In vitro activities of various piperacillin and sulbactam combinations against bacterial pathogens isolated from intensive care units in Taiwan: SMART 2004 programme data.

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摘要

Abstract

We investigated the in vitro activity of various piperacillin and sulbactam combinations against Gram-negative bacterial isolates from Intensive Care Units (ICUs) in Taiwan. Antimicrobial susceptibility testing of 1030 bacterial isolates recovered from ICUs of nine major teaching hospitals was performed using the agar dilution method. Sulbactam was added to piperacillin either at a fixed sulbactam concentration of 4 mg/L and 8 mg/L or at a piperacillin:sulbactam ratio of 2:1 and 4:1. Piperacillin/ sulbactam at a ratio of 2:1 or a fixed 8 mg/L concentration of sulbactam had better activities against Escherichia coli, Klebsiella pneumoniae, Proteus mirabilis and Serratia marcescens than other piperacillin/sulbactarn formulations. For Pseudomonas aeruginosa, piperacillin/sulbactam (2:1 or 4 :1 ratios) had MIC90 values (minimum inhibitory concentration for 90% of the organisms) of 64 mg/L (> 90% susceptibility) compared with 64 mg/L for cefoperazone/ sulbactam (68% susceptibility) and 128 mg/L for piperacillin /tazobactam (82% susceptibility). For Acinetobacter baumannii, both piperacillin/sulbactarn (either2:1 ratio or a fixed 8 mg/L sulbactam) and cefoperazone/sulbactam were the most potent agents. Adding sulbactam to piperacillin resulted in increased susceptibility rates among piperacillin-resistant P. aeruginosa (53-57% in either 2:1 or 4:1 ratios) and A. baumannii (38-46% in either 2: 1 ratio or a fixed 8 mg/L concentration of sulbactam) isolates. Results of susceptibility tests with piperacillin/sulbactam are dependent on the method used. Piperacillin/sulbactam combinations possessed better in vitro activities than piperacillin alone or piperacillin/tazobactam against P. aeruginosa and A. baumannii.