عنوان مقاله:

In vitro Synergistic Effect of Vancomycin and some Antibacterial Agents against Clinical Methicillin-Resistant and Sensitive Staphylococcus aureus Isolates

محل انتشار:

بیستمین کنگره بین المللی میکروب شناسی ایران (سال: 1398)

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خلاصه مقاله:

Introduction and Objectives: Methicillin-resistant Staphylococcus aureus (MRSA) can be responsible for serious long-term infections. Sometimes monotherapy can be ineffective for the treatment of these infections; hence, it is hypothesized that combined drug treatment can be more potent in these cases. The aim of this study was to investigate the synergistic effect of vancomycin and eight other antibacterial agents, in order to identify the best combination pattern in the management of MRSA.Materials and Methods: AZDAST (Ameri-Ziaee Double Synergism Test), double-disc, checkerboard, and time-kill methods were used to assess the synergistic effect in 24 isolates of Staphylococcus aureus (S. aureus), including 22 MRSA and two Methicillin-sensitive Staphylococcus aureus (MSSA). Furthermore, based on the results, handmade combined antibiotic discs were prepared to evaluate the results of the checkerboard, and time-kill methods at the plate level. Results: All the isolates were sensitive to vancomycin, linezolid, and daptomycin. Furthermore, penicillin had the highest resistance (100%) in all isolates. The synergistic activities were observed, when the vancomycin was combined with the imipenem, using three double-disc, checkerboard, and time-kill methods. The sub-minimum inhibitory concentration (MIC) amount of the combined discs could increase the diameter of the inhibition zone, confirming the results. Conclusion: The data obtained from this study suggested that vancomycin and imipenem together, even at sub-MIC, could be effective against MRSA and MSSA infections. Based on the results, the double-disc and combined discs tests can be valuable for an in-house screening in the hospitals' laboratories to faster diagnose the best-combined drugs for therapy of MRSA infections.

کلمات کلیدی:

Staphylococcus aureus; MRSA; MSSA; Vancomycin; Synergy; Antimicrobial drug.