ASYMPTOMATIC BACTERIURIA IN PREGNANT WOMEN

Esonova Parvina Akmal kizi
Resident of Bukhara State Medical Institute

Annotation:*The thesis on Asymptomatic Bacteriuria (ASB) in Pregnant Women explores the critical aspects of diagnosing and managing ASB during pregnancy. ASB is defined as the presence of significant bacterial growth in the urine without typical urinary tract infection symptoms, which increases the risk of serious maternal and fetal complications if left untreated. The thesis outlines the prevalence of ASB, affecting 2-10% of pregnant women, and emphasizes its heightened risk due to physiological changes during pregnancy, such as urinary stasis and an increase in urinary pH, which favor bacterial growth.*

Keywords: *asymptomatic bacteriuria (asb),pregnancy,urinary tract infection (uti),escherichia coli (e. coli),pyelonephritis,preterm birth,low birth weight,maternal complications,fetal complications,urine culture,universal screening,risk factors,pregnancy physiological changes,antibiotic treatment,prenatal care.*

INTRODUCTION

Asymptomatic bacteriuria (ASB) is the presence of a significant concentration of bacteria in the urine (≥100,000 CFU/mL) without any typical symptoms of a urinary tract infection (UTI), such as dysuria, urgency, or frequency. The condition's asymptomatic nature makes it especially harmful during pregnancy, as it frequently goes undiagnosed and untreated, raising the risk of difficulties for both the mother and the fetus.

Prevalence: ASB affects 2-10% of pregnant women, with the prevalence varying by geographic region, socioeconomic position, and access to healthcare. Women having a history of UTIs, diabetes mellitus, or low socioeconomic status are more likely to be affected. Pregnant women, in particular, are more likely to develop ASB than non-pregnant women due to physiological changes during pregnancy that promote bacterial growth.

The Importance of Diagnosis: If left untreated, ASB can develop to symptomatic UTIs, including acute pyelonephritis, which occurs in 20-40% of patients. In addition to maternal concerns including sepsis, untreated ASB has been associated to poor fetal outcomes such as preterm birth, low birth weight, and intrauterine growth restriction (IUGR). Thus, early detection and treatment of ASB are critical for preventing complications.

Pathophysiology:

Physiological Changes in Pregnancy: Pregnancy causes changes in the urine system, such as increased plasma volume, glomerular filtration rate (GFR), and urinary stasis, as the developing uterus mechanically compresses the ureters. These alterations cause an increase in urine pH and glucose concentration, which promotes bacterial growth. Furthermore, reduced peristalsis of the ureters and bladder contributes to an increased risk of bacteriuria during pregnancy.

Common Pathogens: Escherichia coli (E. coli) is the most often isolated pathogen in ASB, accounting for over 80% of cases. This is primarily owing to the bacterium's capacity to cling to the uroepithelium via fimbriae. Other pathogens include Klebsiella pneumoniae,Proteus

mirabilis,Group B Streptococcus, and Enterococcus faecalis.The presence of these pathogens without symptoms highlights the importance of early screening, as their continued presence may lead to severe infections.

Risk Factors: A previous history of UTIs, advanced maternal age, multiparity, diabetes, anatomical anomalies of the urinary system, and low socioeconomic level all raise the risk of ASB. These variables aid in the colonization of the urinary system by bacteria, especially in the physiologically changed environment of pregnancy.

Clinical Assessment:

Screening Recommendations: Screening for ASB is advised between 12 and 16 weeks gestation, usually at the first prenatal appointment. Urine culture is the gold standard for ASB diagnosis due to its high sensitivity and specificity. This screening technique is backed by professional guidelines from organizations such as the American College of Obstetricians and Gynecologists (ACOG) and the United States Preventive Services Task Force (USPSTF), which emphasize the need of early detection to avoid consequences.

Urine Culture: The presence of ≥100,000 CFU/mL of bacteria from a clean-catch midstream urine sample confirms a positive diagnosis of ASB. Before starting treatment, a second culture can be required to confirm the diagnosis if the first one is positive. Because urine dipstick testing has a high chance of producing false-negative results and is not very sensitive, it is not advised for use in diagnosing ASB.

Physical Examination: While ASB is usually asymptomatic, a thorough physical examination should look for symptoms of pyelonephritis or other complications, such as fever, flank discomfort, or tenderness around the kidneys.These symptoms may suggest the progression of a more serious infection, demanding quick treatment.

