Bacteriological profile of infection nosocomial urinary in intensive care unit ofhospital El idrissiKenitra in Morocco

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ABSTRACT

Nosocomial urinary infections represent a real public health issue, they are particularly common in patients hospitalized in intensive care, in fact they represent the second cause of nosocomial infections acquired in intensive care after pneumonia. The aim of our study is to identify the bacterial ecology of the germs responsible for nosocomial urinary infection and antibiotic resistance in order to update the epidemiological data. This study was carried out in the hospital's intensive care unit of hospital El idrissi of Kenitra. From a total of 110 Urine culture (urine culture), 17, 2% were positive. Acinetobacterbaumannii is the species that dominated the epidemiological profile with 7 strains, followed by Pseudomonas aeruginosa which is represented by four strains. Enterobacter cloacae and Escherichia coli were isolated with the same staff (3). Aeromonashydrophila was isolated from two patients. The main risk factor was gender and age, against the wearing of probe in our study did not represent a risk factor unlike other studies. These results show that urinary tract infection in intensive care unit is mainly due to multiresistant bacteria. This situation requires a rationalized prescription of antibiotics to maintain the sensitivity of the active molecules and also maintained hospital hygiene. The knowledge of the bacterial ecology in the intensive care unit is an indispensable tool for better care for patients in terms of first-line antibiotics prescription.

Keywords: nosocomial urinary infection, reanimation, multiresistant bacteria.
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INTRODUCTION

A Urinary infection is said nosocomial when it is acquired in a healthcare facility or more broadly related to patient care [1,2,3,4,5]. She fortunately asymptomatic mild infection in the majority of cases, however, the means used to ensure its diagnosis and treatment are an important part of the health budget. [6] It is also associated with lower morbidity compared to other nosocomial infections but can in some cases cause a fatal bacteremia. The origin of urinary nosocomial bacteria is endogenous in the majority of cases [7]Indeed the presence of bacteria in the urinary tract, sometimes with a high level of resistance is a microbiological tank posing therapeutic problems, occurring almost exclusively in a probed patient.

According to a study that we realized in the hospital intensive care unit of El Idrisikenitra, nosocomial Urinary infections are placed second behind nosocomial pneumonia [8]

The objective of this work is to identify the bacteria responsible for nosocomial urinary infection in the intensive care unit of the hospital El idrissi Kenitra and determine their frequency and their resistance profile different antibiotics in order to update epidemiological data

MATERIALS AND METHODS

The cytobacteriologiques urinalysis (CBU) are of the suspicion a urinary infection, they are performed in the probed patients after clamping the urinary catheter, disinfection and syringe aspiration, urine are subsequently placed in labeled sterile vials. The aim of CBU is to confirm the diagnosis of urinary infection and guide the choice of antibiotic treatment, Achieving a urinalysis involves two steps:

The first step consists in carrying out a direct examination of the sample under a microscope which allows a cytology (leukocyte count / mm3 and red blood cells / mm3), noting the presence of bacteria crystals and if in large quantities, it can under the urgency to make the first results can guide the conduct of the prescriber.

The second step involves culturing of the sample on specific culture medium that allows for the quantification, identification and antibiotic susceptibility profile (the eventual germ. It is this second step that requires, as appropriate, 24 to 72 hours before you can make full results

The seeding was carried out on CLED agar, the identification was made on API bioMérieux® galleries and antibiogram was performed on Muller Hinton agar as recommended by the CA-SFM [9

In total of 110 patients taken, the average age of the population was 52 years; it varied between (9 - 95 years) of which 67.5% are in the age group (20-50 years) our population was characterized by a slight male predominance. The sex ratio was 1.2.

