Incidence of Asymptomatic Bacteriuria in Pregnant Women

ABSTRACT

BACKGROUND - Asymptomatic bacteriuria is the presence of bacteria in the properly collected urine of a patient that has no signs and symptoms of urinary tract infection.

AIM - This study was carried out to determine the incidence of asymptomatic bacteriuria in pregnant women in Saveetha medical college, Thandalam, Tamil Nadu.

MATERIALS AND METHODS - A total of 250 pregnant women attending antenatal clinic at civil hospital, Saveetha medical college, over a period of 3 months, with age groups between 18 to 30 years agreed to enter the study and were clinically evaluated. All these women were asked to submit clean-catch midstream urine samples and it was examined under the microscope and by culture method.

RESULT - A total of 250 pregnant women were included in our study, with varying age groups between 18 to 30 years and the highest incidence was seen in between the 26 to 30 age group. Asymptomatic bacteriuria was seen in 27.2% of ~~the~~ pregnant women. The prevalence of Escherichia coli was among the most dominant organism, followed by Staphylococcus aureus ,klebsiella and proteus species.

CONCLUSION - The study showed 27.2% of the pregnant women to have asymptomatic bacteriuria. This can be reduced by screening the mothers in the first trimester and a routine urine culture tests must be carried out.

INTRODUCTION

Asymptomatic bacteriuria is the presence of bacteria in the properly collected urine sample of a patient who has no signs and symptoms of urinary tract infection.The urine is cultured and significant growth of pathogens that is greater than 105 bacteria/ml is seen.This is common in pregnant women.Patients having a history of previous urinary tract infection,pre-existing diabetes mellitus, increased parity, and low socioeconomic status ~~are~~ is more prone to asymptomatic bacteriuria[1,2].Commonest organisms responsible for asymptomatic bacteriuria in pregnancy are Escherichia coli , followed by coagulase negative Staphylococcus species,Klebsiella species ,Pseudomonas species, and Proteus species. These conditions begin in 6th week of gestation and peak during 22 to 24 weeks of gestation and thisprevents easy passage of urine.Conditions including transient renal failure, Acute respiratory distress syndrome, sepsis,shock and hematological abnormalitiesoccur in cases where asymptomaticbacteriuria is untreated or inadequatelytreated.Without treatment, as many as 20 to 35 percent of pregnant women with asymptomatic bacteriuria will develop a symptomatic urinary tract infection (UTI), including pyelonephritis, during pregnancy[3,4].The risk of pyelonephritis is reduced when asymptomatic bacteriuria is treated at an early stage. This condition can also cause several risks to the foetus as well as the mother so, it is necessary to screen every antenatal mother at an early stage.

MATERIALS AND METHODOLOGY

Study design: Cross-sectional prospective study.
A total of 250 pregnant women attending antenatal clinic at civil hospital, Saveetha medical college, Thandalam, Tamil Nadu over a period of 3months, with age groups between 18 to 30 years ,agreed to enter the study and were clinically evaluated. All these women were asked to submit clean-catch midstream urine samples into wide-mouth sterile screw-capped containers after a proper cleansing of the external genitalia.
Urine samples were labeled and immediately sent to the laboratory. Screeningtests for significant bacteriuria was notcarried out and samples were directlyprocessed for culture and sensitivity.Bacterial growth of 10^5 CFU/ml or more ~~were~~ was regarded as significant for infection. The isolated organisms from culture plates were identified by standard laboratory techniques. Antimicrobial in-vitro susceptibility testing was performed using the agar disc diffusion method[6].

RESULTS

A total of 250 pregnant women were included in our study, which includesage groups as seen.
~~On~~ In figure 2, the highest incidence of asymptomatic bacteriuria was seen between the age groups 26 to 30 years, and the lowest incidence was seen in the 21 to 24 years age group. Escherichia coliwasthe most dominant organism, followed by Staphylococcus aureus, Klebsiella, and Proteus species as depicted in figure 1. A total of 68 (27.2%) patients were identified with asymptomatic bacteriuria.

