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Factors related to prematurity in a public maternity hospital of Teresina - Piauí: retrospective study

Fatores relacionados à prematuridade em uma maternidade pública de Teresina – PI: estudo retrospectivo

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RESUMO | INTRODUÇÃO: A prematuridade é caracterizada pela idade gestacional inferior a 37 semanas e, devido a esse fator, o neonato nasce exposto a consequências na vida extrauterina, com possibilidade de atraso motor e outras condições adversas. **OBJETIVO:** Investigar as causas da prematuridade em uma maternidade pública de Teresina-PI. **MÉTODOS:** Trata-se de um estudo descritivo retrospectivo que avaliou o tempo de bolsa rota, uso de medicações, tipo de parto, idade da parturiente, número de gestações, de partos, de abortos, de consultas no pré-natal, idade gestacional (IG), sorologias para infecções e intercorrências. Foi realizado o teste Qui-quadrado para verificar associação do número de consultas com a idade da parturiente (alfa de 5%). **RESULTADOS:** Dos 4.379 prontuários do primeiro trimestre do ano de 2017 foram analisados e incluídos 310 casos de prematuros. A maior parte das parturientes era primípara e com idade entre 18 e 44 anos. Quase metade da amostra fez menos de seis consultas no acompanhamento pré-natal e o principal tipo de parto foi o cesáreo. As principais intercorrências associadas à prematuridade foram pré-eclâmpsia e ruptura precoce de membranas gestacionais. As mulheres com idade mais avançada apresentam maior associação com a prematuridade (p<0,05). **CONCLUSÃO:** Os principais fatores observados na amostra de casos de prematuridade foram pré-eclâmpsia, ruptura precoce de membranas gestacionais, parto cesáreo e acompanhamento pré-natal insuficiente.

PALAVRAS-CHAVE: Parto prematuro. Recém-nascido. Prématuro. Neonato pré-termo.

ABSTRACT | INTRODUCTION: xrematurity is characterized by gestational age less than 37 weeks and, due to this fator, the newborn is born exposed to consequences in extrauterine life, with the possibility of motor delay and other adverse conditions. **OBJECTIVE:** To investigate the causes of prematurity in a public maternity hospital in Teresina – PI. **METHODS:** This is a retrospective descriptive study that evaluated use, type of delivery, parturient's age, number of pregnancies, deliveries, abortions, prenatal consultations, gestational age (IG), serology test was performed complications. The chi-square teste was performed to verify the association between the number of consultations and the parturient's age (5% alpha). **RESULTS:** Of the 4,379 medical records of the first quarter of 2017, 310 premature cases were analyzed and included. Most of the parturients were primiparous and aged between 18 and 44 years. Almost half of the sample had less than six prenatal visits and the main type of delivery was cesarean. The main complications associated with prematurity were preeclampsia and early rupture of gestational membranes. Older women have a higher association with prematurity (p <0.05). **CONCLUSION:** The main factors observed in the sample of prematurity were preeclampsia, early rupture of gestational membranes, cesarean section and insufficient prenatal care.

KEYWORDS: Premature birth. Newborn. Premature. Preterm neonate.

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Introduction

Prematurity is characterized by gestational age below 37 weeks of gestation[1]. According to the statistical database by the Ministry of Health, the case rate has been increasing every year and showed a 25% increase in 2016 in the prematurity rate in Brazil[2]. It is important to highlight that premature birth is caused by several causes and affects the health integrity of the newborn and increases the number of cases of early mortality[1]. It is a worldwide problem that originates due to changes such as early placental detachment, hypertension, urinary tract infection, sexually transmitted diseases (STDs) in pregnancy and lack of guidance and information during prenatal care[2].

It was found that deficient guidance regarding prevention during prenatal care also results in premature birth and alcohol and drug use is a predisposing factor for cases of prematurity[3]. In addition, preeclampsia, hypertension associated with edema in the lower limbs, is a health risk of the pregnant woman, mainly related to age[4]. Other findings describe that multiple pregnancy is responsible for 12.2% of premature birth[8].

Another important factor is infection with the bacterium Group B Streptococcus (GBS) or Streptococci galactiae, which induces the anticipation of delivery[5].

According to the considerations prematurity originates several pathologies, being necessary the creation of research projects so that the causes of prematurity can be researched and thus propagated so that society is aware of the risks of prematurity.

Methods

This research is a retrospective descriptive study, analyzing facts that occurred in the past and analyzing medical records.

