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Bacteriological profile of urinary tract infection between 2014 and 2020 at the Avicenne military hospital in Marrakech

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Introduction: Urinary tract infection (UTI) is one of the most common bacterial infections and is a major public health problem. The objective of this work is to propose, based on updated data, the microbial ecology of UTI at the Avicenne Military Hospital in Marrakech, and to monitor the antibiotic sensitivity profile of uropathogenic bacteria.

Materials and methods: This work is a retrospective study with a descriptive aim, which was carried out on 21,407 cytobacteriological urinary examinations of inpatients and outpatients treated at the microbiology laboratory of the Avicenne military hospital in Marrakech, over a 6-year period from January 2014 to December 2020. The cyto-bacteriological examinations are carried out using conventional or automated techniques. The culture is done on agar medium. The antibiogram is done by automated technique (the Phoenix® 50 from BectonDeckinson) and the interpretative reading of the antibiogram is done according to the recommendations of EUCAST (European Committee on Antimicrobial Susceptibility Testing). The statistical analysis of the results is done on SPSS.

Results and discussion: Out of all the UCBs examined, 3211 met the criteria for a urinary tract infection, the positivity rate was 13%. 70% of the UCBs came from inpatients and 30% from outpatients, with an F/H sex ratio of 1.1. The bacteriological profiles of the infections show that the predominant bacteria are Enterobacteriaceae (84% of positive UCBs) with Escherichia coli (60%), followed by Klebsiella pneumoniae (16%).

The reading and interpretation of the antibiograms showed that Enterobacteriaceae have high rates of resistance to aminopenicillins + clavulanic acid, 61.4% for Escherichia coli and 67% for Klebsiella pneumoniae. Enterobacteriaceae resistance to fluoroquinolones is of the order of 32.2% for Escherichia coli, 31.8% for Klebsiella spp, while for the Trimethoprim + Sulfamethoxazole combination more than half of the strains were resistant. On the other hand, aminoglycosides still have a good activity profile on enterobacteria.

The prevalence of MRB is 8.8%. They are represented by Enterobacteriaceae producing extended spectrum betalactamases (ESBLs) which were isolated in 87% of cases (N=245), with a predominance of Escherichia coli (52%) followed by Klebsiella pneumoniae (22%) and Enterobacter cloacae (16%); ceftazidime-resistant Pseudomonas aeruginosa (PARC) occupies 2nd place with 7% (n=20); finally, methicillin-resistant Staphylococcus aureus (MRSA) and imipenem-resistant Acinetobnacter baumanii (ABRI) occupy 3rd place with levels at 5% (n=14). The results obtained in our study are in perfect agreement with the data in the literature.

Conclusion: These BMRs are a worrying problem, hence the need for strict application of hygiene rules and rational prescription of antibiotics. The knowledge of bacteriological profiles and the use of targeted antibiotic susceptibility testing will allow a more appropriate management for each hospital context.

Biography

Hamza Oualhadj research interest includes bacteriology-virology and molecular biology. HIHs main intention is to elaborate knowledge of bacteriological profiles and the use of targeted antibiotic susceptibility testing will allow a more appropriate management for each hospital context.

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