

## Study of Antibiotic Prophylaxis of Neonatal Infection by *Streptococcus* Group B (SGB) In Txagorritxu

Leire Ordax García\*, M Victoria Calzada Hernández and Claudia Terrades Milla

Hospital Txagorritxu, Spain

\*Corresponding Author: Leire Ordax García, Hospital Txagorritxu, Spain.

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### Abstract

**Introduction:** GBS is one of the most important causes of neonatal sepsis due to vertical transmission (1 - 2% of carriers). Infection can lead to death of the newborn or severe complications.

The vaginal-rectal culture of the GBS is a screening test that is performed on all pregnant women between weeks 35 - 37 of gestation. If positive, intrapartum penicillin is prescribed. If it is negative or unknown, the antibiotic is protocolized according to risk factors: rupture of membranes greater than 18 hours, intrapartum fever or prematurity.

**Objective:** The objective of the study is to quantify the women who receive intrapartum antibiotics in relation to the positive culture and compliance with the SEGO recommendation.

**Material and Methods:** We describe a sample of 261 women from the Txagorritxu hospital, who gave birth during the researchers' shift, excluding cesarean sections.

**Variables:** culture result, administration of antibiotic. Data were collected by reviewing the medical history and analyzed with the SPSS 17.0 program.

**Results:** Of the 261 women, 69 (26.4%) received antibiotic administration. Of the 69, 46 (66.67%) had a positive culture. 26 (37.68%) received antibiotic therapy according to risk factors, although their cultures were negative or unknown.

**Discussion:** The results indicate that there is a correct application of the SEGO recommendation. Women without risk factors would not have received antibiotic therapy without screening.

**Keywords:** Group B *Streptococcus*; Culture; Antibiotic Prophylaxis

### Introduction

Group B *Streptococcus* (GBS) is one of the most important causes of neonatal sepsis. The reservoir of this positive coconut gram is the gastrointestinal tract where it colonizes asymptotically the vaginal and rectal area of 10 to 15% of the pregnant women of our environment.

Most neonatal infections occur by vertical transmission at delivery, from the colonized maternal genital tract. About 50% of the born of carrier mothers are born colonized by the bacteria, but only 1 or 2% develop an infection. The disease of the newborn is with bacteremia, pneumonia or meningitis. At present, mortality due to neonatal infection with group B *Streptococcus* is lower than 10% [1,2].

For years, several prevention strategies have been developed in the vertical transmission of this bacterium. In the 1970s, a study based on the administration of intramuscular penicillin in preterm infants to prevent the development of diseases caused by GBS concluded that there was no reduction in mortality in the newborn, although penicillin-resistant diseases were observed to increase [3,4].

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The results also were not determinant in a study on the local administration in chlorhexidine vagina of gel or solution; The reduction of *Streptococcus* colonies was noted, but the effectiveness of the prevention of colonization by *Streptococcus* could not be demonstrated. The study was limited for ethical reasons [5].

Current protocols discuss two types of baseline strategies to protect the newborn from the acquisition of *Streptococcus*. Both are based on the administration of prophylactic antibiotic therapy to the intrapartum mother:

- The first strategy Lyn FY, *et al.* 2001 discriminates intrapartum risk situations, which are preterm delivery, rupture of membranes greater than 18h, and intrapartum fever. The study by Lyn., *et al.* Showed that chemoprophylaxis in these cases decreased GBS disease [6].
- The second speaks of a screening through a vaginal-rectal exudate culture between the weeks 35 - 37 of gestation to every pregnant woman. Intrapartum prophylaxis would be applied to all women in whom GBS was isolated regardless of the aforementioned risk factors.

The latest trends are based on a combination of these two strategies as optimization for the search of cases at risk for prevention [7,8].

In Spain, the Spanish Society of Gynecology and Obstetrics (SEGO) ([www.sego.es](http://www.sego.es)) in its protocols for childbirth assistance, considers the latter option as the most suitable for the prevention of neonatal GBS infection and rules as the guideline Current work in our environment.

By adjusting to SEGO prevention management, the basic objective of this study is to quantify the women who receive antibiotics in labor and the number that is directly related to the positive culture. At the same time, other points such as quantifying women with risk factors and the number of women benefiting from the prophylaxis that if they did not do the screening would not receive antibiotics.

## Material and Methods

The study was defined as observational and transverse (from a single cohort), limited to collect directly from the clinical history of the pregnant variables to be studied. The data are collected once the labor has ended. The study sample includes women who have given birth at the hospital in Txagorritxu and during the work shift of the researchers.

The hospital of Txagorritxu is of public ownership, the only one of Álava that attends the delivery. The number of births per year is about 2800. The average age of the mother is 32 years old, 50% primiparous, 36% approximately secondary, leaving 10% to those with 3 children and a small percentage of large multiparous women. This hospital is not exempt of immigration and is currently over 20%, with the number of women from the Maghreb and South America standing out.

