Diagnostic Dilemmas of Prenatal Symptomless Bacteriuria (PSB)

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Introduction

Prenatal symptomatic bacteriuria (PSB) or asymptomatic bacteriuria (ASB) is one of the commonly encountered renal infections during pregnancy due to association of anatomical and physiological changes of the urinary system. Its incidence varies between 2-13% of all pregnant women1, 2, 3, 4. PSB is defined as presence of a bacterial count of the species of ≥ 10^5 CFU/ml without urinary symptoms. If untreated, 25-40% of them will develop symptomatic urinary tract infectionsincluding acute pyelonephritis5 and maternal and prenatal adverse effects like anemia, pregnancy induced hypertension, fetal growth restriction, low birth weight, preterm delivery etc.

Considering its high incidence, silent, hidden bad obstetric factor, PSB is associated with many diagnostic dilemmas and controversies.

Sample Collection

A midstream voided clean catch specimen after perineal and urethral cleansing which prevents bacterial contamination (NICE CG 62 2008). But according to a study, bacterial contamination is not prevented completely after cleansing5.

Midstream voided urine culture with the diagnostic value of ≥ 10^5 CFU/ml culture is the gold standard but the accuracy of 80 to 95% in compared to culture of urine collected via bladder catheterisation with diagnostic value of 100 CFU/ml and accuracy of 96% (Giunto 2010). Catheterisation increases complication risk in pregnant women and is only indicated if repeated contaminated clean catch urines are obtained urine specimen should be collected in a manner to minimize contamination and transported to the laboratory in a timely fashion to limit bacterial growth.

Method of Testing

Controversies exist about methods of it’s diagnosis. Though midstream voided urine culture is the gold standard method of high accuracy it is expensive and time taking when compared to less expensive poor accuracy, rapid urine testing methods like dipstick test for nitrite or dipslide for leukocyte esterase or by urinary microscopy5,6. Dipsticks are less sensitive and less specific alternative to dipslides in a study of urine culture (sensitivity 98% compared to 92%) (mignini 2009). The diagnostic odds ratio of dipsticks is 165 and PSB is excluded with the negative results of both nitrites and leukocyte esterase and are to be confirmed of dipslide tests, which are also to be confirmed by urine cultures. At last no single or combination of tests are 100% accurate.

Frequency of urine culture

The gold standard is the 2 consecutive voided urine cultures with accuracy of 80-95%. A single voided urine cultures detect 80% of cases and it is more permissive practical and cost effective than that of multiple cultures2. Repeated trimester wise urine cultures improve the detection rate of PSB1, 8. Monthly urine cultures would catch an additional 1-2%. There is no recommendation for or against repeated testing of culture negative women in later pregnancy.

If 2 consecutive bacteriuria voided specimens had positive tests, a third consecutive specimen of restrictive criteria yielded consistent result in better results.

Conclusion

Though the gold standard diagnostic method of prenatal symptomless bacteriuria (PSB) is midstream clean catch urine cultures by 2 consecutive times, this requires further research and evaluation for obtaining 100% accuracy.

REFERENCES