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Editorial

Re-evaluating colistin: A critical tool against multidrug-resistant gram-negative bacteria

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In the face of rising antimicrobial resistance, colistin has emerged as a vital treatment option for multi-drug resistant (MDR) Gram-negative bacterial infections in tertiary care settings. This polymyxin antibiotic, first introduced in the 1950s, was largely abandoned due to its toxicity but has been revived as a last resort against MDR organisms.

1. Current Use and Effectiveness

Colistin is particularly effective against MDR Pseudomonas aeruginosa, Acinetobacter, and other Gram-negative bacteria that have developed resistance to broad-spectrum antibiotics. Studies have shown that colistin sensitivity patterns vary among different isolates, highlighting the need for continued monitoring of antibiotic resistance.[1] In some cases, colistin has been found to be effective against organisms resistant to other antibiotics, making it a crucial option for treating severe hospital-acquired infections.

2. Challenges and Concerns

Despite its effectiveness, colistin use is not without challenges. One major concern is the risk of nephrotoxicity, which can limit its use in certain patient populations. A study on colistin-induced acute kidney injury (AKI) found that careful monitoring and dose adjustments can help mitigate this risk. Additionally, the emergence of colistin-resistant strains, such as those harboring the mcr gene, poses a significant threat to public health.[2,3]

3. Regional Insights and Resistance Patterns

Regional studies have reported varying patterns of colistin resistance. For instance, a surveillance study in North India found 12% of Pseudomonas spp. isolates to be resistant to colistin. Acinetobacter species have also shown 11% resistance to colistin, highlighting the need for ongoing surveillance and antimicrobial stewardship.[4]

4. Best Practices for Colistin Use

To ensure the continued effectiveness of colistin, healthcare professionals should:

1. Use colistin judiciously: Reserve colistin for infections caused by MDR Gram-negative bacteria, where other treatment options are limited.
2. Monitor renal function: Regularly assess patients for signs of nephrotoxicity and adjust doses accordingly.
3. Conduct susceptibility testing: Perform susceptibility testing to guide treatment decisions and detect resistance.
4. Implement infection control *measures*: Prevent the spread of MDR organisms through strict infection control practices.

5. Conclusion

Colistin remains a valuable treatment option for MDR Gram-negative bacterial infections in tertiary care settings. However, its use must be balanced with the need to prevent

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resistance and minimize toxicity. By promoting judicious use, monitoring resistance patterns, and implementing best practices, healthcare professionals can help preserve the effectiveness of colistin for future generations.[5]

6. Conflict of Interest

None.

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