

## EVALUATION OF TWO CULTURE METHODS FOR ISOLATION OF GROUP B STREPTOCOCCUS FROM PREGNANT WOMEN

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### Abstract:

This study aimed to compare the recovery of group B streptococcus (GBS) from low vaginal / anorectal swabs (LV/ARs) using selective enriched broth culturing method with the routine culturing of high vaginal swabs (HVS). 120 pregnant women were studied at 35-40 weeks of gestation. Midstream urine (MSU) was examined from each woman for the presence of GBS bacteriuria. Twenty seven (23%) women were found to be colonized by GBS using the enriched LV/ARs culturing method compared to eight (7%) using HVS routine unenriched method ( $P < 0.005$ ). Nineteen (70%) of GBS positive women were missed by the routine method. Three (2.5%) had GBS bacteriuria. Our results confirmed that detecting GBS is improved by culturing LV/ARs of 35-40 weeks pregnant women using selective enriched broth medium. MSU should be examined for GBS bacteriuria along with LV/ARs. This is the first study in its kind to be carried out in the Kingdom of Saudi Arabia.

### Introduction:

Group B Streptococcus (GBS) (*Streptococcus agalactiae*) is a normal commensal in a healthy vagina and gastrointestinal tract<sup>(1,2)</sup>. Genital tract colonization has been associated with a variety of adverse pregnancy outcomes including preterm labor, premature rupture of membranes and chorio-amnionitis<sup>(3-5)</sup>. GBS is transmitted perinatally and is the leading cause of neonatal sepsis and meningitis<sup>(5)</sup>. In USA, neonatal fatality ratios have been declining from 55% in 1970 to 4-6% in 1990<sup>(5)</sup>. This decline is thought to be due to improved recognition, intrapartum maternal chemoprophylaxis and prompt treatment of both term and pre-term infants<sup>(5)</sup>. Recently, recommendations for the

prevention of perinatal GBS disease have been developed by the American College of Obstetricians and Gynecologists (ACOG), American Academy of Pediatrics (AAP) and the Center for Disease Control and Prevention (CDC)<sup>(6-9)</sup>. However, these recommendations and others have not yet been widely adopted. The current method recommended by the ACOG, AAP and CDC for GBS screening is culturing low vaginal and anorectal swabs (LV/ARs) 1-5 weeks before delivery on selective broth media<sup>(2,5,6-11)</sup>. The use of selective broth media for detection of GBS from genital tracts of expectant mothers was originally recommended by Jones et al, 1983 and Persson et al, 1987<sup>(12,13)</sup>. In our institution there are no stated strategies to screen for perinatal GBS disease other than culturing high vaginal swabs (HVS).

This study was undertaken to evaluate available methods of antepartum screening for GBS and was done by comparing results of culturing LV/ARs of 35-40 weeks pregnant women on selective and enriched media with routine culturing of HVS. To our knowledge this is the first study in the Kingdom of Saudi Arabia with regard to the time and site of screening and the use of selective broth media for detecting GBS from colonized pregnant women.

### Patients and Methods:

This prospective study was conducted during the period from April 3rd to September 30th 1999 on one hundred and twenty 35-40 weeks pregnant women who attended the antenatal clinic at King Khalid University Hospital, Riyadh, Saudi Arabia.

Data collected included any previous history of a GBS infected baby, premature rupture of membranes and other related diseases including diabetes and urinary tract infections. Sterile cotton-tipped swabs were used to collect three specimens from each woman; LVS, taken by inserting the swab 1-2 inches into the vaginal canal, HVS and an anal orifice swab. The HVS was used for routine culture. The LV/AR swabs were labelled, "for GBS screening". The LV/AR swabs were inoculated together into Todd Hewitt broth containing 15 ug/ml nalidixic acid and 8 ug/ml gentamicin<sup>(5,12,13)</sup>. HVS was inoculated into 5% sheep

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