

Selection of piperacillin/tazobactam infusion mode guided by SOFA score in cancer patients with hospital-acquired pneumonia: a randomized controlled study

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Abstract

BACKGROUND: This study aimed to select piperacillin/tazobactam infusion mode guided by Sequential Organ Failure Assessment (SOFA) score in cancer patients with hospital-acquired pneumonia (HAP) post-operation. **METHODS:** Total 120 cancer patients with postoperative HAP were divided into two groups: improved administration group (L group) and conventional treatment group (Con group). Con group received Piperacillin/Tazobactam (TZP) in traditional infusion, and L group received prolonged infusion. Blood drug concentration was detected at different time points. Based on SOFA cut-off value of 9 the patients were re-grouped into M (mild) and S (severe) group. **RESULTS:** %fT>MIC time was longer than 5 h in L group but was shorter than 4 h in Con group. Administration method ($p = 0.033$, OX value 2.796, B value 1.028, 95% CI 0.855 ~ 8.934) and SOFA score ($p = 0.038$, OX value 0.080, B value -2.522, 95% CI 0.007 ~ 0.874) were independent predictors of patient survival. In S group, compared to conventional treatment, prolonged infusion mode had shorter days of antibiotics use and shorter ventilator time, and achieved longer survival, better clinical efficacy and lower 28-day mortality rate. **CONCLUSION:** For cancer patients with SOFA score ≥ 9 , prolonged infusion mode of TZP could benefit the patients and obtain better clinical efficacy.

Key words: cancer, Sequential Organ Failure Assessment score, piperacillin, tazobactam, pneumonia, antibiotics

Image

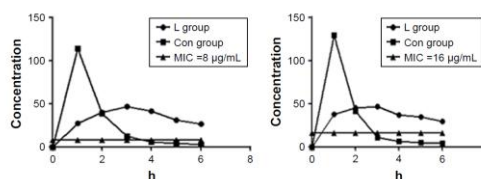


Figure 1 %fT>MIC in L group and Con group with MIC of 8 and 16 µg/mL.
Notes: The Con group (conventional treatment group) received traditional infusion of TZP and the L group (improved administration group) received it as prolonged infusion.
%fT > MIC represents the percent time that free drug concentrations remain above the MIC.
Abbreviation: MIC, minimum inhibitory concentration.

Recent Publications (minimum 5)

1. Li J, Song X, Yang T, et al. A systematic review of antibiotic prescription associated with upper respiratory tract infections in China. *Medicine (Baltimore)*. 2016;95(19):e3587.
2. Zhou YF, Shi W, et al. Pharmacokinetic/pharmacodynamic correlation of cefquinome against experimental catheter-associated biofilm infection due to *Staphylococcus aureus*. *Front Microbiol*. 2016;6:1513.
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Biography

Yang LYU is engaged in the clinical and basic researches of tumor immunity and critical tumor patients in peri-operative period and the epigenetic regulation of tumor and molecular biological research of tumor immune modulation. In Intensive Care, he worked on the treatment of critically ill patients and is proficient in hemodynamic assessment, cardiopulmonary resuscitation, multiple organ function support, treatment of severe sepsis and septic shock in critically ill patients. His main scientific research directions are related to the epigenetic regulation of esophageal cancer and thymoma, and the molecular biological researches in immune regulation of malignant tumor. In this years, he led and participated several Projects and Grants. He is the member of the American Association for Cancer Research (AACR), American Association for the Advancement of Science (AAAS), Chinese Anti-Cancer association (CACA) and Chinese Society of Clinical Oncology (CSCO), etc.

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Notes/Comments: No Comment.