

# CARRIAGE OF GROUP B STREPTOCOCCI IN RECTUM AND UROGENITAL TRACT OF PREGNANT WOMEN

Pages with reference to book, From 42 To 44

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## ABSTRACT

One hundred pregnant women In third trimester were screened for the carriage of group B streptococci (GBS), in a prospective study. Rectal and urogenital samples were collected, 25% women were positive for non group B beta haemolytic streptococci. Twelve (48%) were positive at single site and 13(52%) at more than one site. Beta haemolytic streptococci isolated were non-groupables In 19(76%) and groupables in 6(24%). Among groupables, Group D streptococci (GDS) were the commonest 3(12%) followed by Group 02(8%) and Group F 1(4%). Group B streptococci were not isolated in our study population (JPMA 41: 42, 1991).

## INTRODUCTION

The importance of group B streptococci (GBS) as a pathogen for both the newborn and mother is well known<sup>1-4</sup>. Approximately 5-30% of females carry GBS in the vagina or rectum<sup>5-7</sup> and 2-5% in urine.<sup>8-9</sup> GBS causes neonatal infections like septicaemia, meningitis, pneumonitis<sup>1,2,10,11</sup> and puerReral infections like amnionitis, endometritis and sepsis.<sup>1-4,12</sup> It is a potential pathogen for urina? tract during pregnancy and known to cause primary<sup>1,9,12-14</sup> as well as secondary urinary tract infections<sup>15,16</sup>. In terms of intranatal and perinatal infection risk, screening for GBS in the third trimester or at the time of delivery is important. A prospective study was planned to determine the carriage rate of GBS, frequency of GBS bacteriuria and antibiotic sensitivity pattern of GBS, in order to choose the right antibiotic to prevent potential lethal consequences of the organism to mothers and their babies.

## SUBJECTS AND METHOD

One hundred pregnant women in the third trimester of pregnancy attending antenatal clinic of Jinnah Postgraduate Medical Centre, Karachi were registered irrespective of age and parity. Diabetic patients and those taking antibiotics were excluded. Complete history and physical examination were recorded. High vaginal swabs, rectal swabs, and mid stream urine specimens were collected in sterile containers. Samples were also collected for blood grouping. Urine specimens were screened for basic biochemical tests by multistix and cultured on blood, MacConkey's and Islam's agar plates by using standard method<sup>17</sup> for quantitative analysis of bacteria,. High vaginal swabs and rectal swabs were inoculated on blood agar and Islam's agar plates and incubated aerobically and anaerobically in 5% CO<sub>2</sub> (in candle jar) at 37°C. Growth observed after every 24,48 and 72 hrs of incubation for beta haemolytic and non - haemolytic colonies of streptococci on Mood agar and orange-red pigmented colonies of GBS on Islam's agar plates. Colonies isolated were Gram stained, serologically grouped by Slidex Strep to kit (Biomeriux 6290 Charbonnicresles Bains, France) and isolates tested for bacitracin sensitivity.

## RESULTS

The demographic characteristics of hundred pregnant women were as follows: all were from low socioeconomic group, living in Karachi. Sixty six belonged to Sindh (Karachi), 25 were from Punjab and 9 from NWFP. Their age range was 17-40 years, with a mean of 265 years. Twenty seven women were primigravidas and 73 multigravidas. Thirty four had blood group 'B', twenty nine blood group 'A', twenty two blood group 'D' and fifteen blood group 'AB. Beta haemolytic streptococci (non group B) were isolated from rectal and urogenital tract in 25% of pregnant females. Of twenty five females, twelve (48%) were positive at single site-either, vagina, rectum or urine and thirteen (52%) at more than one site (vagina-rectum, vagina-urine or vagina-rectum-urine) as shown in Table 1.

**Table I. Carriage of Beta Haemolytic Streptococci in different site of carrier women.**

No. Positive Sites	No. of carrier/ No. cases in a Group.	% of positive carrier women
<b>At single site:</b>	<b>12</b>	<b>48.00</b>
1. Vagina	8/12	66.66
2. Rectum	1/12	8.33
3. Urine	3/12	25.67
<b>At more than one site</b>	<b>13</b>	<b>52.00</b>
1. Vagina/Urine	8/13	61.53
2. Vagina/Rectum	2/13	15.38
3. Vagina/Urine/Rectum	3/13	23.07

Of various serologic groups of beta haemolytic streptococci (BHS) isolated, 6(24%) were groupable, of these 3(12%) belonged to BHS group D, 2(8%) to group G and 1(4%) to group F, group B streptococci were not isolated in this study. The remaining 19(76%) of BHS were ungroupable. Relationship between carriage of J3HS (non-Group B) and age, ethnicity, gravidity and blood groups is shown in Table - II.

