



Asymptomatic Bacteriuria and Candida Colonization among Pregnant Women in a District Hospital in Eastern Uganda

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Authors' contributions

This work was carried out in collaboration among all authors. Authors BF, MS, NP, OI, IS and NMM designed the study, performed the statistical analysis, wrote the protocol and wrote the first draft of the manuscript. Author NJ conducted critical reviews of the study. Authors RN and IJS managed the whole project, conducted critical reviews and approved of the final manuscript.

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ABSTRACT

Background: Urinary tract infection (UTI) is the most common reason for which antimicrobials are prescribed in pregnancy Worldwide. This study aimed to determine the prevalence of asymptomatic bacteriuria, Candida colonization and antimicrobial susceptibility patterns among pregnant women attending antenatal in a District Hospital in Eastern Uganda.

Materials and Methods: A descriptive cross sectional study was conducted in which pregnant mothers who had come for routine antenatal care were counseled and their consents obtained

before taking off urine samples for laboratory diagnosis. For those samples found to have pus cells, culture and sensitivity test was done to identify the organisms and determine susceptibility to particular antibiotics and antifungal agents.

Results: Gram negative isolates were more sensitive to meropenem (100%), and ciprofloxacin (93.8%) but less sensitive to trimethoprim/sulphurmethoxazole (20%), Cefotaxime (7%), and Cefepime (6%). Gram positive isolates were more sensitive to vancomycin (100%), meropenem (87%) and linezolid (88.1%) but less sensitive to Cefotaxime (31%) and Trimethoprim / sulphurmethoxazole (14%). All bacteria isolated in this study were multi-drug resistant (MDR). All *Candida* isolates were susceptible to Econazole and Nystatin whereas all isolates were resistant to Griseofulvin.

Conclusion: The prevalence of asymptomatic bacteriuria among pregnant women in Butaleja district is high with many of the bacteria isolated exhibiting resistance to the commonly used antibiotics. Antifungal resistance was common in this study.

Keywords: Asymptomatic bacteriuria; antimicrobial resistance; UTI; pregnant women.

1. INTRODUCTION

1.1 Background

Urinary tract infection (UTI) is the most frequently encountered infection worldwide besides those that are of intestinal origin [1]. Globally, it has been estimated that about 150 million people are diagnosed with a UTI per year [2]. Urinary Tract infections can be classified on the basis of presentation that can be lower UTI (urethra and urinary bladder affected) or upper urinary tract (kidneys affected) or whether a pregnant woman presents with (symptomatic) or without symptoms (asymptomatic). Although UTIs affect individuals of all ages, the females are fourteen times likely to be affected than men and 50-60% will suffer an episode of UTI once in their life time since incidence increases by 10% for every decade of life above 20 years of age and this is due to their shorter urethra and close proximity of the anus to the genital area. Amongst women too, some groups are more susceptible than others such as the sexually active, elderly and pregnant women. These infections affect individuals of all age groups but show greater occurrence in particular groups like women that are sexually active, the pregnant and the elderly. A greater proportion of females is affected, to as high as fourteen times more than their male counterparts [3] and 50-60% of women will suffer from a UTI at least once in their lifetime [4].

UTIs are more prevalent in pregnancy due to the physiological changes of pregnancy. An estimated 25% of the pregnant women develop UTI in developing countries and it is the most common cause of admission in obstetric wards. This figure is much lower in developed countries (2-10%) [5].

The prevalence of UTI among pregnant women in African countries revolves around 14% as shown by researches carried out in Sudan (14.0%), Tanzania (14.6%), and Ethiopia (11.6%). These figures do not regard the women's age, parity and gestational age. However, studies point out *E. coli* as the commonest isolated organism with multi resistance toward different antibiotics [6].

Asymptomatic bacteriuria is common among ante-natal mothers in Uganda [7]. Asymptomatic bacteriuria in pregnancy is more likely to cause adverse effects that could lead to maternal and perinatal morbidity and mortality. Since screening and treatment has been shown to be beneficial for both maternal and fetal wellbeing especially where prevalence exceeds 2%, treatment reduces the prevalence of pyelonephritis by 75%, it is important to know the dominant uropathogens and the sensitivity patterns. This study aimed to determine the prevalence of asymptomatic Bacteriuria, *Candida* colonization and antimicrobial susceptibility patterns among Pregnant Women in a District Hospital in Eastern Uganda.

2. MATERIALS AND METHODS

2.1 Study Design

A descriptive cross sectional study was conducted in which asymptomatic pregnant mothers who had come for routine antenatal care were counseled and their consents obtained before taking off urine samples for laboratory diagnosis. For those samples found to have pus cells, culture and sensitivity test was done in the microbiology laboratory of Busitema University Faculty of Health Sciences to identify the