

Audit of amikacin usage pattern in the internal medicine ward of Namazi hospital, Shiraz, Iran

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Background and Aims: The study was designed to evaluate the usage pattern of Amikacin in the internal medicine ward.

Methods: This cross-sectional study was conducted in the internal medicine ward of Namazi hospital, Shiraz University of Medical Sciences, Shiraz, Iran. Guidelines for Amikacin use were approved by Pharmacy and Therapeutics Committee and study criteria were developed to assess several parameters involved in Amikacin therapy, such as appropriateness of drug use, dosage, duration of therapy, monitoring for toxicity and serum concentration monitoring. Serum concentration is being assayed by Cobas_Mira autoanalyzer. Clinical and paraclinical parameters such as glomerular filtration rate, culture, microbial sensitivity, white blood cell count and fever are being collected.

Results: Sixty- three patients have been recorded, including 30 male and 33 female. The mean \pm SD age of the patients was 55 ± 22.2 . For 57% of patients, dose readjustment should be considered, although for 89% of whom it was not performed. Culture 48-72 hour after Amikacin administration was not controlled for 79% of patients. Fever, WBC count, negative culture and clinical signs and symptoms were controlled for 89%, 63%, 10% and 10% of patients, respectively. Pharmacokinetic dosing method was not used for patients. In 19% of the cases optimum therapeutic effect was not achieved but in 50% of them Amikacin therapy was continued without any change. The mean \pm SD of trough and peak concentrations were 7.63 ± 5.4 $\mu\text{g/ml}$ and 15.67 ± 7.79 $\mu\text{g/ml}$, respectively. 45% of trough and 38% of peak levels were in therapeutic range and 45% of trough and 10% of peak levels were in toxic level. Only in 48% of the cases Amikacin usage was based on guidelines.

Conclusions: In order to achieve appropriate treatment and prevent toxic effects, using pharmacokinetic dosing method, Amikacin guidelines and serum monitoring is recommended.

Keywords: Guideline; Amikacin; Pharmacokinetic dosing method