The majority of sampled patients are transferred from the emergency department, they represented 66% of cases, 16% were from maternity, 10% of the surgery, 4% of medicine, 3% of Pneumology by against other services (Cardiology and block emergency) were the least represented (1%). All patients had levied at least one risk factor and these factors were two types : intrinsic such as (diabetes, kidney failure, poly trauma ....) or extrinsic factors as (polls, catheterization ....). The head trauma and stroke are the two most pathologies present in these patients. (Figure 1)
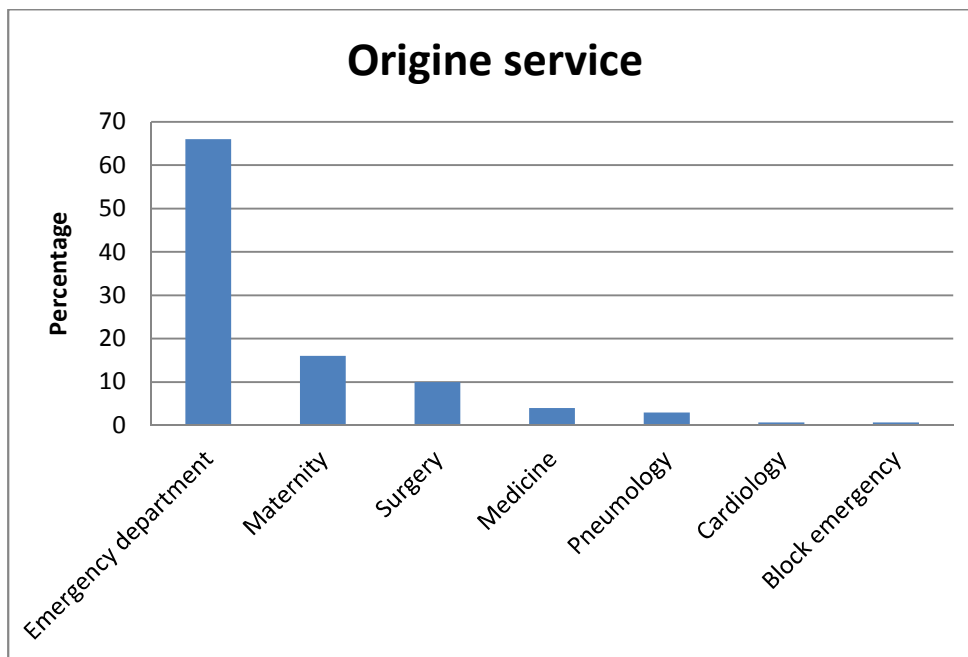

Figure 1: Service levied from patients

RESULTS AND DISCUSSION

Enterobacteriaceae were the most found in urinary infections germs, followed by Candida spp (Figure 2)
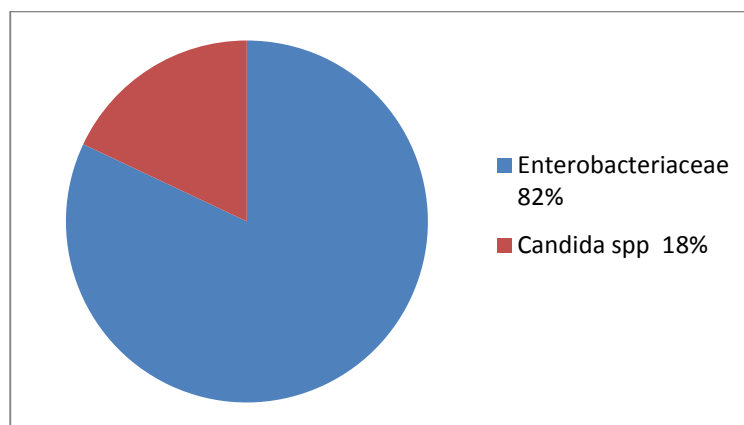
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Figure 2 :The germs that cause urinary tract infections in the Intensive care unit of Hospital El idrissi in Kenitra

Acinetobacterbaumannii Species dominates the epidemiological profile with 7 strains, followed by Pseudomonas aeruginosa which is represented by four strains. Enterobacter cloacae and Escherichia coli were isolated with the same staff (3). Aeromonashydrophila was isolated twice (2).

The highest urinary nosocomial infection rate was found in the age group over 50 years, 13.6% against 4.5% in patients under 20 years.