His study was supported by CNS Resolution No. 466/2012 which approves research guidelines and standards involving human subjects, and was approved by the Research Ethics Committee (CAAE 19519519.9.0000.5211). Each medical record was authorized to collect data through the data use agreement (TCUD).

Date collection was performed through the medical records of pregnant women who delivered at a gestational age of less than 37 weeks of gestation in a public maternity hospital in Teresina-PI, from January to June 2017. The data collection guide was used. medical records were analyzed: time of ruptured bag, use of medications, type of delivery, parturient's age, number of pregnancies, deliveries, abortions, prenatal consultations, gestational age (GA), date of last menstruation (DUM), serologies for different pathologies and complications.

Inclusion criteria were 78 records of preterm births distributed in January, 70 in February, 59 in March, 48 in April, 26 in May and 29 in June 2017. The criteria for non-inclusion were incomplete records and / or strikethrough.

Date were entered in the Microsoft Excel program (2010) with the division by months of the first semester of 2017 from January to June. In possession of the data, descriptive and qualitative analyzes were performed, such as prenatal care and how it was performed, and quantitative, such as the number of prenatal visits, the number of pregnancies, and the number of abortions. The chi-square test was applied to analyze the association between the number of prenatal consultations and the age of parturients, considering a significance level of 5% and a confidence interval of 95%.

Results

Of the 4,379 medical records were analyzed and included 310 medical records of premature patients from January to June of 2017. Table 1 shows the maternal age group and table 2 prenatal characteristics.

According to Table 1, most mothers are aged between 25 and 44 years (49%). The minimum age was 13 years and maximum 44 years, with an average of 25.4 years and standard deviation of about 7.3 years. The median was 24 years old, that is, 50% of the mothers are 24 years old or less.

Table 1. Distribution of the maternal age group of pregnant women who delivered at a gestational age below 37 weeks of gestation in a public maternity hospital in Teresina-PI from January to June 2017

Age Range	N	%	STASTICS
13 - 17 anos	48	15,5	mínimum=12; máx=46; median=24; average=25,4; sd=7,3
18 - 24 anos	110	35,5	
25 - 44 anos	152	49,0	
Total	310	100,0	

SUBTITLE: sd=standard deviation

In table 2, the number of prenatal consultations was 50.7% had adequate prenatal care ie, 6 or more consultations. The minimum and maximum number of consultations were 1 and 12 consultations, respectively. The average of consultations was 57.7 with standard deviation of 2.3 consultations.

According to Table 2, most of the mothers had prenatal care (98.1%). Regarding the number of prenatal consultations, 50.7% had adequate prenatal care, ie 6 or more consultations. The minimum and maximum number of consultations were 1 and 12 consultations, respectively. The average of consultations was 57.7 with standard deviation of 2.3 consultations.

Table 2. Distribution of prenatal characteristics of pregnant women who had births less than 37 weeks of gestation at a public maternity hospital in Teresina from January to June of 2017

Variáveis	N	%	Estatístics
Did pre christmas	48	15,5	
No	6	1,9	
Yes	304	98,1	-
Total	310	100,0	
Nº of consultations of did pre christamas			
< 6	150	49,3	mínimum=1; máx=12; median=6; average=5,7; dp=2,3
≥ 6	154	50,7	
Total	304	100,0	

According to Table 3, the majority of deliveries were cesarean (59%). Regarding the number of pregnancies, 61.3% had the first birth. The percentage of women with more than three deliveries was 15.5%. The average was 1.7 pregnancies with standard deviation of 1.1.