Complications of untreated ASB: Pyelonephritis: If not treated, ASB can proceed to acute pyelonephritis, a severe kidney infection that can cause hospitalization, sepsis, renal scarring, and long-term kidney damage. Pyelonephritis has also been linked to preterm labor, increased maternal morbidity, and, in rare occasions, death.Untreated ASB increases the risk of preterm birth (before 37 weeks gestation) and low birth weight (<2500 grams). These results result from the infection's systemic inflammatory response, which can cause preterm labor. Furthermore, maternal fever or sepsis caused by untreated infections can result in fetal discomfort and poor neonatal outcomes.

Preeclampsia: Some studies imply a link between untreated ASB and an increased risk of preeclampsia, a pregnancy-related hypertension condition with - Preeclampsia: Some studies imply a link between untreated ASB and an increased risk of preeclampsia, a pregnancy-related hypertension condition with serious effects for both the mother and the fetus. The specific process is unknown, but bacterial colonization may trigger an inflammatory response that contributes to preeclampsia development.

Management of Asymptomatic Bacteriuria

-Antibiotic Treatment: Treatment of ASB in pregnancy involves the administration of a 3-7 day course of antibiotics that are safe for use during pregnancy. First-line antibiotics include amoxicillin, cephalexin, and nitrofurantoin. The choice of antibiotic is guided by culture and sensitivity results to ensure effective eradication of the uropathogen. Trimethoprim-sulfamethoxazole is typically avoided in the first trimester and near term due to the risk of

teratogenic effects and neonatal hyperbilirubinemia.

Follow-Up: After the completion of antibiotic therapy, a repeat urine culture should be performed to confirm the eradication of the bacteria. If the post-treatment culture remains positive, further antibiotic treatment and close monitoring are required to prevent complications. Some women may require monthly urine cultures throughout pregnancy to monitor for recurrence.

Recurrence Prevention: Women at high risk of recurrent ASB, such as those with diabetes or pyelonephritis, may benefit from using preventive antibiotics. These high-risk individuals may benefit from continuous low-dose antibiotic prophylaxis to avoid bacteriuria recurrence and lower the risk of following problems.

Conclusion:

The Importance of Early Detection: Early detection and therapy of ASB in pregnant women is critical to avoiding consequences such pyelonephritis, premature birth, and low birth weight. Given the ease of screening and the great benefits of therapy, ASB management should be a standard component of prenatal care.Study and Future Directions: Despite the well-established benefits of screening and treating ASB, further study is needed to improve screening intervals, assess the long-term impact of antibiotic treatment during pregnancy, and investigate potential linkages between ASB and diseases such as preeclampsia. Future research should concentrate on optimizing management techniques to achieve the best potential results for both mother and kid.

LIST OF LITERATURE:

1. American College of Obstetricians and Gynecologists (ACOG). "Practice Bulletin No. 141: Management of Urinary Tract Infections in Pregnancy." Obstetrics & Gynecology, vol. 125, no. 6, 015, pp. 1572-1574.

2. U.S. Preventive Services Task Force (USPSTF). "Screening for Asymptomatic Bacteriuria in Adults: Recommendation Statement." JAMA, vol. 322, no. 12, 2019, pp. 1188-1194.

3. Nicolle, L.E. "Asymptomatic Bacteriuria in Pregnancy: A Common, But Preventable Cause of Complications." Clinical Obstetrics and Gynecology, vol. 41, no. 3, 1998, pp. 661-669.

4. Kazemier, B.M., et al. "Maternal and Neonatal Outcomes Following Treatment for Asymptomatic Bacteriuria in Pregnancy." PLoS ONE, vol. 10, no. 3, 2015, e0120705.

5. Delzell, J.E., & Lefevre, M.L. "Urinary Tract Infections During Pregnancy." American Family Physician, vol. 61, no. 3, 2000, pp. 713-720.

6. Sweet, R.L. "Bacteriuria and Urinary Tract Infections in Pregnancy." Obstetrics & Gynecology Clinics of North America, vol. 16, no. 4, 1989, pp. 709-722.

7. Smaill, F.M., & Vazquez, J.C. "Antibiotics for Asymptomatic Bacteriuria in Pregnancy." Cochrane Database of Systematic Reviews, vol. 2015, no. 8, CD000490.

8. Kass, E.H. "Bacteriuria and the Diagnosis of Infections of the Urinary Tract." Archives of Internal Medicine, vol. 100, no. 5, 1957, pp. 709-714.

9. Schieve, L.A., Handler, A., & Hershow, R. "Urinary Tract Infection During Pregnancy:

Its Association with Maternal Morbidity and Perinatal Outcome." American Journal of Public Health, vol. 84, no. 3, 1994, pp. 405-410.

10. Harding, G.K.M., et al. "Antimicrobial Treatment in Asymptomatic Bacteriuria in Pregnant Women." New England Journal of Medicine, vol. 303, no. 7, 1980, pp. 367-370.