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Brief report

Group B *Streptococcus*: Compliance with the information in prenatal card records and knowledge of pregnant women

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Population surveillance

This study aimed to determine the rate of compliance on prenatal cards and the women's knowledge and feelings regarding Group B *Streptococcus* (GBS) screening in a maternity ward in São Paulo City, Brazil. Structured interviews and a review of prenatal card records of 391 women were performed. The GBS screening was not recorded in more than half of prenatal cards (51.4%, n = 201); 169 women reported no knowledge or not remembering the GBS screening.

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Maternal colonization with Group B *Streptococcus* (GBS) is a risk factor for early-onset sepsis in newborns. Based on the recommendations from the Centers for Disease Control and Prevention,¹ the culture-based screening is the standard for all pregnant women at 35-37 weeks gestation in the public health care system of the city of São Paulo, Brazil. The protocol indicates that results of screening should be recorded on prenatal cards as a follow-up strategy aiming at facilitating the information flow across the entire health care—assistance line. This measure aims at preventing early-onset disease by identifying women who should receive intrapartum antibiotic prophylaxis.² Prenatal care is usually performed at primary health care units (PHUs), which are public health care facilities under municipal government. Alternatively, pregnant women may choose to be followed at a private health care facility. A prenatal card contains the main records from health care professional consultation and examinations performed during pregnancy. However, in our practice, we have empirically observed that not all prenatal cards reflect compliance with this recommendation.

This study aimed to determine the rate of compliance on prenatal cards regarding GBS status. We also investigated the women's knowledge and feelings on the examination procedures and its results.

METHODS

We carried out a prospective, cross-sectional, descriptive, and inferential study using structured interviews and a review of prenatal card records from December 2010–February 2011.

Participants were recruited in a nonprofit maternity ward in São Paulo, Brazil, which cares for women having their prenatal care from both public and private systems. Until the planned sample size of at least 384 individuals was achieved, any women who had their prenatal card on admission for labor and were at a gestational age of ≥ 36 weeks were asked to participate in the study. Those who had prenatal follow-up in cities other than São Paulo were excluded. The research was approved by the Research Ethics Committee of the School of Nursing at the University of São Paulo (protocol no. 978/2010).

RESULTS

A total of 391 were enrolled in the study, with ages ranging from 13-40 years (mean \pm SD, 24.8 \pm 5.8 years). Mean number of years of education was 9.4 \pm 2.4 (range, 2-16 years), and approximately half

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had a paid occupation (51.9%; $n = 203$). Most women had a steady sexual partner (80.1%, $n = 313$). Primigravid and primiparous women were frequent among the studied population (49.1%, $n = 192$ and 52.7%, $n = 206$, respectively).

Prenatal care began at ≤ 17 weeks gestation for most women (67.3%, $n = 263$), with a mean number \pm SD of 8.1 ± 2.6 prenatal consultation visits. In most cases, delivery occurred at ≥ 38 weeks gestation. Although most enrolled women (80.1%, $n = 313$) received their prenatal care in a PHU, a few received their prenatal care in a different setting, such as a hospital outpatient clinic (6.9%, $n = 27$) or a private physician's office (4.1%, $n = 16$). Information regarding prenatal care was not available in 35 cases (8.9%).

Overall, the GBS screening information was not recorded in more than half of the prenatal cards (51.4%, $n = 201$). However, most women ($n = 271$, 69.3%) reported to be sure that the screening was performed.

Only half of the women who received prenatal care at the PHU were found to have had their GBS screening results recorded ($n = 156$, 49.8%). For those women with prenatal cards showing the results of GBS screening, positive results were found in 52 (27.4%). Nevertheless, only 149 cards (78.4%) recorded the date of specimen collection. Of these, 45 (30.2%) showed that testing was performed outside of the recommended period (ie, 35-37 weeks of pregnancy), and most of these were aberrant screenings performed prior to 35 weeks (22.8%, $n = 34$); 11 cases (7.4%) were performed after 37 weeks. We did not find any association between positive GBS results and social, demographic, and obstetric characteristics. The main results on knowledge and feelings from interviews are shown in Table 1. Among the women who have not received the results before the labor, most alleged that the baby was born before the following scheduled prenatal appointment, therefore they were not aware of these results.

These results were presented and discussed with the Regional Committee of Maternal and Infant Mortality to provide subsidies for strategies to improve the GBS monitoring process.

DISCUSSION

The results from our study confirmed our initial hypothesis that flaws in the prenatal card records occur, which could influence neonatal outcomes, and demonstrates the need for further exploration regarding the cause.

A relevant issue was the timing of screening, which occurred primarily outside of the recommended period. The period between 35 and 37 weeks gestation is considered to have the best sensitivity and specificity for the detection of women that are prone to be colonized during labor.^{1,3,4} Even when the screening was carried out within the recommended period, in many cases the results were likely available at the PHUs only after labor. Therefore, health care professionals in all PHUs should focus their efforts on providing screening during the correct period. Furthermore, one important strategy to implement is a fast-track process that allows the information to arrive in a reasonable timeframe.

Our study suggests that women may have insufficient knowledge regarding GBS screening. This may affect their feelings and reflects possible limitations in communication of some health care professionals, who may not be aware of their role in providing enough information on the procedure. Further evaluations of PHU conditions that may hinder the achievement of these objectives are necessary. To our knowledge, the Regional Committee of Maternal and Infant Mortality of this region has been working on this area.

Despite the population of the present study being only from one maternity ward and despite not being able to generalize the results,

Table 1

Knowledge and feelings of mothers on GBS culture-based screening, São Paulo, Brazil, 2011

Questions in the interview*	n	%
Do you have any knowledge on the GBS screening? (N = 391)		
Yes	222	56.7
I do not remember	169	43.2
What is the reason of the examination? [†] (N = 391)		
To find a bacteria	42	10.7
To find a bacteria and to protect the newborn	71	18.2
To find a bacteria, to protect the newborn, and for treatment	22	5.6
To protect the newborn	26	6.6
To protect the newborn and for treatment	11	2.8
To find a bacteria and for treatment	14	3.6
Nothing/ I do not know/ I do not remember	169	43.3
Others (unrelated reason)	36	9.2
What was your main source of information? (N = 391)		
Health care professional	291	74.4
Friends	13	3.3
Family	25	6.4
Other pregnant women	5	1.3
Television	1	0.2
Others	3	0.8
Never heard about before	53	13.6
What was your feeling regarding the procedure? (n = 271)		
Indifferent	185	68.3
Ashamed/embarrassed	20	7.3
Afraid	8	3.0
Tranquil	4	1.5
Anxious	1	0.4
Other	53	19.5
Did you receive the results before the labor? (n = 271)		
Yes	202	74.5
No	68	25.1
I do not remember	1	0.4
Did you receive information on the results? (n = 271)		
Yes	112	41.3
No	155	57.2
I do not remember	4	1.5
What was your feeling after receiving the results? (n = 112)		
Indifferent	22	19.6
Feeling well	21	18.7
Relieved	20	17.8
Happy	13	11.6
Concerned	10	8.9
Tranquil	9	8.0
Anxious	1	0.8
Other	16	14.2

GBS, Group B *Streptococcus*.

*Questions were summarized to fit the table.

[†]As alleged by mothers.

the results point out that the same flaws may occur in other regions and different PHUs.

In conclusion, this study pointed out that the strategy of GBS screening should be periodically monitored to evaluate its conformity and efficacy, mainly in countries and regions with limited resources.

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