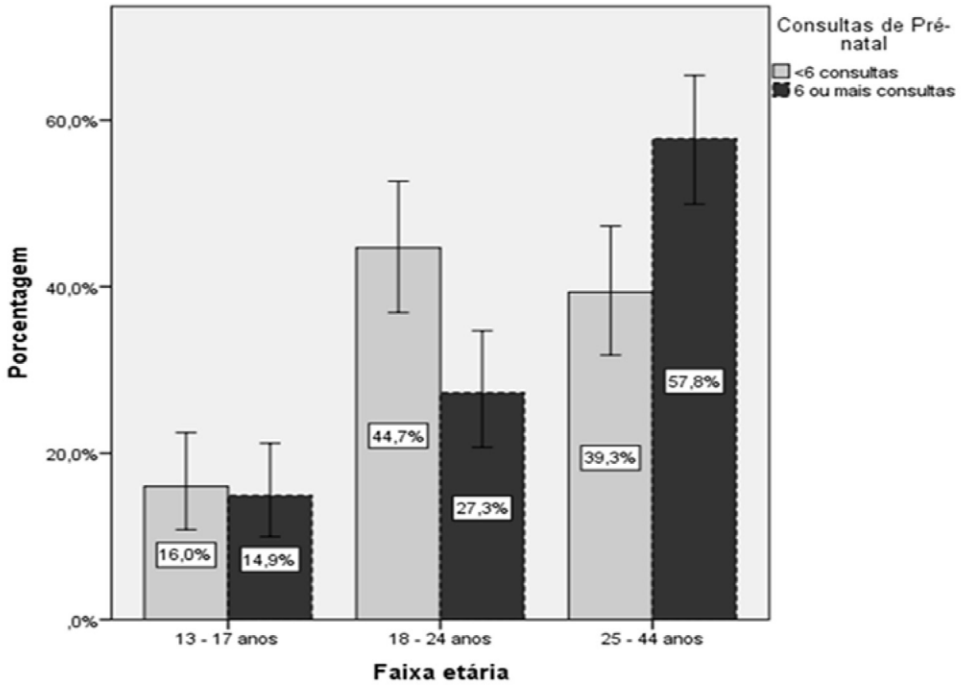
Table 3. Description of the characteristics of the obstetric history of pregnant women who had deliveries less than 37 weeks of gestation at a public maternity hospital in Teresina from January to June of 2017

Variáveis	N	%	Estatístics
Type of delivery			
Cesárean	183	59,0	
Vaginal	127	41,0	-
Total	310	100,0	
Number of pregnancies			
1	190	61,3	
2	72	23,2	mínimum=1; máx=8; median=1; average=1,7; dp=1,1
≥ 3	48	15,5	
Total	310	100,0	
Number of birthse			
Primípara	1	0,3	
1	227	73,2	mínimum=0; máx=7; median=1; average=1,4; dp=0,8
2	56	18,1	
≥ 3	26	8,4	
Total	310	100,0	
Previous Abortion			
No	242	78,1	
Yes	68	21,9	-
Total	310	100,0	
Number and abortion previous			
1	59	86,8	
2	8	11,8	-
3	1	1,5	
Total	68	100,0	

SUBTITLE: sd=standard deviation

Graph 1 shows that the chi-square test (p-value = 0.003 <0.05) shows a significant association between age and number of prenatal consultations. Of the mothers who had an adequate number of consultations (6 or more consultations), the majority are 25 - 44 years old (57.8%), followed by 18 - 24 years old (27.3%). By the 95% confidence intervals, there is no difference between the number of consultations for women 13 - 17 years. For women aged 18 - 24, the percentage of inadequate consultations (<6 consultations) is greater than the percentage of appropriate consultations. On the other hand, mothers aged 25 - 44 years have the opposite, with significantly higher percentages of appropriate consultations when compared with the percentage of inadequate ones.

Figure 1. Statistical association (95% confidence interval and Chi-square test) between age group and number of prenatal consultations



According to table 4 we can identify that 99.4% of pregnant women had complications during pregnancy with a possible pathology.

Table 4. Distribution of pathologies and complications during pregnancy that had births with gestational age less than 37 weeks of gestation in a public maternity hospital of Teresina from January to June of 2017

Variáveis	N	%
Complications during pregnancy		
No	2	0,6
Yes	308	99,4
Total	310	100,0
Type of complications		
Pré- Eclâpmsia	90	29,2
Ruputure of the membranes	85	27,6
Previous bleending	30	9,7
Urináry Infection	25	8,1
Oligohidramium	32	10,0
Hypertensive disorders	14	4,5
Eclâmpsia	12	3,9
Helpp's syndrom	7	2,3
Premature Placental detachment	5	1,6
Vulvovaginitis	5	1,6
Hypertensive Proteinurias	2	0,6
Total	308	100,0

Discussion

According to table 1, the number of premature births is the highest prevalence and among adolescentes and young adolescentes between 13 and 24 years and with these data the age range of maternal age is possible to identify in the study that authors report that the number of births preterm infantis are not great due to obstetric complications, but due to psychological difficulties due to physical and mental immaturity having no knowledge for precention, monitoring and guindasse[8]. Another study reports that the highest case rate od premature and high-risk births is in women younger than 19 yeara and over 35 years characterizinf pregnant women in both adolecenth and late phases[9].

Prenatal care is associated with a higher importance index to prevent premature birth,sincere pregnant women who perform corrective pregnancy follow-up reduce risks and incentives sp that they can contribute fully and eddectively for pregnant women and children[10]. Pregnant women with poor educational status influences the prevention information for pathologies and complications, in this study it was found that most pregnant women are from rural áreas[11].

