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CHARACTERIZATION OF MOTHERS AND PRETERM NEWBORNS IN A NEONATAL INTENSIVE CARE UNIT

CARACTERIZAÇÃO DE MÃES E RECÉM-NASCIDOS PRÉ-TERMO EM UMA UNIDADE DE TERAPIA INTENSIVA NEONATAL

CARACTERIZACIÓN DE MADRES Y RECIÉN NACIDOS PRETÉRMINOS EN UNA UNIDAD DE CUIDADO INTENSIVO NEONATAL

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ABSTRACT

Objective: The objective was to characterize the sociodemographic and clinical profile of preterm newborns in a Neonatal Intensive Care Unit. **Method:** This is an observational, descriptive and quantitative study performed in a Neonatal Intensive Care Unit in Fortaleza-CE, from January to November 2017. The sample was composed of 70 preterm newborns. Data collection took place using a form, containing the demographic and clinical characteristics of mothers and newborns. **Results:** Among the main results, one highlights: 69.6% of the mothers were aged between 20 and 34 years, 22.1% underwent five prenatal consultations, 29.4% presented hypertensive diseases specific to pregnancy. With regard to newborns, as for gestational age, most were extremely preterm (85.3%), extremely underweight (50%) and were undergoing mechanical ventilation (78.6%). **Conclusion:** Through knowledge of the

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characteristics of hospitalized newborns, we should aim at achieving better prenatal care, providing resources and training professionals, in order to enhance health care in the Neonatal Intensive Care Unit.
Descriptors: Health Profile; Mothers; Infant, Premature; Intensive Care Unit, Neonatal.

RESUMO
Objetivo: Objetivou-se caracterizar o perfil sociodemográfico e clínico dos recém-nascidos pré-termo de uma Unidade de Terapia Intensiva Neonatal. **Método:** Trata-se de um estudo observacional, descritivo e quantitativo realizado em uma UTIN em Fortaleza-CE, de janeiro a novembro de 2017. A amostra foi composta por 70 recém-nascidos pré-termo. A coleta de dados foi feita por meio de um formulário, contendo as características demográficas e clínicas das mães e dos recém-nascidos. **Resultados:** Dentre os principais resultados, destacam-se: 69,6% das mães tinham idade entre 20-34 anos, 22,1% fizeram cinco consultas de pré-natal, 29,4% apresentaram doença hipertensiva específica da gestação. Concernente aos recém-nascidos, quanto à idade gestacional, a maioria era pré-termo extremo (85,3%), extremamente baixo peso (50%) e estavam sob ventilação mecânica (78,6%). **Conclusão:** Por meio do conhecimento das características dos recém-nascidos internados, deve-se visar à melhor assistência pré-natal, prever recursos e treinar os profissionais, no intuito de melhorar a assistência à saúde na Unidade de Terapia Intensiva Neonatal.
Descritores: Perfil de Saúde; Mães; Recém-Nascido Prematuro; Unidade de Terapia Intensiva Neonatal.

RESUMEN
Objetivo: El objetivo fue caracterizar el perfil sociodemográfico y clínico de los recién nacidos prematuros en una Unidad de Cuidado Intensivo Neonatal. **Método:** Estudio observacional, descriptivo y cuantitativo llevado a cabo en una Unidad de Cuidado Intensivo Neonatal en Fortaleza-CE, de Ene. hasta Nov. 2017. La muestra se compuso de 70 recién nacidos prematuros. La recolección de datos tuvo lugar mediante un formulario que contiene las características demográficas y clínicas de las madres y los recién nacidos. **Resultados:** Entre los principales resultados, se señalan: el 69,6% de las madres tenían entre 20 y 34 años, el 22,1% hicieron cinco consultas prenatales, el 29,4% presentaron una enfermedad hipertensiva específica del embarazo. Con respecto a los recién nacidos, acerca de la edad gestacional, la mayoría eran extremadamente pretérminos (85,3%), con un peso extremadamente bajo al nacer (50%) y estaban bajo ventilacion mecanica (78,6%). **Conclusión:** A través del conocimiento de las características de los recién nacidos hospitalizados, se debe buscar una mejor atención prenatal, predecir recursos y capacitar a profesionales, con miras a mejorar la atención de salud en la Unidad de Cuidado Intensivo Neonatal.
Descriptores: Perfil de Salud; Madres; Recien Nacido Prematuro; Unidad de Cuidado Intensivo Neonatal.
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INTRODUCTION

