

Berberine: Best Alternative Medicine Insight Abating Global Challenges for Treatment of MRSA Infections [Letter]

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Dear editor

We read with great interest the publication entitled “In vitro Antimicrobial Activity and the Mechanism of Berberine Against Methicillin-Resistant *Staphylococcus aureus* Isolated from Bloodstream Infection Patients”.¹

The authors prospectively investigated the antimicrobial activity of berberine and the mechanism by which it combats methicillin-resistant *Staphylococcus aureus* (MRSA) strains isolated from patients with bloodstream infections.

Berberine (BER) alone, and when combined with clindamycin (CLI) and rifampicin [RIF] separately, displayed excellent antibacterial activity.

Additionally, bacterial cytological profiling indicates that berberine destroyed the structure of the cell walls, biofilm formation, membrane integrity and further changed the cell morphology with increased concentration.

However, we would like to improve the study by adding specific comments. According to recent CLSI guidelines (M100; 2022; Ed32)² rifampicin should not be used alone for antimicrobial therapy. The authors mentioned the CLSI guidelines in Methodology with reference number “19”; wherein it is a book chapter reference and the author did not give any CLSI guidelines and its references in the bibliography. Furthermore, according to National Treatment Guidelines for Antimicrobial Use in Infectious Diseases-India³, the given guidelines are that rifampicin use should be avoided in diseases other than mycobacterial diseases. Identically it is applicable for all Asian countries where prevalence of tuberculosis is high.

The following criteria have been proposed for initiating rifampicin –

Empiric or proven TB as a part of ATT (4 drug regimen).

Rifampicin should not be prescribed in our country for any treatment other than for mycobacteria. Rifampicin should not be prescribed alone as an antibacterial.

Similarly, the Infectious Diseases Society of America (IDSA) has given guidelines that adding gentamicin or rifampicin to vancomycin is not recommended in patients with bacteraemia or native valve infective endocarditis.⁴ Data are insufficient to support the routine use of combination therapy with rifampicin or gentamicin in children with bacteraemia or infective endocarditis.

However, we recommend this article and authors for conducting thorough investigations about synergistic effects of BER in combination of CLI and RIF.

Consequently, we hope that future studies will evaluate synergistic effects with combinations of oxacillin, azithromycin, and levofloxacin, whereas an additive effect has been reported for BER in combination with ampicillin, and cefazolin, which might help in abating global antimicrobial resistance to MRSA.

Disclosure

The authors report no conflicts of interest in this communication.

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