

FREQUENCY OF STREPTOCOCCUS AGALACTIAE COLONIZATION IN PREGNANT WOMEN IN A TERTIARY CARE HEALTH CENTER OF PUNJAB.

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ABSTRACT

Background: Streptococcus agalactiae colonization in pregnant women may lead to transmission to newborn at delivery. **Objective:** To find out the frequency of Group B Streptococcus (GBS) colonization in the vagina and rectum of pregnant women. **Methodology:** Study Design: A cross sectional study was carried out at Shaikh Zayed Hospital, Lahore. A total of 500 swabs (250 vaginal and 250 rectal) from 250 pregnant women of gestational age 35-37 completed weeks attending the gynaecology outdoor in Shaikh Zayed Hospital, Lahore were included in the study. Study Duration: Study was done from 1st June to 31st December 2012. The data analysis was done by using SPSS version 15. **Results:** A total of 250 pregnant women were enrolled in the study. GBS cultures were obtained from fifty four patients, corresponding to a colonization rate of 21.6%. Of the fifty four patients carrying GBS, the isolates recovered from vaginal swabs were nine cases (16.6%), and from rectal swabs were thirty seven cases (68.5%) while eight cases showed the recovery of GBS simultaneously from both vaginal and rectal swabs (14.8%). **Conclusion:** GBS colonization in pregnant women is present in our population.

Key Words: Group B Streptococcus, Colonization, Pregnant women

JSZMC 2015;6(4):861 - 863

INTRODUCTION

During the last two decades, 'Streptococcus agalactiae' has arisen as one of the most injurious human pathogens.¹ Group B streptococcus (GBS) known as a premier source of perinatal infections such as; endometritis, bacteremia, chorioamnionitis, septic abortions, urinary tract infections in pregnant women and systemic/focal infections in newborns. The World Health Organization (WHO) has reported vaginal group B streptococcal colonization in about 12–27% of women living in many parts of the world including North Africa, the Middle East, Saudi Arabia, India and Pakistan. At the time of delivery, the colonization of 'Streptococcus agalactiae' in the vagina may be one of the major factors of causing vertical transmission in the neonates.^{1,2,3} The GBS is a part of normal flora of gastrointestinal and genital tract in healthy women. Almost 10-35% of pregnant women are GBS carriers in their vagina and lower intestine.^{4,5} It is transmitted from mothers to infants shortly before or during delivery.⁶ All babies whether delivered through the vagina or through cesarean section have the risk of GBS disease. Colonization rate varies greatly among geographical localities, races and ethnic groups.^{7,8,9} Overall colonization rate in multiple studies from different states reported as 2.52% in India, 9.0% in Nigeria, 17.9% in Egypt and 21% in

USA.^{6,9}

The principal objective of the present investigation was to find out the colonization rate of group B Streptococcus in pregnant women of 35-37 weeks' gestation at Shaikh Zayed Hospital, Lahore by utilizing culture based screening approach. This study may help to identify a number of women who are at risk of GBS disease transmission to their newborns.

METHODOLOGY

A total of 500 swabs (250 vaginal and 250 rectal) from 250 pregnant women of gestational age 35-37 completed weeks attending the gynaecology outdoor in Shaikh Zayed Hospital, Lahore were included in this cross sectional study. The patients who had taken antibiotics during past 2 weeks, or had pre-existing co-morbid systemic disease (Diabetes, pregnancy induced hypertension, chronic infectious diseases or any underlying obstetrical pathology) were excluded from the study. This study was conducted from 1st June to 31st December 2012.

Processing and identification of samples:

All these clinical specimens were processed according to the standard operating procedures being carried out in the laboratory. Specimens brought in the laboratory were processed within 30 minutes of collection. The identification of group B

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Received: 30-03-2015,

Accepted: 30-07-2015

streptococcus was based on colonial morphology, hemolysis, gram stain, catalase test and confirmed by Lancefield group-B specific latex agglutination. Those colonies suspected of being GBS were greyish-white, small and shiny on blood agar plate, while on chrome ID strepto B agar growths were red, round, pearly. Most of the suspected colonies were β -hemolytic, a few of them produced narrow zone of hemolysis. All suspected colonies yielded gram positive cocci arranged in chains on gram smears and were catalase negative. Thereafter, these suspected colonies were tested for Lancefield grouping; all were group B latex positive. The data was entered and analyzed by using SPSS version 15.

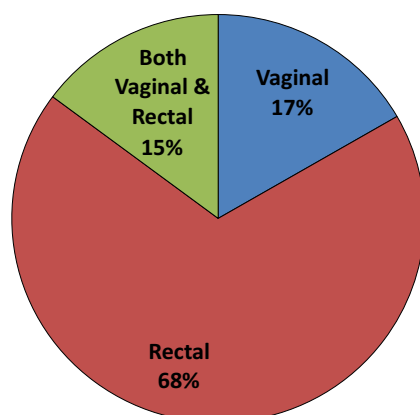
RESULTS

A total of 250 pregnant women were enrolled in the study. GBS cultures were obtained from fifty four patients, corresponding to a colonization rate of 21.6%. Of the fifty four patients carrying GBS, the isolates recovered from vaginal swabs were nine cases (16.6%), and from rectal swabs were thirty seven cases (68.5%) while eight cases showed the recovery of GBS simultaneously from both vaginal and rectal swabs (14.8%).

Table I: GBS colonization rate for pregnant women

GBS status	Frequency	Percentages
Positive	54	21.6
Negative	196	78.4
Total	250	100.0

Figure I: Isolation rate of GBS positive cases according to site of specimen



DISCUSSION

Group B Streptococcus has emerged as a major perinatal pathogen since the 1970s. There are significant regional differences in pathogens of importance in neonatal sepsis. GBS colonization rate varies greatly throughout the world.¹⁰ It is the leading cause of early onset neonatal infection with a case fatality rate of 40-80% in Australia, North America and in most of the countries of the developed world. In developing countries this problem is more severe. Although strenuous efforts have been made to lower down the neonatal mortality rate, GBS remains the primary factor of causing morbidity and mortality in infants.⁹ A number of studies have also confirmed GBS as a leading cause of early onset group B Streptococcal disease in Pakistan and India.^{10,11}

Various studies have shown that vaginal colonization occurs in 11-30% of pregnant women.⁴ The risk of a neonate to be colonized at birth is directly related to the intensity of maternal colonization.^{11,12} The high rectovaginal GBS carriage rate (21.6%) in our study is consistent with findings reported from other Asian countries. Studies conducted in Tehran,¹² and Hamadan,¹³ Iran showed comparable colonization rate of 20.6% and 26.7% respectively; in Thailand,¹⁴ (a tropical country) Rajavithi Hospital 18.12%, in Saudi Arabia¹⁵ significantly higher rectovaginal colonization rate of 27.6% was recorded.

The colonization rate of this study is also similar to the results obtained from other developing African countries; Egypt¹⁶ 17.89%, and Gambia¹⁷ 22%. Our findings also matched with some studies carried out in U.S.; an investigation carried out in the University of North Carolina¹⁸ Hospitals, reported colonization rate was 26.5% and in Brazil 27.6%.¹⁸⁻¹⁹ In our developing areas, frequent availability of extensive and reliable data on the invasive GBS disease, preventive measures, and outcome of infected infants is necessary. Keeping in view the serious nature and outcome of GBS diseases, it is mandatory that research should continue beyond this point and include a large number of populations along with neonatal follow-ups.

CONCLUSION

Group B Streptococcus colonization in pregnant women is significant among pregnant women attending tertiary care hospital.

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