

RESEARCH ARTICLE

Urinary-Tract infections on pregnant women at Mahajanga

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ABSTRACT

Urinary-tract infections (UTIs) are common medical condition on pregnant women that could lead to severe consequences for both the mother and the foetus. A prospective, descriptive and analytical study was conducted from February to May 2018, at the laboratory of UHC PZaGa, in collaboration with the service of prenatal care (PNC) of the Integrated Health Center (IHC) of Mahabibo. In whole, 210 pregnant women, aged from 15 to 44 were investigated. The average age was 24,9. The UTIs prevalence rate was 6,7% (n=14). Among risk factors, only diabetes had a statistical significance (p<0,001). After clinical findings, asymptomatic forms were predominant with 57,1% (n=8). Among the identified strains, enterobacteriaceae and staphylococcus represented 78,6%, n=11). The enterobacteriaceae were predominant with 35,7% Escherichia coli, 21,4% Klebsiella pneumoniae and 21,4% for unidentified strains. Three cases were attributed to Staphylococcus which comprise one isolate of Staphylococcus aureus (7,1%) and 2 negative-coagulase Staphylococci (14,3%). These enterobacteriaceae were resistant to Amoxicillin (70%), to the combination Amoxicillin-Clavulanate (70%), Ceftriaxone (10%), Ciprofloxacin (30%) and to Gentamicine (70%). One strain of K. pneumoniae was assigned with multidrug resistance and producer of extended spectrum beta-lactamase. The UTIs prevalence on pregnant women is not minor though it does not represent a concern in epidemiological view. Therapy is advised and must be adapted to the clinical case.

INTRODUCTION

Urinary tract infections (UTIs) are medical condition occurring when bacteria used to colonize urinary tracts, and for most of the case it led to some infectious symptoms. On pregnant women, three types of infection appear mainly as bacterial colonization of the tracts (known as asymptomatic bacteriuria), acute cystitis and acute pyelonephritis (APN). Such infection is common among pregnant women, sucklings, and young children, severe consequences could be feared for the mother and the fetus. The prevalence of pregnancy UTIs vary from country to country. In Brazil, it was estimated at 45,9% in 2014 (1), 46,6% in India in 2014 (2), 2,9% in Portugal in 2013 (3) and 4,1% in Tanzania in 2014 (4). For Madagascar, epidemiological data are not sufficient particularly those pertaining to prevalence and risk factors. The objectives of this study were to determine the prevalence of urinary tract infections during pregnancy, to document the various risk factors, to identify causative agents and their sensitivity to antimicrobial drugs.

MATERIALAND METHOD

A prospective and descriptive study was conducted for 4 months, from February to May 2018. Pregnant women who gave their consent and coming to the Integrated

Health Center (IHC) of Majunga for first prenatal visit (PNV) were recruited. No matter the age of pregnancy, clean urine bottles were distributed to them for samples collection. A questionnaire form was filled by each individual. Urine collection was performed on the day after that of PNV by following required instructions, urine samples were then headed to the laboratory of UHC PZAGA in less than two hours after miction for cytobacterial examination (CBEU).

RESULTS

In whole, 210 pregnant women aged 15 to 44 were investigated. The average age was 24,9. The UTI prevalence was of 6,7% (n=14). No statistically relevance was linked either between urinary tract infections and sociodemographic factors (age of women, occupation, level of education), the gyneco-obstetrical factors (age of pregnancy, gravidity, parity, history of abortions), or any precedented similar infection (p>0,05). Only diabetes was statistically significant (p<0,001). Upon clinical findings, the asymptomatic form was abundant with 57,1% (n=8). Enterobacteriaceae isolates were predominant with 78,6% (n=11) making 35,7% (n=5) for Escherichia coli, 21,4% (n=3) Klebsiella pneumoniae and 21,4% (n=3) for unidentified strains. Three cases were attributed to Staphylococcus isolates, one strain to Staphylococcus aureus (7,1%) and 2 coagulase-negative Staphylococci (14,3%). These enterobacteriaceae were resistant to

KEYWORDS:

