

Evaluación farmacocinética y farmacodinámica del tratamiento con vancomicina en la bacteriemia por *Staphylococcus aureus* resistente a meticilina.

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Objective: The objective of the study is to evaluate the ability of standard vancomycin dosing strategies actually recommended to attain the pharmacodynamic target of an area under the curve of vancomycin serum concentration versus time from 0 to 24 hours (AUC_{24h}) to minimum inhibitory concentration (MIC) ratio greater than 400:1 for patients with a suspected or documented methicillin-resistant *Staphylococcus aureus* (MRSA) bacteraemia by individual analysis and MonteCarlo simulation.

Material and methods: The study included all patients admitted with suspected or proven MRSA infection during the years 2007-2008, and who were initially treated with vancomycin at a dose of 30 mg/kg/ day, and underwent pharmacokinetic monitoring. The area under the curve of vancomycin serum concentration versus time from 0 to 24 hours (AUC_{24h}) was calculated as daily dose/ clearance total (D_{24h}/ CL). Additionally, we studied 45 isolates of MRSA obtained from blood cultures in the period 2007-2008. The MIC to vancomycin was determined using Epsilon-test. The PK-PD parameter calculated was AUC_{24h}/ MIC. Microsoft Excel was used to perform a 10.000 subject Monte Carlo simulation. An AUC_{24h}/ MIC ≥ 400 was assumed as the target attainment.

Results: In the individual study, the percentage of patients with AUC_{24h}/ MIC ≥ 400 was 50%. The probability (%) of attaining AUC_{24h}/ MIC ratio values ≥ 400 by MonteCarlo simulation was of 66%. The vancomycin MIC value from which the scenario would have to wait a suboptimal treatment (target <90%) was >1 mg/ L. Discussion: This study shows that in the population studied to achieve a vancomycin AUC_{24h}/ MIC ≥ 400 is not always attained with the standard dose. Therefore, one would expect a high probability of suboptimal vancomycin AUC_{24h}/ MIC ratios for patients infected with organisms with vancomycin MICs of >1 mg/ L treated with doses of 30 mg/ kg/ day.