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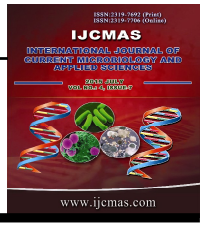

Original Research Article

Prevalence of *Streptococcus agalactiae* in Pregnant Women and its Antibiotic Sensitivity Pattern

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Keywords

Antibiotic sensitivity, Pregnant women, *Streptococcus agalactiae*

A B S T R A C T

Streptococcus agalactiae is responsible for invasive prenatal infection leading cause of sepsis and meningitis in neonates and infants. Aim of study was find out the prevalence of *S. agalactiae* and to assess their antimicrobial susceptibility pattern. This descriptive & analytical study was conducted in 2013, Department of Microbiology, MGM Medical College and Hospital in Navi Mumbai at Kamothe and Kalamboli. High vaginal swabs were collected & immediately processed. A total of 100 pregnant women prescription were collected who were 35–37 weeks third trimester of gestational period more GBS isolate from 37 week of gestational stage. Prevalence of *Streptococcus agalactiae* was 4% and mean age of the patient was 23.46 years. Among symptomatic patients highest number of sample were collected from having complain of white vaginal discharge 22%. Ampicillins, Vancomycin, Cefazolin were 100% sensitive and Tetracycline was 100% resistance.

Introduction

Streptococcus agalactiae, also known as group B streptococcus (GBS) belonging to Lancefield group B. gram-positive, non acid-fast bacterium that does not form spores, non motile, facultative anaerobe and catalase negative, β-hemolytic on blood agar and has 9 different serotypes (Ia, Ib, II, III, IV, V, VI, VII, VIII) bacteria. Normally present in female genital tract is a frequent cause of serious infections often associated with mortality and morbidity in newborn babies (Baker, 1997). It often does not demonstrate any clinical symptoms but during pregnancy, there are optimal conditions for *S. agalactiae* multiplication in the vagina, which may have very serious consequences for both the mother and her child (Boyer *et al.*, 1983) The existence of *Streptococcus agalactiae* in women genital tract can lead to ascending infections causing intrauterine inflammation and therefore inflammation of fetal membranes, endometritis, preterm birth, meningitis abscesses in pelvis (Yun *et al.*, 2007). This bacteria is still the main pathogen causing sepsis at birth it has been implicated in

adverse pregnancy outcomes, including premature rupture of membranes (PROM), preterm labor and clinical and subclinical chorioamnionitis (Cunningham *et al.,* 2005).

The infants who survive are often left with developmental disabilities, including mental retardation, hearing or vision loss and speech problems (MMWR, 1996). Neonates born of vaginally colonized mothers stand a great risk of acquiring the organism from the birth canal during delivery (Levine *et al.,* 1986)

Materials and Method

Place of study: Department of Microbiology, MGM Medical College & Hospital at Kamothe & Kalamboli Navi Mumbai.

Period of study: Oct 2012 to March 2014 (one & half year).

Type of study: Descriptive study
Number of samples: 100
Inclusion criteria: Pregnant women gestational stage of 35 -37 weeks, Symptomatic and asymptomatic.
Exclusion criteria: Pregnant women gestational stage < 34 weeks.

Microbiological processing of sample

Collection of High vaginal swabs (HVS) sample

The samples high vaginal swabs were obtained by brushing the lower vagina with a sterile polyester tipped swabs - PW1180 - 50N0 Swab, Hi Media Pvt. Ltd., Mumbai, India) before membrane rupture from each pregnant woman, with the help of the Gynecologist, after attaining informed consent from the patients. All the data about medical history of patients were analyzed on the basis of medical card. A detailed case history was taken which Included Name, age, address, clinical Diagnosis, reason of admission to hospital, gestational age at delivery etc. (Siripen Tor-Udom *et al.,* 2006) The study was approved by the Committee of Ethics on Research of the MGM Institute of Health Science, Navi Mumbai.

Material Methods: This descriptive & analytical study was conducted in 2013, Department of Microbiology, MGM Medical College and Hospital in Navi Mumbai at Kamothe and Kalamboli. High vaginal swabs were obtained by brushing the lower vagina with sterile polyester tipped swab and immediately placed into Stuart transport medium and transported at room temperature to the laboratory. Swabs were inoculated in a selective broth medium (Todd-Hewitt broth supplemented with gentamicin (8mg/ml) and nalidixic acid (15 mg/ml) from Stuart transport medium and Incubation 35- 37ºC Turbidity occurred in Todd-Hewitt broth after 18-24 hours. Inoculated on 5% Sheep Blood agar, Bacteria were identified by colony morphology, Gram stain, catalase test, CAMP test, Hippurate hydrolysis test. Antibiotic sensitivity test was done by Kirby Bauer disk diffusion method as per clinical and laboratory standards institute (CLSI) guidelines.