Based on these date, we can correlate with the study of the authors, which describes that cesarean delivery has a direct correlation with cases of premature babies in Brazil, because woen who undergo cesarean delivery has a direct correlation with cases of premature babies in Brazil, because women who undergo cesarean delivery are dute to higs-risk pregnancy complications as they increase the number of cases each % per year[12].

It is possible to identify in the study the one in which women who had a previous cesarean section referring to the current pregnancy have a poorly influenced correlation for cesarean delivery but directly interfere with possible pathologies and complications during pregnancy causing complications[13].

Women who had na abortion in a previous pregnancy, in relation to the current pregnancy, may have possible consequences such as premature birth, or even a spontaneous abortion[16].

According to table 4, it is possible to identify that the highest prevalence of cases is pre-eclampsia, with 29.2% and,according to these date, the authors describe that pre-eclampsia is responsible for changes in blood pressure and preteinuria[17].

In table 4, ruptures of the membranes were one of the highest prevalences, with 27.6%, in this way it is possible to identifity that the rupture of the membranes is characterized by the loss of the amniotic fluid before the start of the delivery preparation and when this complication happens before the 37th gestational week is considered rupture of the preterm membranes[18].

Another study describes that rupture of membranes is responsible for 55% premature cases and affects 2-3% of pregnant women with rates of 32.6% in the United states and 28.7% in Brazil[19].

As for the oligohydramium, 10 % of the cases were related, with these date it is possible to identify based on the studies of the authors that the oligohydramium is identified by the rupture of the membranes[20].

Previous bleeding was 9.7% of cases, in this was the previous hemorrhage is characterized by bleeding causing small contactions and cramps and is this way the placenta is mobile, thus making it necessary ti perform premature cesarean delivery[20].

Urinary tract infection was found in 8.1% of cases, acoording to these date, it is possible to identify that the infection is responsible for reaching 200 times more neonates and mothers causing rupture of stillbirth membranes, premature births and sepsis[6].

Regarding hypertensive disorders that were in 4.5% of cases, hypertensive disorders or hypertensive disorders in pregnancy are responsible for complications in 5% throughout pregnsnvy and 11% in the first pregnancies are those associated with pre-eclampsia and the 14% increase in maternal deaths regagarding hypertensive disorders that were in 4.5% of cases hypertensive disorders or hypertensive disorders in pregnancy are responsible for complications in 5% throughout pregnancy and 11% in the first pregnancies are responsible for complications in 5% throughout pregnancy and 11% in the first[16].

The cases of eclampsia were 3.9% of the cases. Eclampsia is identified by seizures during pregnancy, considering the main factor for the rise in blood pressure after pre-eclampsia, causing changes in the placenta causing rupture and, as a consequence, childbirth premature[3].

The HELPP syndrome presents 2.3% of the cases and in one study reports that it is due to hemolysis with the possible elevation of liver enzymes and thrombocytopenia due to pre-eclampsia that changes in the placenta can occur[21].

The detachment of the placenta previa had 1.6% of the cases, with these data we can correlate with the study of the author[18] that the anterior detachment of the placenta is characterized when vaginal bleeding occurs after the 20th gestational week and can happen between the 24th and 26th week in which 54% of cases were premature births in relation to maternal anemia 79%, 8% diabetes mellitus and 8% hypertensive.

Vulvovaginitis presented in 1.6% of cases, which can be characterized as candidiasis, and thus describe that pregnant women with gestational age less than 20 weeks can develop symptoms of candidiasis and that if they are treated correctly and at the beginning they can avoid childbirth premature and may reduce cases of preterm births[20].

Hypertensive proteinuria was 0.6% of cases, proteinuria is increased due to changes in pregnancy,requiring a controlled diet so that they can avoid complications and premature delivery[20].

Conclusion

In view of the study, we can conclude that the main factors observed in the sample of prematurity cases were pre-eclampsia, early rupture of gestational membranes, cesarean delivery and insufficient prenatal care.

Author contributions

Gomes TMV participated in the design of the article, analysis, and interpretation of the research data. Soares CB, Da Silva AR, Ferreira DS, Da Silva NR, Sales MC participated in the Data Collection. Sousa IM participated in the design, statistical analysis and interpretation of the research data.

Competing interests

No financial, legal or political conflicts involving third parties (government, companies and private foundations, etc.) have been declared for any aspect of the submitted work (including, but not limited to grants and funding, participation in advisory council, study design, preparation manuscript, statistical analysis, etc.).

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