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For further information about this article or if you need reprints, please contact:

O.C. Ugbogu
Department of Microbiology,
Abia State University, PMB 2000,
Uturu, Abia State, Nigeria

Tel/Fax: 234(0) 8037303493

Asymptomatic Bacteriuria among Pregnant Women in Abakaliki, Ebonyi State Nigeria

¹E.S. Amadi, ¹O.B. Enemuo, ²C.J. Uneke, ³O.K. Nwosu,
⁴R.A. Onyeagba and ⁴O.C. Ugbogu

The prevalence of asymptomatic bacteriuria amongst pregnant women in Abakaliki was investigated using culture techniques. Out of the 150 subjects screened 118 (78.7%) had asymptomatic bacteriuria while 32 (21.3%) had none. Thirty (20%) of the subjects had mixed bacterial growth while 88 (58.6%) had one type of bacteria. The frequency of isolation of organism was *Staphylococcus aureus* (27.1%), *Escherichia coli* (25.4%), *Klebsiella* species (23.7%), *Proteus* species (10.2%), *Streptococcus* species (8.5%) and *Pseudomonas aeruginosa* (5.1%). Pregnant women in their third trimester had the highest prevalence of asymptomatic bacteriuria (36.4%). The age group 31-35 years had the highest prevalence with respect to age while farmers had the highest (90%) with respect to occupation. This study emphasizes the need for routine screening of the urine of pregnant women for asymptomatic bacteriuria.

Key words: Asymptomatic bacteriuria, pregnant women, Abakaliki

¹Department of Applied Microbiology, Faculty of Applied and Natural Sciences,

²Department of Medical Microbiology, Faculty of Clinical Medicine,
College of Health Sciences,

³Department of Chemical Pathology, Faculty of Medicine,
College of Health Sciences, Ebonyi State University,
Abakaliki, Ebonyi State Nigeria

⁴Department of Microbiology, Abia State University,
PMB 2000, Uturu, Abia State, Nigeria

INTRODUCTION

Although asymptomatic bacteriuria may not require treatment because the bacteria may not be causing harm, certain groups of people such as pregnant women and their unborn fetuses may be at risk of complications (Guyton, 1996; Lindsay, 2003; Blomberg *et al.*, 2005). Various researchers have reported the prevalence of asymptomatic bacteriuria among pregnant women and their untoward effects (Akerere *et al.*, 2001; Olusanya *et al.*, 1993; McIsaac *et al.*, 2005; Bandyopadhyay *et al.*, 2005).

The apparent reduction in immunity of pregnant women appears to encourage the growth of both commensal and noncommensal microorganisms (Scott *et al.*, 1990). Acute pyelonephritis, foetal growth restriction and still birth in pregnant women have been associated with asymptomatic bacteriuria (Zhao and Wu, 2004; Ryan *et al.*, 1990; Hill *et al.*, 2005). Asymptomatic bacteriuria has also been implicated in postpartum endometritis (Lindsay, 2003). Researchers and medical practitioners have made suggestions that there should be screening of all pregnant women for asymptomatic bacteriuria (Kirkham *et al.*, 2005) and that prompt treatment can prevent its adverse effect on mother and child (Blomberg *et al.*, 2005). This paper reports on the prevalence of asymptomatic bacteriuria among pregnant women in Abakaliki Ebonyi State, Nigeria.

MATERIALS AND METHODS

Study population: The study population consists of 150 pregnant women attending antenatal care unit of the Ebonyi State University Teaching Hospital, Abakaliki, between January and May 2004. Explanations were given to the women why the screening is necessary. They were given questionnaire which made it possible to give information on their age, educational qualification and profession.

Sample collection, isolation and identification of isolates:

Twenty milliliters of morning midstream urine were collected from the study subjects after instructions on how to collect a clean-catch was described to them. (Vandepitte *et al.*, 1991). A loopful of each specimen was inoculated on cystine lactose electrolyte deficient (CLED) agar and blood agar (Oxoid) plates. The plates were incubated aerobically at 37°C for 24 h (Cheesbrough, 2002). The isolates were subcultured using the streak plate technique. Each isolate was identified by gram staining, motility test, catalase, coagulase, citrate

utilization, indole, urease, oxidase, hydrogen sulphide, voges-proskauer and sugar fermentation tests as described by Collins *et al.* (1995), Cheesbrough (2002) and Isu and Onyeagba (2002).