Prematurity is a serious public health problem in the world, as it is one of the risk factors for neonatal morbidity and mortality, influencing the clinic of the newborn (NB) and impacting their quality of life.[1]

There is a big difference in the survival of preterm newborns (PTNBs) depending on where they are born. In high-

income countries, half of newborns at 24 weeks survive, while in low-income countries half of this population at 32 weeks still dies due to lack of essential care for newborns.[2]

The rate of PTNBs has increased worldwide, reaching 10.6% in 2014. Premature birth in North Africa is around 13.4%, while in Europe it is 8.7%.[3] Brazil is among the ten countries with the highest numbers of PTNBs and is responsible for 60% of premature births in the world.[4]

Prematurity can be the result of a complex combination of clinical, biological, genetic, psychosocial and environmental conditions, or upon medical recommendation due to maternal and fetal risk factors. Maternal factors such as hypertension, infections, diabetes, previous history of premature birth, primiparity and fetal malformation are some of the causes of prematurity.[5]

A cross-sectional study conducted with data from 9,987 records from the Live Birth Information System (SINASC) database showed that extremes of maternal age, type of delivery and prenatal care with insufficient number of consultations are also risk factors for prematurity.[6] Another study showed that marital status, low education and ethnicity could influence premature births.[7]

In this scenario of so many factors that lead to prematurity, the admission of a PTNB to the Neonatal Intensive Care Unit (NICU) is a fundamental moment for maintaining his clinical condition and directly influences his survival. Prematurity increases the risk of adapting to extrauterine life, mainly due to anatomophysiological immaturity.

Most preterm infants are at high risk and face several physiological disadvantages, such as pulmonary immaturity, which can lead to apnea and bradycardia, immaturity of metabolic processes, immature brain structures, greater susceptibility to infections and others.[8]

In this context, it is of fundamental importance that health professionals, especially the nursing team, have knowledge about everything that involves PTNB, so that they are prepared to receive these patients. This fact may favor the implementation of better strategies for comprehensive and quality care. In this way, this study aimed to characterize the sociodemographic and clinical profile of RNPTs of an NICU.

METHODS

This is an observational, descriptive study, with a quantitative approach, carried out in a reference NICU in high-risk

research and pregnancy in the city of Fortaleza-CE, from January to November 2017.

The sample included all PTNBs hospitalized in high-risk beds and who were using oxygen therapy. In order to identify the newborns who met these criteria, a survey of the graduates of the NICU was carried out, excluding full-term newborns. The sample, composed of 70 PTNBs, was by convenience.

Data collection was performed using a form, containing the demographic and clinical characteristics of the newborn mothers (age, origin, marital status, education, occupation, number of prenatal consultations, problems during pregnancy and childbirth) and basic characteristics of newborns in terms of birth conditions (gender, type of delivery, birth weight, Apgar, gestational age, type of oxygen therapy installed when admitted to the NICU). The completion of the form was based on information contained in the medical newborn records.

The results were organized in tables, with absolute and percentage frequencies. The means and standard deviations of the variables age, parity, number of mothers prenatal consultations and Apgar, gestational age at birth and weight of newborns were calculated. Data were processed using SPSS 20.0, license number 10101131007.

The study was sent to the Research Ethics Committee of the institution where it was carried out, being approved by the protocol nº 1.869.556, CAAE 62667516.7.0000.5050.

RESULTS

Results showed the sociodemographic and clinical profile of the mothers and their respective newborns.

