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PREVALENCE OF GROUP B STREPTOCOCUS IN PREGNANT WOMEN IN THE LUCRÉCIA PAIM AND AUGUSTO NGANGULA MATERNITY (ANGOLA) FROM JANUARY TO MARCH 2019

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Abstract: Introduction: Group B Streptococcus (GBS) is a gram-negative diplococcus found in women as part of the vaginal flora. It is the main risk factor for early neonatal infection, causing up to 25% of deaths in affected newborns. **Objective:** To determine the prevalence of group B streptococcus colonization in pregnant women who attended the Obstetrics, Emergency Department and Delivery Room at the Lucrécia Paim and Augusto N'gangula Maternity Hospital in Luanda, from January to March 2019. **Methodology:** A prospective cross-sectional study was carried out on 382 pregnant women, of which 183 were excluded. Vaginal and anorectal specimens were collected using a sterile swab. The samples obtained were stored in Stuart transport medium, inoculated in Stuart selective medium with subsequent subculture on blood agar plates. Socioeconomic and clinical-obstetric variables were also analyzed. Data were analyzed using the SPSS program. The non-probabilistic sampling technique for consecutive convenience was used. **Results:** The prevalence of maternal GBS colonization was 38.5%. There was a higher prevalence of GBS in the age group of 21 – 30 years and in multiparous women, with 46% and 42.8% of the cases, respectively. Gestational age greater than 35 weeks was the risk factor with the greatest influence on GBS colonization and in the comparative analysis it showed a statistically significant association (p=0.02).**Conclusion:** The prevalence of group B streptococcus in our country is high. Screening is essential for all pregnant women for diagnosis, treatment, reduction of vertical transmission and reduction of cases of neonatal infection.

Keywords: Prevalence. Group B Streptococcus. Pregnant women.

INTRODUCTION

Group B Streptococcus (GBS) is a gram-negative diplococcus found in women as part of the vaginal flora. It is the main risk factor for early neonatal infection, causing up to 25% of deaths in affected newborns. The prevalence of GBS among pregnant women ranges from 3% to 41% (1,2).

It was initially described in 1887 for its importance in veterinary medicine as the cause of Bovine Mastitis until in 1938 it was identified as a human pathogen related to three fatal cases of puerperal sepsis(1)

The relationship between the bacteria and negative maternal and neonatal outcomes became evident. During pregnancy and postpartum period, it can cause premature labor, abortion, intrauterine fetal death, premature rupture of membranes, urinary tract infections, chorioamnionitis, endometritis and sepsis. (1,2). In the early 1970s, it was described as the main causative agent of meningitis and sepsis in newborns (NB) in the United States(3).

Beginning in 1996, there was a reduction in the incidence of early Neonatal Sepsis, following the implementation of two distinct strategies by the Centers for Disease Control and Prevention (CDC), together with the College of Obstetricians and Gynecologists (ACOG) and the American Academy of Pediatrics. (AAP). These strategies were: Antibiotic prophylaxis to pregnant women with risk factors, without prior systematic screening. Systematic screening of asymptomatic carriers of the bacterium and antibiotic prophylaxis to pregnant women with positive screening (4).

In 2002, because half of the cases of early sepsis in newborns were unrelated to any of the risk factors, the CDC recommended prenatal screening for GBS in material collected from the vaginal introitus and perianal region of all women. pregnant

women between the 35th and 37th week of pregnancy(5).

In 2010, the CDC reinforced these recommendations, standardized laboratory methods, changed doses of prophylactic antimicrobials, and updated recommendations for preterm and newborn infants at risk of early infection(6).

The lack of data in our country encouraged this study to be carried out.

METHODOLOGY

A prospective cross-sectional study was performed on 382 pregnant women, of which 183 were excluded. Vaginal and anorectal specimens were collected using a sterile swab. The samples obtained were stored in Stuart transport medium, inoculated in Stuart selective medium with subsequent subculture on blood agar plates. Socioeconomic and clinical-obstetric variables (age group, parity and cultures of vaginal and anorectal specimens) were also analyzed.

DATA ANALYSIS

For the analysis of the variables, the SPSS program was used. The non-probabilistic sampling technique for consecutive convenience was used. Data were presented as frequency and percentage. Statistical significance was considered present when P value < 0,05.