**Table II. Relationship between carriage of Beta hemolytic Streptococci (non-group B) and Age, Ethenicity, Parity & blood groups.**

Demographic Distribution	No. of carriers/ No. of cases in a Group.	%
<b>Age Group (In years)</b>		
16-20	8/24	33.3
21-25	7/36	19.4
26-30	5/31	16.2
31-35	5/7	71.4
36-40	0/2-	-
<b><u>ETHNIC GROUPS</u></b>		
Sindh	12/66	18.2
Punjab	10/25	40.0
N.W.F.P.	3/9	33.33
<b><u>PARITY</u></b>		
Primigravida	7/27	25.9
Multigravida	8/73	24.6
<b><u>BLOOD GROUPS</u></b>		
A	5/29	17.2
B	12/34	42.8
O	4/22	18.1
AB	4/15	26.6

Differences found between carriage of BHS (non-Group B) and age, gravidity and blood group were not significant. Only significant difference was found in ethnic groups. Twelve (18%) out of sixty six women from Sindh (Karachi), ten (40%) of twenty-five women from Punjab, and three (33%) out of nine women of NWFP living in Karachi were the carriers of BHS (non-Group B).

## DISCUSSION

This preliminary study shows that Group B streptococci are not present in the third trimester of pregnancy in our study population although 25% of pregnant women were found to be the carrier of beta haemolytic streptococci (non-Group B). The carriage rate of GBS reported from West is 5- 25%<sup>5,6</sup> and from Peshawar 31% which seems to be very high. Reported differences may be due to culture

techniques, variations in time of gestation at which cultures were obtained,<sup>13,14</sup> eating habits, seasonal<sup>15</sup> and geographical factors,<sup>5</sup> genetic factors or ethnicity, age, parity<sup>15,16</sup> and blood groups<sup>18</sup> distribution. The role of ethnicity on the carriage of GBS/BHS cannot be ruled out as some individuals have natural Immunity against certain microorganisms, e.g. Mexican women have a lower and blacks living in United States higher carriage rates of GBS<sup>16</sup>. In our study carriage of GBS was nil but carriage rates of BHS (non-Group B) differs in different ethnic groups; women of Sindh (Karachi) have lower and women of Punjab and NWFP living in Karachi have higher carriage rate of BHS (non-Group B). This may be due to small number of cases in the later two ethnic groups. Age, parity and blood groups distribution of the individuals play an important role in carriage of BHS. Increasing age and parity are associated with lower rate in carriage<sup>15-16</sup> as shown in this study. In order that the significance of the differences be more clear equal and larger number of cases should be studied. Individuals with blood group B are at a higher risk of colonization by GBS<sup>17</sup> and BHS non-group B as indicated in this study. Beta haemolytic streptococcus has received little attention as a pathogen of the urinary tract although it is a potential pathogen during pregnancy. Carriage rate of 14% BHS non-Group B reported in our study was unlike 2-5% of BHS Group B reported<sup>8,9</sup> by others which may be due to misuse of antibiotics. Investigations have shown<sup>5,15,16</sup> that anal or vaginal carriage of BHS Group B are possible cause of bacteriuria, and patients with diabetes mellitus are at a greater risk of infection by this organism. Therefore it is important to screen every pregnant woman for anal and vaginal carriage of BHS/GBS and every diabetic pregnant patient for beta haemolytic streptococcal bacteriuria to clear the infection and to minimize the risk of infection in mothers and neonates. Various serologic groups of BHS have been isolated in our study, Group D streptococcus being commonest followed by group G and F. This suggests that these serologic groups may be responsible for infection in our environment. Studies over the last 50 years have shown that in septicaemia and meningitis there has been a shift in the infecting microorganisms, with a decline in both incidence and mortality of GBS infection and emergence of other organisms, like Group D streptococci (GDS).<sup>19</sup> GDS with an even distribution among enterococcus and nonenterococcus Group D streptococci (*S. bovis*).<sup>20</sup> It is known that intrapartum transmission of organisms occurs in neonates of carrier mothers either in utero or during delivery and neonates develop septicaemia and meningitis<sup>1,2,10,11</sup> within two months of birth. This is a preliminary report but to establish the significance of non-A and non-B beta haemolytic streptococci in pregnant women a more extensive study should be done in this country.

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