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The clinical and epidemiological risk factors of infections due to multi-drug resistant bacteria in an adult intensive care unit of university hospital center in Marrakesh, Morocco

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Introduction: Infections with MDR bacteria is a major public health problem worldwide. These infections are particularly serious in ICU for the fragility of the field and multiple invasive procedures. Thus, early diagnosis is necessary and indispensable for proper management. Bacteriological samples including blood culture samples and devices are key diagnostic examinations infections with MDR bacteria, especially as clinical signs are not specific.

Aim: The aim of our study is to evaluate the epidemiology and the clinical and epidemiological risk factors responsible for infections with MDR bacteria at a tertiary intensive care unit, CHU Mohammed VI, Marrakech.

Materials & Methods: The study lasted 13 months, from March 1st 2015 to March 28th 2016. This prospective study was conducted in a 10-bed clinical-surgical ICU for adults. All analyzes were performed at the medical microbiology laboratory of the hospital. Adult patients with a first clinical episode of infection with Healthcare Acquired Infection (HAI) were included in the study. The samples were sent to the laboratory for diagnostic purposes. The level of antibiotic resistance has been studied by the agar diffusion method. The choice of antibiotic susceptibility testing and interpretation criteria were made as recommended by the Antibiogram the Committee of the French Society of Microbiology and standards of the European Committee on Susceptibility (EUCAST, 2015).

Results: During the study period, 225 bacterial strains were isolated from the samples taken. The antibiotic resistance profile shows that 43% of strains were multidrug resistant. The MRB were represented mostly by *Acinetobacter baumannii* strains resistant to imipenem (ABRI) 72%, followed by beta-lactamases producing Enterobacteriaceae extended spectrum (ESBL) 19% and 6% of *Staphylococcus aureus* resistant to methicillin (MRSA). While only 3% of MRB were characterized as *Pseudomonas aeruginosa* strains resistant to ceftazidime (PARC). We showed also that nosocomial infections due to BMR were dominated by pneumonia (44% of cases), followed by bacteremia, urinary tract infections, infections of catheters and meningitis with frequencies that are respectively of about 26%, 12%, 11% and 4%.

Conclusion: In conclusion, we showed the alarming presence of MDR bacteria and especially ABRI as bacteria responsible for HAI in the ICU basically is related to main risk factors specified by the multivariate analysis. These results illustrate the urgent obligation and need for practical actions in order to strength technical measures with infection control efforts to reduce HAI caused by MRD bacteria and improve patient outcomes by setting a rational and an appropriate antimicrobial use in hospitals but specifically in ICUs levels.

Biography

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