Identification: Swabs were inoculated on Sheep Blood Agar and incubated aerobically for 24 hours at 37°C GBS was identified by colonial morphology (presence of β-haemolytic colonies on Blood agar), Gram stain, catalase test, CAMP test, Hippurate hydrolysis test. Antibiotic sensitivity test was done by Kirby Bauer disk diffusion method as per clinical and laboratory standards institute (CLSI) guidelines (CLSI 2006).

Results and Discussion

Prevalence of *Streptococcus agalactiae* was 4% and mean age of the patient was 23.46 years. Among symptomatic patients highest number of sample were collected from having complain of white vaginal discharge 22%. Ampicillin, Vancomycin, Cefazolin were 100% sensitive and Tetracycline was 100% resistance.

Figure 1 shows out of total 100 samples, 25 were from 20 to 24 years (25%), followed by 34 from 25 to 29 years (34%), 22 from 30-34 years (22%) and 19 from 35–38 years (19%). Age of participants ranged 20–38 year with a mean age of 23.64 years. Which was similar with study of (Vijayan Sharmila *et al.*, 2006, Arijaan *et al.*, 2006). In present study (Figs 2, 3) the gestational age was between 35 and 37 weeks. The asymptomatic (without any complain) patients were 34% and symptomatic (vaginosis) patients were 66%. Out of total 100 samples, 22 swabs were from white vaginal discharge (22%), 6 had fever with headache (6%), itching (8%), lower abdomen pain (9%), backache (5%) & 16 were burning micturition (16%).

Two *S. agalactiae* isolates were from white vaginal discharge, one from burning maturation and one isolated from without any complain. That means *S. agalactiae* colonization in symptomatic patients were 3% and asymptomatic 1%. This study was supported by Udaya Rubini *et al.* (2013). Figure 4 shows that the overall prevalence of *S. agalactiae* colonization among pregnant women was 4%. Similar finding was reported by Aleksandra Stupak *et al.* (2010), Mhaskar Rita *et al.* (2005). Figure 5 shows test ampicillin, penicillin, vancomycin, cefazolin and linezolid sensitivity of 100%, clindamycin, gentamicin, chloramphenicol and erythromycin were sensitive 75%, cefotaxime and ciprofloxacin were sensitive 50%, and lincomycin was sensitive 25% and tetracycline were resistance 100%. The other study shows similar sensitivity by Kavitha P Konikkara *et al.* (2013), Siripen Tor- Udom *et al.* (2006) and Aziz Ramazan dilek *et al.* (2011).