RESULTS

Out of the 150 pregnant women screened 118 (78.7%) had asymptomatic bacteriuria while 32 (21.3%) had none. Thirty (20%) of the subjects had mixed bacterial growth while 88 (58.6%) had one type of bacteria. The frequency of isolation of *Staphylococcus aureus* was 27.1%, *Escherichia coli* 25.4%, *Klebsiella* species 23.7%, *Proteus* species 10.2%, *Streptococcus* species 8.5% and *Pseudomonas aeruginosa* 5.1%. Pregnant women in their third trimester had the highest prevalence of asymptomatic bacteriuria (36.4%), followed by those in the second trimester (33.1%) and the first trimester (30.5%). The percentage prevalence of asymptomatic bacteriuria with respect to age, level of education and occupation/profession is shown in Table 1-3.

DISCUSSION

This study revealed that 78.7% of the 150 pregnant women had asymptomatic bacteriuria and it is surprising that over 25% had mixed bacterial growth. This findings suggests increased risk of infection of the pregnant women and the foetus. Some microorganisms has been implicated as one of the factors associated with foetal

Table 1: Prevalence of asymptomatic bacteriuria amongst pregnant women in various age groups

Age groups	Percentage prevalence (%)
16-20	60
21-25	62
26-30	78
31-35	90
36-40	82

Table 2: Prevalence of asymptomatic bacteriuria in women with various levels of education

Educational level	Percentage prevalence (%)
Non formal education	80.0
Primary school	87.0
Secondary school	90.2
Diploma/NCE	40.0
Degree/HND	30.0

Table 3: Prevalence of asymptomatic bacteriuria amongst pregnant women in different professions

Profession	Percentage prevalence (%)
Housewives	80.0
Farmers	90.0
Traders	87.3
Civil servants	50.5
Medical	0.0

growth retardation in pregnant women (Zhao and Wu, 2004). This can also result to stillbirth and postpartum endometritis (Lindsay, 2003; Ryan *et al.*, 1990). Occurrence of acute pyelonephritis has been reported among pregnant women (Hill *et al.*, 2005). Earlier studies by Akerele *et al.* (2001) reported a prevalence of 86.6% asymptomatic bacteriuria among pregnant women in Benin City, Nigeria. The 25.4% of mixed bacterial growth reported in this study is higher than 7.4% reported by Akerele *et al.* (2001).

The most prevalent organism observed in this study was *Staphylococcus aureus* (27.1%), followed by *Escherichia coli* (25.4%) and *Klebsiella* species (23.7%). This finding agrees with the work of Akerele *et al.* (2001) who observed the same trend for *S. aureus*, *E. coli* and *Klebsiella* species. Olusanya *et al.* (1993) also reported that *S. aureus* was the most prevalent organism among pregnant women in Sagamu, Nigeria. However a recent work (Blomberg *et al.*, 2005) reported that *E. coli* was the most prevalent organism isolated in Tanzania.

The highest prevalence of asymptomatic bacteriuria was observed amongst women in their third trimester (36.4%) of pregnancy, followed by those in the second trimester (33.1%) and least in first trimester (30.5%). This observation agreed with the findings of Lindsay (2003) that asymptomatic bacteriuria increases with increase in gestational period and Melsaac *et al.* (2005) that single urine culture before 20 weeks gestation missed more than half the asymptomatic bacteriuria cases.

Based on occupation, farmers had the highest prevalence of asymptomatic bacteriuria (90%) in this study. Olusanya *et al.* (1993) observed that most pregnant women with significant bacteriuria belong to the low socio-economic group. Interestingly asymptomatic bacteriuria was absent among all the pregnant women in the medical profession involved in this study. This may be as a result of their level of enlightenment and observance of simple rules of hygiene and/or strict adherence to instructions by medical experts.

The age range 31-35 years had the highest prevalence of asymptomatic bacteriuria in this study while the least was among the age group 16-20 years. The reason for this observation is not obvious.

Based on the findings of this study there is need for routine screening of urine of pregnant women for asymptomatic bacteriuria as part of the antenatal health care for pregnant women in Nigeria.

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