Table 1 presents the sociodemographic and clinical characteristics of the mothers during the pregnancy and birth of the newborns.

Table 1 - Distribution of the number of mothers according to sociodemographic and clinical characteristics that had their newborns admitted to the NICU, Fortaleza, CE, Jan./nov. 2017

Characteristics	N	%	Average	DP
Age			27.3	± 7.5
Up to 19 years	7	10.1		
20-34 years	48	69.6		
35 or more	14	20.3		
Uninformed	1	1.4		
Origin				
Fortaleza	25	35.7		

Metropolitan region	45	64.3		
Marital status				
Single	17	25.4		
Married / stable relationship	50	74.6		
Uninformed	3	4.3		
Education				
Fundamental	29	41.4		
High School	34	48.6		
Incomplete higher education	3	4.3		
Higher education	4	5.7		
Occupation				
Housewife	25	36.8		
Farmer	9	13.2		
Dressmaker	10	14.7		
Others	24	35.3		
Uninformed	two	2.9		
Parity			1.6	± 1.1
Nulliparous	5	7.1		
Primiparous	36	51.4		
Multiparous	29	41.5		
No. of prenatal consultations			4.3	± 1.8
0	1	1.5		
1	5	7.4		
2	8	11.8		
3	7	10.3		
4	13	19.1		
5	15	22.1		
6	8	11.8		
More than 6	11	16.2		
Uninformed	2	2.9		
Problems during pregnancy				
DHEG or Pre-eclampsia	20	29.4		
UTI	13	19.1		
PEG	3	4.4		
TPP	4	5.9		
Placenta previa	1	1.5		
Vulvovaginitis	2	2.9		
Others	41	60.3		
Uninformed	16	22.8		
Type of delivery				
Cesarean	43	61.4		
Vaginal	27	38.6		

Source: records of PTNBs hospitalized in NICU beds at a public institution located in Fortaleza-CE, Jan./nov. 2017.

With regard to maternal characteristics (Table 1), the results revealed that age between 20-34 years (69.6%) prevailed, with an average of 27.3 ± 7.5, most of them coming from the metropolitan region of Fortaleza (64.3%) and married/in a stable relationship (74.6%). Regarding education, occupation

and parity, most mothers attended high school (48.6%), were housewives (36.8%) and primiparous (51.4%), with an average of 1.6 ± 1.1, respectively.

As for prenatal care, only 16.2% of mothers had seven or more consultations (mean 4.3 ± 1.8). The main problems presented during pregnancy were pregnancy-specific hypertensive disease - DHEG or pre-eclampsia (29.4%) and urinary tract infection - UTI (19.1%). It was found that most mothers (61.4%) had their children by cesarean delivery.

Table 2 shows the sociodemographic and clinical characteristics of the newborns at birth, and soon after being admitted to the NICU.

Table 2 - Distribution of the number of newborns admitted to the NICU according to sociodemographic and clinical characteristics, Fortaleza, CE, Jan./nov. 2017

Characteristics	N	%	Average	DP
Gender				
Male	35	50.0		
Female	35	50.0		
Type of delivery				
Cesarean	43	61.4		
Vaginal	27	38.6		
Apgar 1st min			5.4	± 1.9
Up to 6	41	60.3		
7-10	27	39.7		
Uninformed	2	2.9		
Apgar 5th min			7.5	± 1.5
Up to 6	12	17.9		
7-10	55	82.1		
Uninformed	3	4.3		
Gestational age at birth (weeks)			27.9	± 2.4
Extreme preterm (≤ 30)	58	85.3		
Moderate preterm (31 - 34)	9	13.2		
Borderline preterm (35 - 36)	1	1.5		
Uninformed	2	2.9		
Birth weight (g)			1070.4	± 392.7
Extremely Low Weight (<1000)	35	50.0		
Very Low Weight (1000-1499)	27	38.6		
Low Weight (1500-2499)	8	11.4		
Oxygen therapy modality upon admission to the NICU				
M	55	78.6		
NIV	6	8.6		
Nasal Cpap	9	12.9		

Source: medical records of PTNBs hospitalized in beds of a NICU of a public institution located in Fortaleza-CE, jan./nov. 2017.