Figure.1 Sample distribution with age group

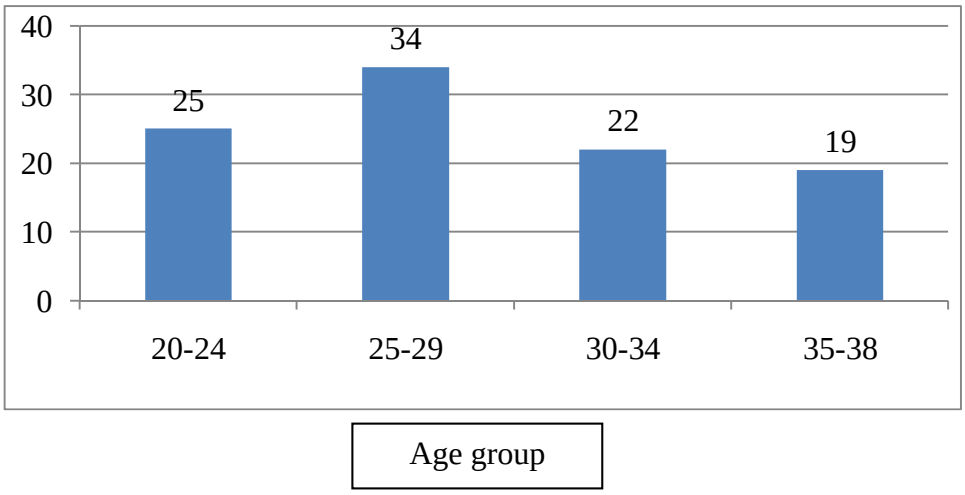


Figure.2 Clinical history of patients

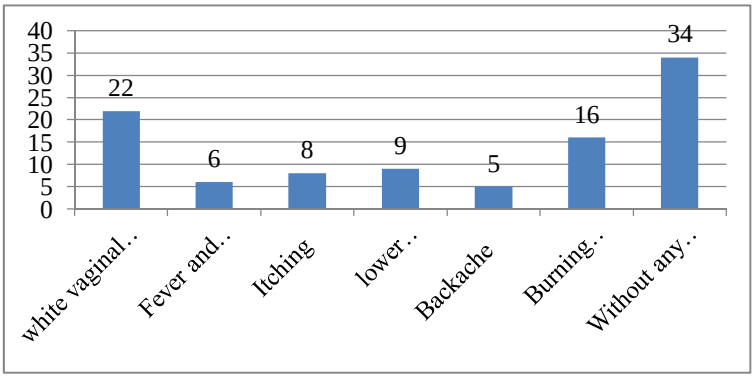


Figure.3 Total number of sample with gestational stage

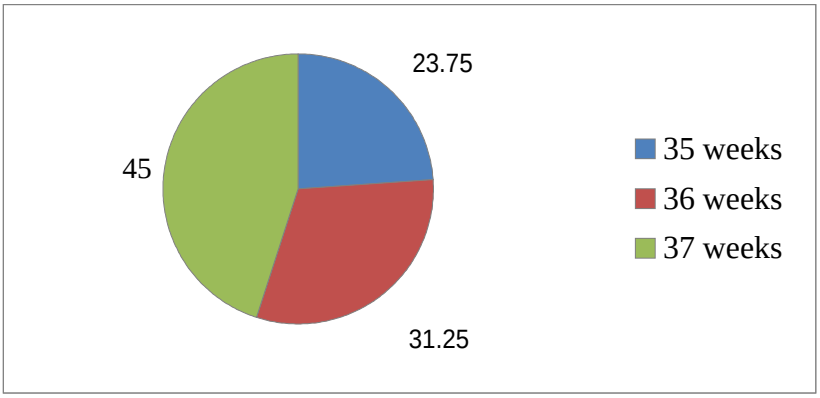


Figure.4 Incidence of *S. agalactiae* in the pregnant women

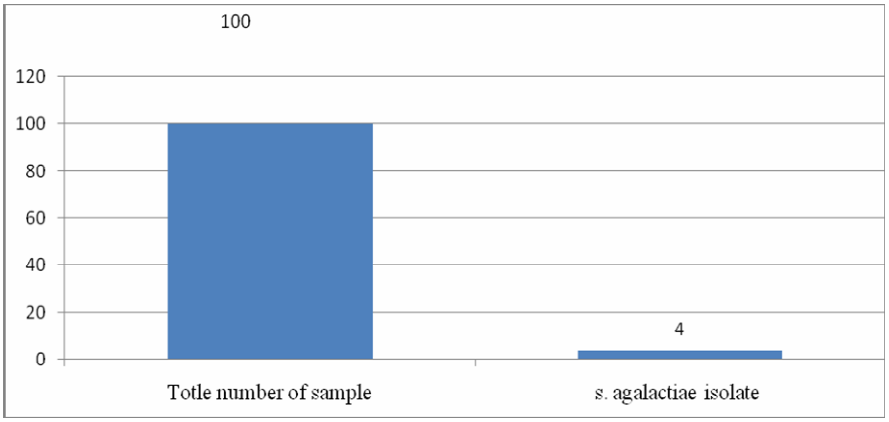
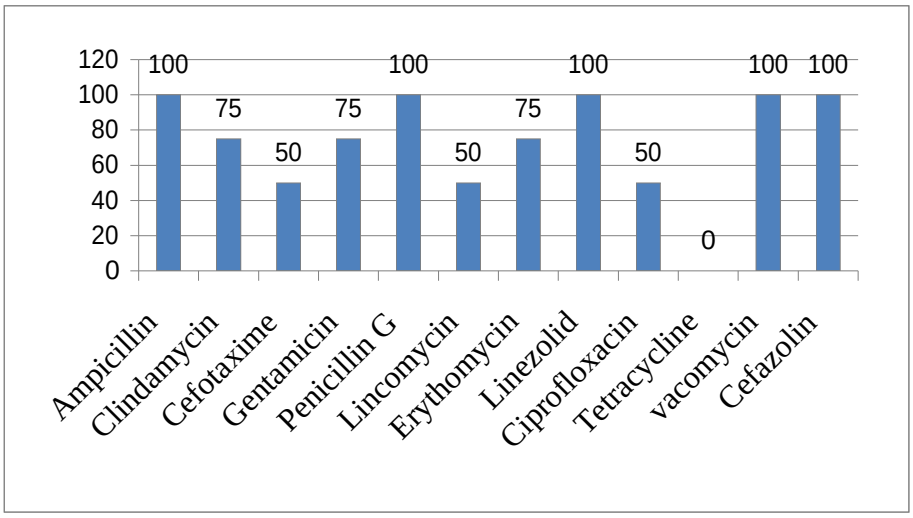


Figure.5 Antibiotics sensitivity test



Prevalence of *Streptococcus agalactiae* among pregnant women was 4%. The age of participants ranged from 20 to 38 year with a mean age of 23.64 years. In our study two S. agalactiae isolates were from white vaginal discharge, one patient had from burning micturition. That means patients had main risk factor of group B streptococcus early onset disease (EOD). One patient of GBS did not have any complain.

More GBS isolates were from 37 weeks of gestational stage. AST shows test ampicillin, penicillin, vancomycin, cefazolin and linezolid sensitivity 100%. 25% were resistant to lincomycin and 100 % were resistant to tetracycline. Clindamycin, gentamicin, and erythromycin were sensitive to 75%.

The centres for Disease control (CDC) call for antibiotic prophylaxis for women with asymptomatic bacteriuria during first trimester because this is a 'marker for heavy genital tract colonization' thus it can be insisted for screening of all pregnant women at 35-37 weeks for vaginal and rectal colonization (Schrag *et al.*, 2002).

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