography- Multiple organ system failure

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