We performed a network meta-analysis (NMA) to compare the efficacy and safety of antibiotics used to treat inpatients with complicated skin and soft structure infections” Zhang et al (2019).

Abstract:

Background: Infections due to methicillin-resistant Staphylococcus aureus (MRSA) cause serious health risks and significant economic burdens and the preferred drugs are still controversial.

Methods: We performed a network meta-analysis (NMA) to compare the efficacy and safety of antibiotics used to treat inpatients with complicated skin and soft structure infections (cSSSI) or hospital-acquired or ventilator-associated pneumonia (HAP/VAP). We also developed a decision tree model to assess the cost-effectiveness of antibiotics.

Results: Forty-nine randomized controlled trials met the inclusion criteria (34 for cSSSI, 15 for HAP/VAP) and compared the efficacy and safety of 16 antibiotics. For cSSSI, NMA indicated that for clinical cure, linezolid was superior than vancomycin (odds ratio (OR) 1.55, 95% confidence interval (CI) 1.19–2.02), while tedizolid (OR 1.39, CI 0.70–2.76) was similar to vancomycin. In terms of safety, there were no significant differences between any two interventions on total adverse events. Based on drug and hospital costs in America, the incremental cost-effectiveness ratios (ICERs) per life-year saved for linezolid and tedizolid compared with vancomycin were US$2833 and US$5523. For HAP/VAP, there were no
significant effects either for clinical cure or for safety endpoints between linezolid and vancomycin in NMA. ICERs per life-year saved for linezolid compared with vancomycin were US$2185.

Conclusion: In these clinical trials, considering efficacy, safety, and cost-effectiveness, linezolid and tedizolid showed their superiority in MRSA cSSSI; while linezolid might be recommended to treat MRSA pneumonia. Although vancomycin was not cost-effective in pharmacoeconomic evaluation, it is still the first-line treatment for MRSA infection in the clinical practice. This study might provide new insights of therapeutic choices for patients with MRSA infections whilst awaiting the arrival of higher quality evidence.

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