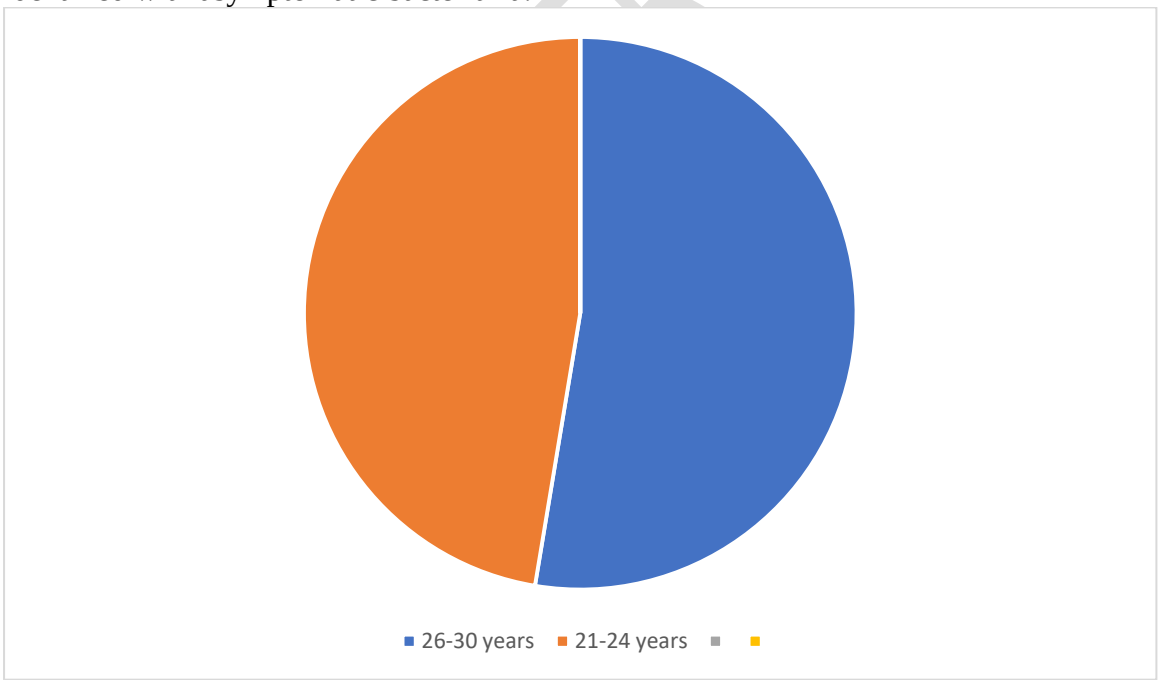

Figure 1. Distribution of bacteria in urine culture

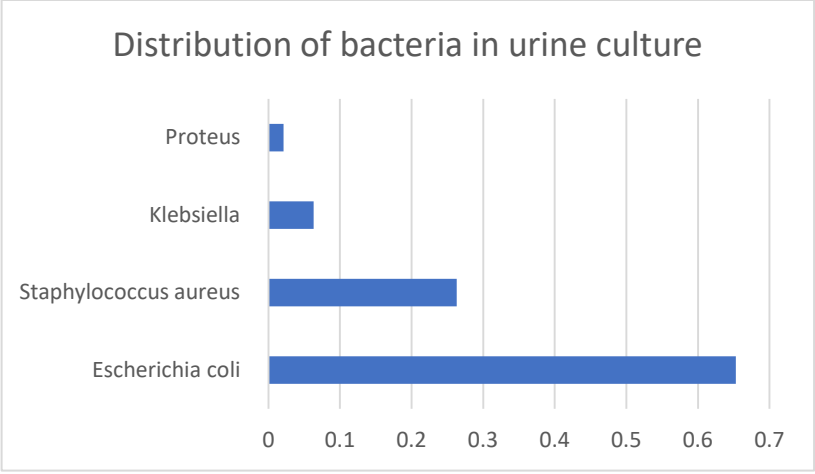

Figure 2. Total number of patients distributed according to the age group

DISCUSSION

In the present study, the incidence of asymptomatic bacteriuria in pregnant women is found to be 27.2%. In a study conducted inSagamu,Nigeria, the incidence of bacteriuria in pregnant women was found to be 23.9%[5].Similarly in a study conducted in Ghana[6], the incidence was found to be 7.3%, whereas in a study conducted in Ethiopia[7], the incidence was found to be 7%.In a study conducted by Imade, the incidence was 45.3%[8] and in the study conducted by Dange et al, the incidence was found to be 28%[9].Inthe study conducted by Mukherjee et al, the incidence was 8.4%[10]. It is found that incidence was lower in the studies conducted in Nigeria,Ghana and Ethiopia when compared to our study.We can infer that the incidence of asymptomatic bacteriuria is lower in developing countries.

The incidence of asymptomatic bacteriuria was distributed in various age groups and the highest incidence was seen in the age group between 26 to 30 years as supported by our data. Similarly, the lowest incidence was seen between the age groups 21 to 24 years. In astudy conducted by Turpin et al, the age group between 26 to 30 years poses as a huge risk for asymptomatic bacteriuria[6].In the study conducted by Imade et al, the age group 26-30 years had a high incidence of asymptomatic bacteriuria which is also similar to the study conducted by Amadi et al[11].Advanced maternal age is thought to increase the risk of asymptomatic bacteriuria and ~~multi parity~~ multiparity is also said to increase the risk of asymptomatic bacteriuria in pregnancy[12,13]

The study shows a high prevalence of Escherichia coli in 65.30%, ~~Staphylococcusaureus~~ Staphylococcus aureus in 26.30%, Klebsiella in 6.30 %, and Proteus in 2.10% . Escherichia coli were found to be the highest in the study. This result was supported by a study conducted by Edae et al [14] where Escherichia coli were found to be the highest.In the study conducted by Imade et al,Ecoli (27.1%) was the most prevalent organism followed by staphylococcus aureus(24.4%), this was similar to the studies conducted by Delzell et al[16], cheesbrough et al[17]and blomberg et al[18].The incidence of Staphylococcus aureus is high in our study which is also similar to the study conducted by Akereleet al[15].Ecoli is most prevalent and this could be attributed to the fact that urinary stasis is very common among pregnant women, E.coli multiplies rapidly in such an environment thereby causing urinary tract infection[19]

CONCLUSION

The study observed 27.2% of ~~the~~ pregnant women having asymptomatic bacteriuria. The culture showed a high incidence of Escherichia coli (65.30%), Staphylococcus aureus (26.30%), Klebsiella (6.30 %), and Proteus (2.10%). This is a significant value and this must be reduced by screening the mothers in the first trimester and routine urine culture tests must be carried out.

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