Antimicrobial resistance: A growing threat to public health.

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Introduction

Antimicrobial Resistance (AMR) stands as one of the most pressing challenges facing global public health in the 21st century. It refers to the ability of microorganisms—bacteria, viruses, fungi, and parasites—to resist the effects of antimicrobial agents, such as antibiotics, antivirals, antifungals, and antiparasitics, that were previously effective in treating infections. The emergence and spread of AMR threaten to undermine decades of progress in medicine and healthcare, making even routine infections potentially deadly and complicating the treatment of many diseases [1, 2].

Antimicrobial resistance develops naturally over time through genetic changes in microorganisms. However, the misuse and overuse of antimicrobial agents in humans, animals, and agriculture accelerate this process. Misuse includes inappropriate prescribing practices by healthcare providers, patient non-adherence to treatment regimens, and the widespread use of antibiotics in livestock and agriculture for growth promotion and disease prevention rather than treatment [3, 4].

The consequences of AMR are far-reaching. Infections that were once easily treatable with antibiotics can now become prolonged, more severe, and potentially life-threatening. This not only increases healthcare costs but also contributes to longer hospital stays, higher mortality rates, and significant societal and economic burdens [5, 6].

AMR affects people of all ages and socioeconomic backgrounds worldwide. In low- and middle-income countries, where infectious diseases are more prevalent and healthcare resources are limited, the impact of AMR is particularly profound. Treatments for common infections like pneumonia, tuberculosis, and urinary tract infections become less effective, leading to increased morbidity and mortality [7, 8].

By prioritizing antimicrobial stewardship, investing in research and development, and raising awareness among healthcare providers and the public, we can work towards a future where antimicrobials remain effective tools in combating infectious diseases. The time to act is now, to ensure that we protect the health of current and future generations against the growing threat of antimicrobial resistance [9, 10].

Conclusion

Antimicrobial resistance poses a significant threat to public health globally, jeopardizing our ability to effectively treat infections and undermining healthcare systems worldwide. Addressing AMR requires concerted efforts at local, national, and international levels, involving stakeholders from diverse sectors. While challenges persist, ongoing research, innovation, and collaboration offer hope for mitigating the impact of AMR and preserving the effectiveness of antimicrobial agents for future generations.

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