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For the collection of data the obstetric history is consulted, without the need to subject the woman to any type of procedure. These data are as follows: the result of vaginal-rectal exudate culture, weeks of gestation at the time of delivery, administration of antibiotic treatment, reason for administering it (whether culture positive or risk factors: Preterm birth, rupture of membranes greater than 18 h, and intrapartum fever) and demographic variables such as age, nationality and parity.

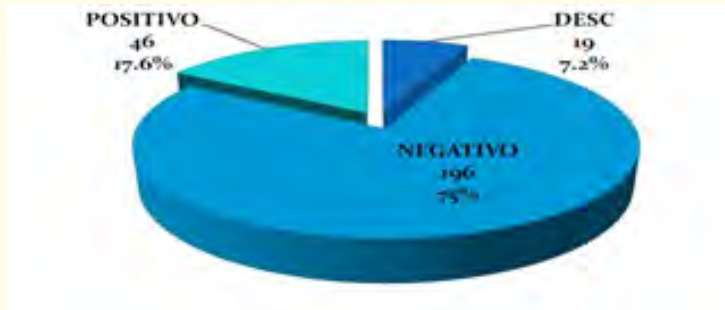
After the data collection, a data processing was carried out with the SPSS program ([www.spss.com](http://www.spss.com)).

As for the bibliographic search, it has been done through databases such as Cochrane, Medline, consultation of protocols to the use of the hospital itself and the SEGO. (Keywords: Group B *Streptococcus*, intrapartum prophylaxis and vagino-rectal culture).

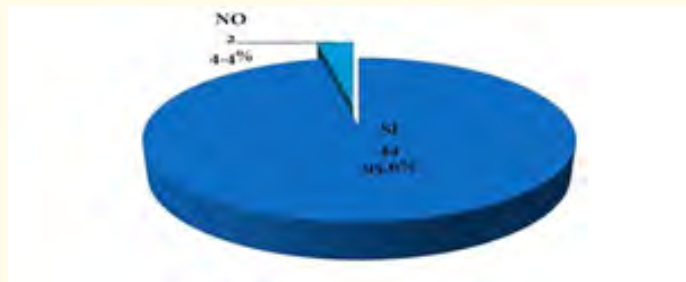
## Result

A total of 261 women were studied, of which the great majority knew the result of their vagino-rectal culture performed during the

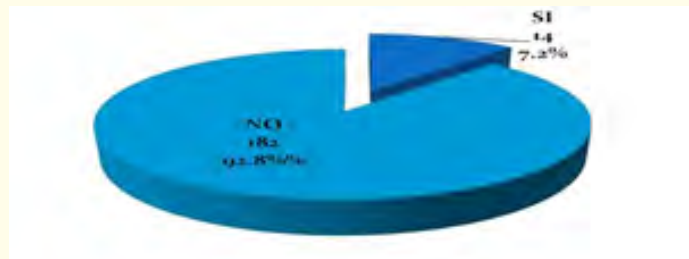
pregnancy control. Only 19 did not know their result, either because they did not do it or because they did not have the results available at the time. Of the total of the women, 75% had a negative result and a positive 17% (Figure 1).



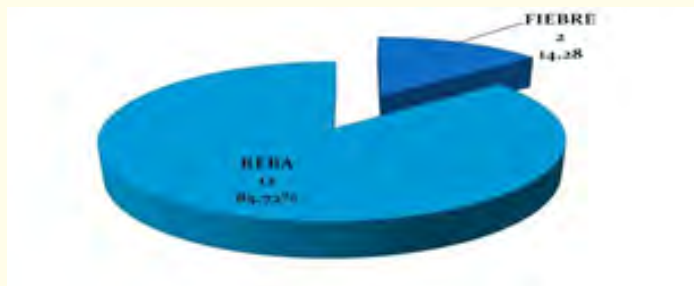
Of all women with GBS who came to give birth, all but 2 received antibiotic treatment according to the SEGO recommendation. These women could not receive intrapartum prophylaxis due to obstetric reasons, since they arrived at the delivery service in an advanced phase of delivery (expulsive) and did not give time to administer the antibiotic (Figure 2).



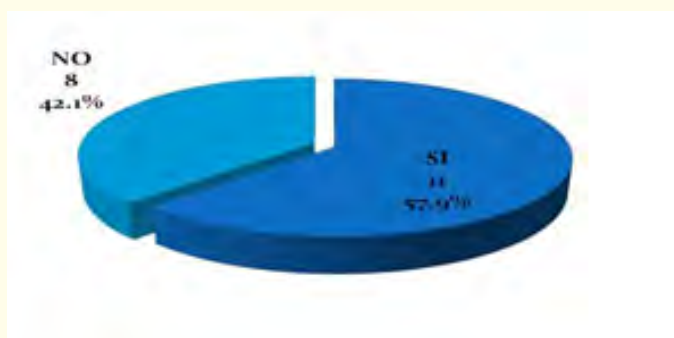
However, we also found that in the group of women not carrying GBS they received prophylactic antibiotic therapy, 14%, although the majority did not require an antibiotic (Figure 3).