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HISTORY

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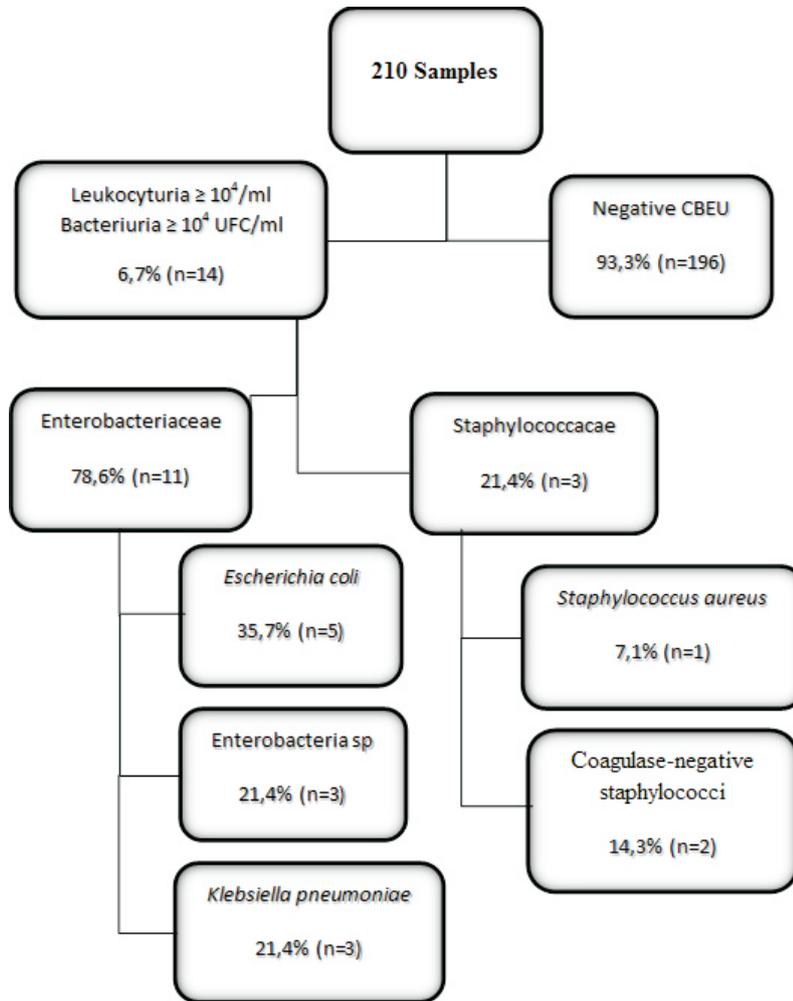


Figure 1: Bacteriological and significant leukocyturia profil of UTI

Table I : Enterobacteria resistance phenotypes

Germ identified	Phenotype	Effective (n=10)
Escherichia coli	Wild phenotype	1
	Penicillinase of high level	4
Klebsiella pneumoniae	Wild phenotype	2
	ESBL	1
Enterobacteria not identified:	Absence of enzyme secretion	1
	Penicillinase of high level	1
	Cephalosporinase of low level	1
Total		10

