

Higher than recommended amikacin loading doses achieve pharmacokinetic targets without associated toxicity

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Antibiotic therapy improves the outcome of severe sepsis and septic shock, however pharmacokinetic properties are altered in this scenario. Amikacin (AMK) is an option to treat community or nosocomial infections, although standard doses might be insufficient in critically ill patients. The aim of this study was to evaluate two AMK dosage regimens in comparison with standard therapy with regard to efficacy in achieving adequate plasma levels as well as safety. In total, 99 patients with severe sepsis or septic shock were randomised to different AMK dose protocols: Group 1, 25 mg/kg/day; Group 2, 30 mg/kg/day; and Group 3, historical standard dose (15 mg/kg/day). Peak plasma concentrations at 1 h (C_{max}) were determined. Pharmacokinetics was determined and renal function was monitored to evaluate toxicity. Groups were compared using bilateral T-test. Demographic characteristics of the three groups were comparable. AMK C_{max} values were 57.4 ± 9.8 , 72.1 ± 18.4 and 35.2 ± 9.4 $\mu\text{g/mL}$, respecti