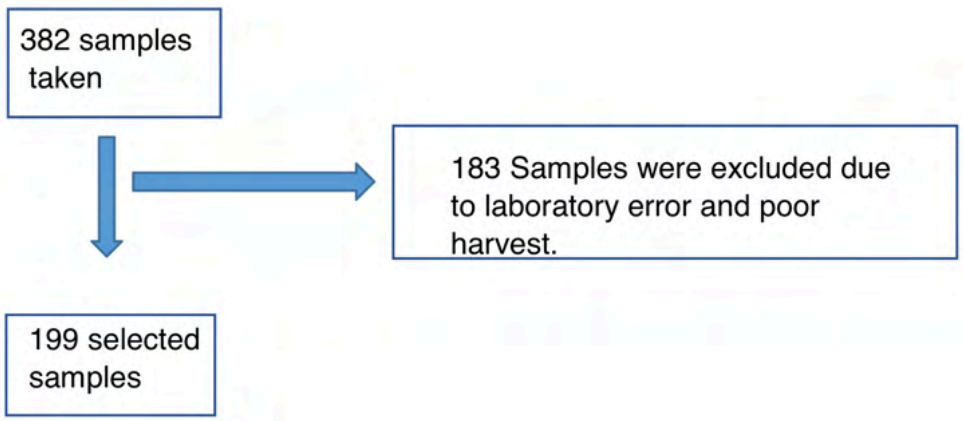

Figure 1: Sample selection and identification flowchart

Figure 2. Schematic representation of the clinical specimen collection procedure, with sterile swab, in the anorectal and vaginal regions, for detection of Streptococcus agalactiae. (www.cdc.gov).

RESULTS

Culture result	Frequency Nº	Percentage %
Negative	22	61,5
Positive	77	38,5
Total	199	100

Table 1: Distribution according to the result of the culture of pregnant women submitted to cultures of vaginal and anorectal specimens at the Lucrécia Paím and Augusto N'gangula Maternity Hospital in Luanda from January to March 2019.

The prevalence of maternal colonization by Group B Streptococcus was 38.5%.

(Table 2).

There was a higher prevalence of Group B Streptococcus in the age group of 21 – 30 years with 51.9% of cases.

(Table 3).

There was a higher prevalence of Group B Streptococcus in multiparous women, with 43% of cases.

(Table 4).

Age group	negative cultures		positive cultures	
	Frequency Nº	Percentagem %	Frequency Nº	Percentagem %
< 20 years	21	17,2	5	6,5
21 -30 years	59	48,4	40	51,9
31 -40 years	38	31,1	30	39,0
> 41 years	4	3,3	2	2,6
Total	122	100	77	100

Table 2: Distribution according to age group among pregnant women with positive and negative cultures of vaginal and anorectal specimens at the Lucrécia Paím and Augusto Ngangula Maternity Hospital in Luanda from January to March 2019.

Parity	negative cultures		positive cultures	
	Frequency Nº	Percentage %	Frequency Nº	Percentage %
nulliparous	34	28	15	19
Primiparous	35	29	29	38
Multiparous	53	43	33	43
Total	122	100	77	100

Table 3: Distribution according to the number of pregnancies among pregnant women with positive and negative culture results of vaginal and anorectal specimens at the Lucrécia Paím and Augusto N'gangula Maternity Hospital in Luanda from January to March 2019.

		Culture				
		Negative		Positive		
		n	%	n	%	P
Parity	Nulliparous	34	28	15	19	0,325
	Primiparous	35	29	29	38	
	Multiparous	53	43	33	43	
Gestational Age (weeks)	< 35	28	23	19	25	0,024*
	35 – 37	25	20	28	36	
	> 37	69	57	30	39	

Gestational age was the variable that was associated with GBS colonization with statistical significance (p=0.02). Gestational age greater than 35 weeks was the biggest risk factor.

Table 4: Association between clinical variables and GBS culture in pregnant women studied at the Lucrécia Paím and Augusto N'gangula Maternity Hospital in Luanda from January to March 2019.

DISCUSSION

In the present study, the prevalence of maternal colonization was 38.7%, in agreement with the rates described by other authors (1,7,8) which varies from 3 to 41%, with the world average rate being 20%. In some studies there were reports of very low prevalence. In Ethiopia the prevalence was 7.2% and in Maputo 1.8%(9), which does not corroborate the present and the other studies mentioned above. These discrepancies in prevalence may be due to geographic location, population characteristics, site of collection (vaginal or rectal), and the bacteriological methodology used.

There are several risk factors cited in the literature for their influence on GBS colonization in pregnant women. The results in several studies (10). In this study, only gestational age was related to colonization, constituting a greater risk factor from 35 weeks onwards, which corroborates the study by Valkenburg-van et al. (11).

LIMITATIONS

Laboratory irregularities, due to incorrect storage technique and culture method of the 183 samples may have interfered with the results.

CONCLUSIONS

The prevalence of group B streptococcus in our country is high. Screening is essential for all pregnant women for diagnosis, treatment, reduction of vertical transmission and reduction of cases of neonatal infection.

ETHICAL CONSIDERATIONS

The study was approved by the Scientific and Pedagogical Directorate of the Lucrécia Paim and Augusto Ngangula Maternity Hospitals in Luanda and by the institutional Ethics Committee. Anonymity, confidentiality of data and samples of participants were guaranteed.

INTEREST CONFLICTS

None.

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