

Prevalence of urinary tract infections in pregnant women in Onitsha, Nigeria

Abstract

The prevalence of urinary tract infections (UTIs) in pregnant women in Onitsha was investigated. A total of 200 urine samples were collected from pregnant women attending antenatal care at Kanayo specialist hospital and General hospital both in Onitsha for a period of five months. The urine samples were cultured and examined microscopically. Out of the 200 urine samples analyzed, potentially pathogenic microorganisms were isolated from 112(56%). The pathogenic organisms isolated include *Escherichia coli*, *Staphylococcus aureus*, *Klebsiella aerogenes*, *Pseudomonas aerogenes* and *Proteus mirabilis*. *Escherichia coli* were isolated from 52(26%) of the 200 urine samples, *Staphylococcus aureus* 20(10%), *Klebsiella aerogenes* 16(8%) *Pseudomonas aerogenes* 10(5%) and *Proteus mirabilis* 14(7%). The organisms were isolated more from the age group of 26-30 years and the frequency was more among the first pregnancy. Pregnant women need to be screened for UTIs to avoid complications during child delivery.

Keywords: urinary tract infections, pregnant women, kanayo specialist hospital, onitsha

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Introduction

Urinary tract infections (UTIs) are caused by the presence and growth of microorganism in the urinary tracts, and are perhaps the single commonest bacterial infections of mankind.¹ The urinary tracts consist of the organs that collect and store urine and release it from the body which include kidneys, bladder and urethra.² Urinary tract infection is characterized by bacterial invasion and multiplication involving the kidneys and urinary tract pathways. UTI has become the most common hospital acquired infection, accounting for as many as 35% of nosocomial infections, and it is the second most common cause of bacteraemia in hospitalized patients.³ Pregnant women are more susceptible than men due to anatomy of short urethra and easy contamination of urinary tract with fecal flora.⁴ Other main factors which make females more prone to UTI are pregnancy and sexual activities. In pregnancy the physiological increase in plasma volume and decrease in urine concentration lead to the development of glycosuria in women which in the end lead to bacterial growth in the urine.⁵ Three common clinical manifestation of UTI in pregnancy are: asymptomatic bacteriuria, acute cystitis and acute pyelonephritis.⁶ Other symptoms include nausea, vomiting, frequent urination, dysuria, premature birth and low birth weight.⁷ The common etiologic agents of UTI include *Escherichia coli*, *Klebsiella spp*, *Staphylococcus aureus*, *Pseudomonas spp* and *Streptococcus*.⁸ This research work was done to determine the prevalence of urinary tract infection among pregnant women in Onitsha.

Methods

Study site: The study was carried out at Kanayo specialist hospital and General hospital both in Onitsha, Anambra state, Nigeria.

Sample size: 200 urine samples of pregnant women coming for antenatal care at Kanayo specialist hospital and General hospital between the ages of 20-35 were collected.

Demographic information: Socio-demographic data such as age, occupation, parity and gestational age were collected from the pregnant women using standard questionnaires.

Sample collection: 200 clean-catch midstream urine was collected

from each pregnant woman into a sterilized screw capped container and labeled properly.

Sample processing: Ten-fold serial dilutions were made by transferring 1ml of the sample in 9ml of sterile physiological saline. 1ml was then poured into molten nutrient agar in petri dishes and rotated for homogenization. The contents were allowed to set and the plates were incubated at 37°C for 24 hours. A loopful of each urine samples was inoculated on Cysteine-Lactose Deficient (CLED) agar and blood agar and incubated at 37°C for 24hours.

Identification of isolates Bacterial species were identified according to standard bacteriological methods as highlighted by Cheesbrough M.⁹

Results

A total of 200 midstream urine samples were collected from pregnant women. Table 1 shows that *Escherichia coli* had the highest percentage of occurrence 52(26%), *Staphylococcus aureus* 20(10%), *Klebsiella aerogenes* 16(8%), *Pseudomonas aerogenes* 10(5%) and *Proteus mirabilis* 14(7%). Table 2 shows the prevalence of urinary tract infection in relation to age within the age group of 20-35 years. The highest prevalence of UTI is seen in the age group of 26-30 years and the lowest prevalence is seen in the age group of 20-25 years old. Table 3 shows the prevalence of UTI in relation to gravidity. The highest prevalence of UTI is seen in primi gravidity while the lowest prevalence rate is seen in multi gravidity.

Table 1 Percentage Occurrence and Distributions of Bacterial Pathogens in UTIs among Pregnant Women

Micro-organism isolated	Percentage of Occurrence (%)
<i>Escherichia coli</i>	52 (26%)
<i>Staphylococcus aureus</i>	20 (10%)
<i>Klebsiella aerogenes</i>	16 (8%)
<i>Pseudomonas aerogenes</i>	10 (5%)
<i>Proteus mirabilis</i>	14 (7%)
Total	112 (56%)

Table 2 Prevalence of Urinary Tract Infection in relation to Age of Pregnant Women

Age (years)	No tested	No positive	Prevalence (%)
20-25	60	25	22
26-30	75	54	48
31-36	65	33	30
Total	200	112	100

Table 3 Prevalence of Urinary Tract Infection in relation to Gravity

Gravidity	No examined	No positive	Prevalence (%)
PrimiGravida	62	50	45
SecondGravida	73	40	35
MultiGravida	65	22	20
Total	200	112	100

Discussion

The prevalence of urinary tract infections (UTIs) among pregnant women receiving antenatal care at Kanayo specialist hospital and General hospital both in Onitsha was considered to be high. Out of 200 urine samples of the pregnant women, 112(56%) showed growth of pathogenic bacteria which is similar to the findings¹⁰ but contradicts the findings.¹¹ In our study the highest prevalence of UTI is seen in primigravidity (45%) and the lowest prevalence of UTI is seen in multigravidity (20%) which contradicts the findings¹² that have the highest prevalence of UTI among the multigravida as a result of pressure effect of a bigger uterus on the ureter and pressure on the bladder from the descending part leading to stasis of urine and the increased multiplication of urine. This study shows that pregnant women within the age of 26-30 years had more infections than women within the age of 20-25 years and it may be as a result of sexually active which increases the risk of UTI and the women of such age group are mostly sexually active. This report is also similar to that¹³ who also found that prevalence of UTI increases in sexually active women within the same age group. This study shows that the most common bacteria isolated from the mid stream urine samples of pregnant women was *Escherichia coli* which is similar to the separate findings.^{14,15}

Conclusion

The prevalence of urinary tract infections during pregnancy is very high (56%). All pregnant women should be screened for UTI with a urine culture. Early diagnosis and treatment of UTI during pregnancy can ensure the safety of the mother and the fetus. It also prevents complications during child delivery.

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Conflict of interest

There is no conflict of interest among the authors.

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