We noticed that women are more exposed to urinary nosocomial infection compared to men (Table 1)

Table1: Distribution of isolated bacteria in the urinary infections

bacteriaisolated	Women	Men
Acinetobacterbaumannii	6	1
Pseudomonas aeruginosa	4	0
Enterobactercloacae	3	0
Escherichia coli	2	1
Aeromonashydrophila	2	0
	17	2

The Acinetobacterbaumannii was resistant to ceftazidime in 100% of cases, ciprofloxacin in 69% to 60% in imipenem and amikacin in 30%. All isolates were susceptible to colistin

Pseudomonas aeruginosa is the 2nd species isolated, all identified strains were resistant to ceftazidime, they kept all their sensibilities to imipenem, 90% were resistant to ciprofloxacin, 75% resistant ticarciline, 15% resistant amikacin, and 85% were resistant to cefzoludine.

Enterobacter cloacae for all strains were resistant augmentin and 3rd generation cephalosporins, 28% developed a resistance to the 4th generation cephalosporins and quinolones, 57% are resistant to aminoglycosides, 42% resistant trimethoprim-sulfamétoxazole, 100% have kept their sensibilities to carbapenems

Klebsiellapneumoniae is the 4th isolated bacterium, the resistance of the strains was 100% for the amoxicillin-clavulanic acid association, from 70% to ceftazidime and 25% Gentamycin.

Escherichia coli are isolated three times, all strains were resistant to third generation cephalosporins, two were resistant to carbapenems. One of them was resistant to quinolones.

Aeromonashydrophila is the second gram negative bacilli isolated oxidase positive, this is the first time this kind was isolated réanimation de service of the hospital of El Idrissikenitra actually Aeromonoshydrophila is a hydric bacteria present in area tropical and temperate regions, especially in the summer period. Infections in humans are rare but occur more often in contact with a wound, an open fracture or burn. The antibiogramme of the isolated strain Revealed a sensitivity to Amikacin, gentamicin, imipenem, ceftazidime, piperacillin, colistin, aztreonam, and resistance to ciprofloxacin, tobramycin and ticarcillin

In intensive care unit of hospital El idrissiKenitra, the obtained result shows that infection was considered the second nosocomial infection after nosocomial pneumonia [8]. This result is comparable to other studies [10, 11,12].

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Only 19/110 of samples taken were positive, leaving conclude that wearing a urinary catheter is not a major source of infection, unlike other studies have strongly linked the presence of urinary catheter with urinary nosocomial infections [12, 13]. Note that all the sampled patients were urinary catheter. In our study we have linked the urinary infection management poll and the quality of hygiene. The nature of gender and age played a role in urinary infections indeed women were most at NUI because the urethra is short compared to the man and for elderly patients; Our results are comparable with other studies that have found that patient age is a primary risk factor [14,15]. In Moroccan studies in intensive care at IbnRushdchu in Casablanca in 2011 and the Marrakesh University Hospital between October 2006 and September 2009 [16] and that carried out at the University Hospital of Fez in 2009, [17] the bacilli gram negative (BGN) were the most implicated in nosocomial germs urinary bacterial infections, in our study the BGN as represented 100% of the isolated bacteria. The acquired resistance of bacteria continues to increase in recent decades and is an alarming phenomenon, and a problem of increasing importance in medical practice. As to the discovery of new antibiotics, bacteria have progressively accumulated in their genetic material genes leading to the multidrug resistance [18,19]. The use of antibiotics leads to the risk of selecting resistant organisms, in our service was augmentin antibiotic the most inscribed what explains the resistance of all bacterial strains isolated to the association amoxicillin and acid clavulanic. Third-generation cephalosporins (especially TriAxon), aminoglycosides, quinolones and colistin are prescribed as second line.

CONCLUSION

Nosocomial urinary infection stands out for its multi-resistant bacterial ecology antibiotics. The multiresistantEnterobacteriaceae are responsible for urinary infection in hospital ICU El idrissiKenitra. The emergence of these bacteria is an increasingly alarming whence the need for adequate care and it is important to make an early diagnosis and monitoring of bacterial resistance to antibiotics can be adapted according to the results of antibiogram.

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