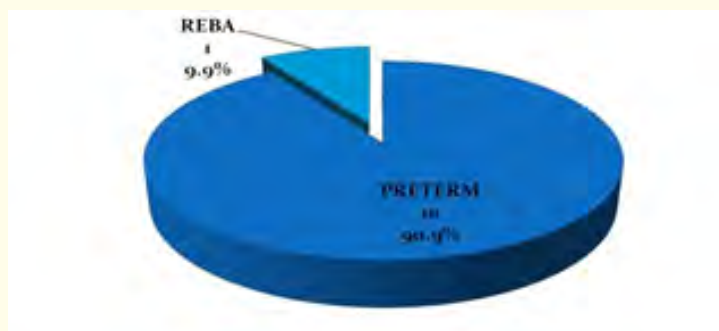
The reasons for why these women received antibiotic prophylaxis are shown in figure 4, with rupture of membranes larger than 18 h the star risk factor that indicated e treatment, followed by intrapartum fever.



Of the 19 women who did not contribute to the vagino-rectal culture, more than half (57%) received antibiotics because they had a risk factor (intrapartum fever, membrane rupture > 18h, Prematurity) (Figure 5).



The reasons that indicated the antibiotic prophylaxis of these women are shown in figure 6, with preterm delivery being the dominant indication in this group of women. Only one of them received antibiotics due to a rupture of membranes greater than 18h.



### Discussion

During the observed time the recommendations of the SEGO were applied in the hospital of Txagorritxu. The prenatal screening of GBS in vagino-rectal culture determined in the majority of pregnant women to initiate an intrapartum prophylactic treatment.

Virtually all women who are carrying GBS were treated except in rare cases where administration was not possible since delivery was imminent.

Women with positive culture would not have received prophylaxis if neonatal screening was not performed because there were no associated risk factors. The use of screening as a means of preventing neonatal sepsis extends the use of intrapartum antibiotics to more women than based solely on the presence of risk factors [6].

We observed that women without (culture unknown) vagino-rectal culture result do not receive antibiotic treatment unless they present some risk factor according to the Recommended by Lyn FY, *et al* 2001. These women presented risk factors in more than half of the cases. In fact most of these cases were preterm delivery, indicated antibiotic prophylaxis by risk factor. Preterm labor (before 37 weeks of gestation) does not provide a prenatal screening result, either because labor begins before the results of the culture or before the sample is obtained.

Women without GBS received antibiotic treatment, regardless of the screening result, because of the presence of risk factors, thus combining both strategies for the prevention of neonatal GBS infection [7,8].

We ask, as midwives, if we could influence to avoid the appearance of risk factors, especially intrapartum fever and rupture of membranes greater than 18h. Strategies such as limiting the number of vaginal touches when the amniotic sac is broken and performing bladder catheterization with sterile technique and only when indicated, could prevent the onset of fever and amniotic and urinary infections.

In the same way it would be interesting to delay as much as possible the artificial rupture of the amniotic sac (RABA), since we would also limit the number of hours of ruptured pouches and maintain a natural protection barrier against possible amniotic infections with fever. Adopting these attitudes during labor may limit the use of the antibiotic only to the result of vaginal-rectal culture.

## Considerations

The health ministry's report on the standards and recommendations of hospital care at delivery (2009) describes the care of childbirth in Spain as an institutionalized interventionist model, attended by specialized medical and nursing professionals, as in Countries such as Ireland, Russia, Czech Republic, France and Belgium. Other European models of alternative care coexist in the European context.

To dissect to establish what management do on antibiotic prophylaxis at birth.

The SEGO defines the eutocic delivery as the "of a pregnant woman without risk factors during gestation, which starts spontaneously between 37 and 42 weeks and, after a physiological evolution of the dilation and delivery, ends with the Birth of a normal newborn that is appropriately adapted to extrauterine life. The birth and the immediate postpartum must also evolve physiologically "by contrast" is considered a dystocic birth that does not meet these conditions "adding in the report that between 70 80% of deliveries are low risk at the beginning of labor [9].

The diversity of care within the European framework translates a reasonable doubt to the diversity in terms of prophylactic care within the national territory of the various autonomous communities, an extension of the study could observe the practice of intercommunities, which in the case of adhering to the definition eutócica of childbirth, may restrict the use of manipulations (no. of touches, probes or amniorrexis) and the use of intrapartum treatments.

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