Antibiotic resistance: A global threat

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Statement of the problem: Antimicrobial resistance is an under-appreciated threat to public health in nations around the globe. With globalization booming, it is important to understand international patterns of resistance. The effectiveness of many antibiotics is decreasing due to its extensive use for over a decade or two. This has led to an increase in the number of bacterial strains acquiring resistance to these antibiotics. When pathogenic microorganisms can multiply beyond some critical mass in the face of invading antimicrobials, treatment outcome is compromised; this phenomenon is referred to as antimicrobial resistance (AMR).

Methodology & Theoretical Orientations: The retrospective study was carried out in a teaching hospital, Greater Noida to determine the prevalence of multidrug resistance in patients in relation to empirical antibiotic therapy in the hospital. Various samples (pus, urine, blood) were collected for bacterial culture and antibiotic sensitivity. Total 476 bacterial strains were taken in these studies which were isolated from ICU, surgery, obstetrics & gynecology and orthopedics. The 56 bacterial isolates were found to be resistant to multiple drugs. The 29 (51.78%) of resistant bacteria were prevalent in ICU, 12(21.42%) in Gynaecology,10(17.85%) in Surgery, 05(8.92%) in Orthopedics and were studied for their antibiotic sensitivity pattern. The highest numbers of resistant bacteria were Staphylococcus aureus i.e. 15(26.78%) cases followed by 13(23.21%) of Pseudomonas sp., 10(17.85%) of Proteus vulgaris, 09(16.07%) of Escherichia coli, 08(14.28%) of Klebsiella sp. and 01(1.78%) of Citrobacter sp. All the bacterial strains were resistant to common antibiotics like Penicillin, Amoxicillin, Doxycycline & Cotrimoxazole and some were even resistant to Imipenem. Therefore we have outlined the nature of the antimicrobial resistance problem as an important health and cost issue for the national and international community.

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