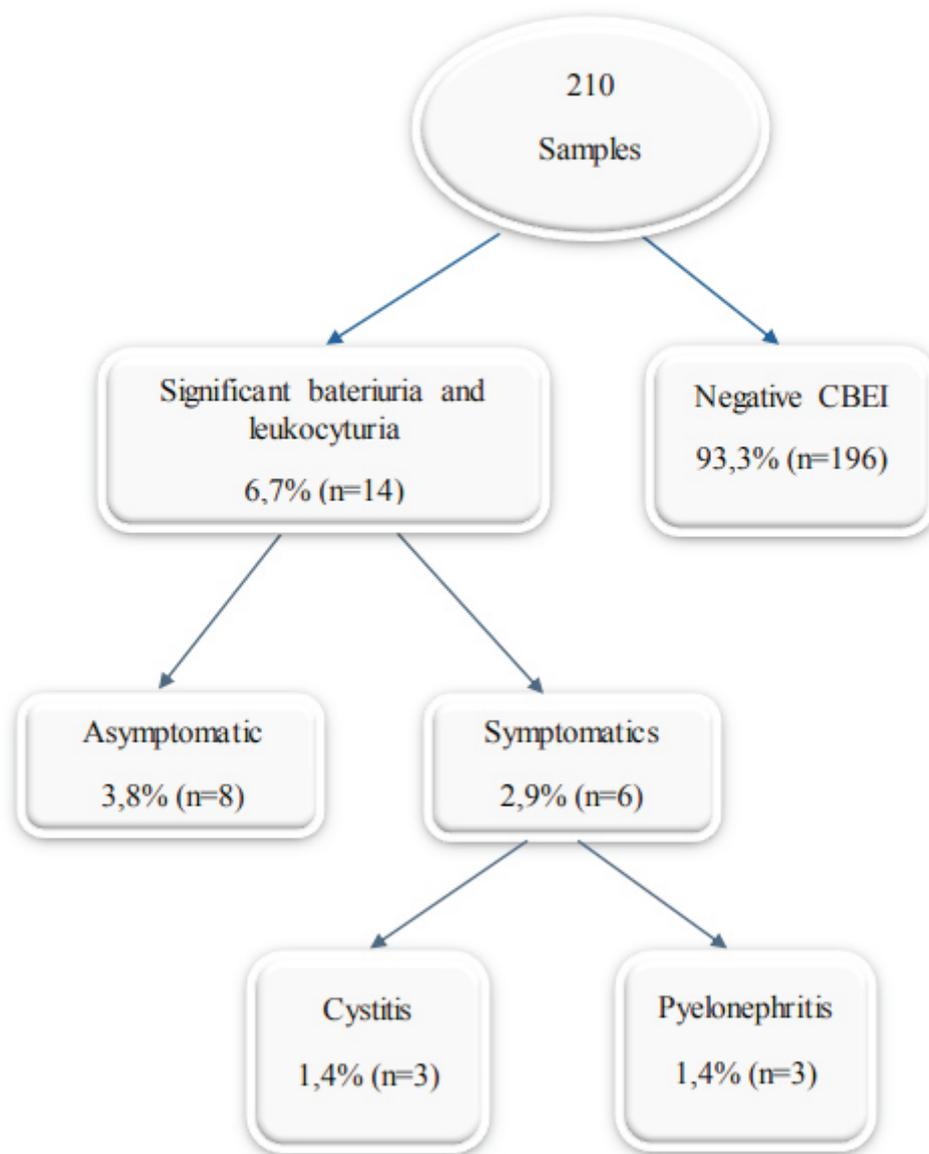


Figure 2 : Clinical forms of UTI in pregnant woman

Amoxicillin (70%), and to the combined Amoxicillin-Clavulanate (70%), to Ceftriaxone (10%), to Ciprofloxacin (30%) and to Gentamicin (70%). One isolate of *K. pneumoniae* was revealed to be multidrug resistant, and producer of extended spectrum beta-lactamases.

DISCUSSION

UTI is the second common medical condition on pregnant women behind anemia. It is also attributed to be the most complicated infection during pregnancy (5). Outcomes differ from countries. In Algeria, the prevalence rate was of 2% in 2011. On the opposite, other values were higher than those of Madagascar i.e, case of India in 2017 with 35% (6); Nigeria in 2017 with 20,2% (7) and Irak in 2016 with 37% (8).

The occurrence of UTIs is associated with a variability of the urinary tract. Actually the urinary stasis during pregnancy was heightened by the release of progesterone which has a relaxing action on the bladder and urethral

smooth muscle as well as on mechanical obstruction of the ureter by the gravid uterus. Many studies reported on the predominance of *E.coli* in case of UTIs as that of Nigeria in 2017 (36) and India (9) with respectively 70% and 55%. The number of enterobacteriaceae being tested were 10, including 4 isolates of *Escherichia coli*, 3 unidentified enterobacteriaceae and 3 strains of *Klebsiella pneumoniae*; one *Staphylococcus aureus* and one coagulase-negative *Staphylococcus*. To date, wild strains become less and less involved. On the other hand, the prevalence of the acquired-resistance bacteria to antimicrobial drugs keep raising worldwide.

CONCLUSION

The UTIs prevalence was demonstrated on pregnant women. On epidemiological basis, the infection is not a health issue, its significance must not be underestimated. According to clinical view, therapy is mandatory to avoid subsequent complications either on the mother or her

child like threat of premature labor, preterm birth, and intra-uterine death. Though amoxicillin or its combination with clavulanate were randomly used to treat asymptomatic bacteriuria, this study revealed a high level of resistance, found even on 3 out of 4 study women. It is then advised to proceed to an antibiogram when a urine dip is tested positive or a case of positive urine culture arise. The second and third generation cephalosporin preserve a good sensitivity. The resistance to fluoroquinolon is increasing. Which is alarming for the ambulatory treatment.

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