Regarding the gender of PTNBs, there was an equal percentage distribution, the majority (61.4%) was born by cesarean delivery, the Apgar that prevailed in the 1st minute (60.3%) was up to 6, with an average of 5.4 ± 1.9 and, in the 5th minute, from 7 to 10 (82.1%), with an average of 7.5 ± 1.5.

As for the gestational age of the newborns, birth weight and type of oxygen therapy used when admitted to the NICU, the results were that the largest number of newborns was extremely preterm (85.3%), with an average of 27.9 ± 2, 4 weeks, extremely low weight (50%), with an average of 1070.4 ± 392.7g, and was under mechanical ventilation (MV) (78.6%), respectively (Table 2).

DISCUSSION

In this study, there was a predominance of mothers aged 20-34 years, from the metropolitan region of Fortaleza, married/stable union, with high school and housewives, corroborating a study carried out in a NICU in the Federal District.[9]

Still, extremes of maternal age are one of the actors that influence the birth of PTNBs.[10] The present study was in agreement with this statement, since most of the NBs mothers were in the adult-young age group. This may be related to incomplete prenatal care.

Regionalization is one of the guidelines of the Unified Health System and guides the decentralization of health actions and services, thus enabling better obstetric care, in order to meet the needs of pregnant women in a given territory.[11] So, it is observed that the results of this study corroborate the idea, since most of the hospitalized mothers came from the metropolitan region of Fortaleza.

Regarding marital status, most PTNBs mothers were married/in a stable relationship. This fact stands out so that paternity is included in the entire puerperal pregnancy cycle, in view of the benefits that the participation of men brings when they show affection, increasing the security of women and the consistent family bond; otherwise, a family breakdown can lead to premature labor.[12]

Maternal education has been presented as an independent variable in epidemiological studies on different topics. Therefore, a low maternal education is associated with a higher risk of maternal and neonatal mortality.[13]

The relationship between occupation and premature labor among the studied mothers revealed that most of them performed some activity. The role of

housewife, which was found in most women, as a seamstress and as a farmer, are configured as jobs that require physical effort, with the pregnant woman remaining in the standing or sitting position for a long period. These characteristics have been linked to the prevalence of premature births.[14]

With regard to the mothers' clinical characteristics, most were primiparous and had between four and five prenatal consultations. The problems that occurred most frequently during pregnancy in this population were preeclampsia, followed by urinary tract infection. The most frequent type of delivery was cesarean.

A case-control study carried out with 111 mothers of a public institution in Bahia identified the maternal factors most associated with the birth of low birth weight and premature newborns. Most puerperal women had less than six prenatal consultations, had preeclampsia and urinary tract infection as the main complications during pregnancy, with the majority being multiparous, opting for vaginal delivery. The results demonstrated that the mothers exposed to inadequate prenatal care were more likely to have low birth weight and premature births.[15] This research is in agreement with the present study regarding the inadequate number of prenatal consultations and the problems presented during pregnancy; however, the mothers in this study were primiparous.

Regarding the characteristics of PTNBs admitted to the NICU, the results showed uniformity in terms of gender and most of them were born by cesarean delivery. This delivery, in high-risk pregnancies, has been considered an important procedure for the reduction of perinatal problems, increasing the survival of newborns, for example, in cases of fetal distress, lack of progress in vaginal labor, breech presentation, preeclampsia, among others.[16]

Right after birth, profound physiological changes occur in the newborn, as he needs adaptation to extrauterine life, needing evaluation, and the Apgar bulletin is used to measure his vitality. In this study, a large part of the newborns had a low Apgar score in the first minute; however, in the fifth minute, there was an improvement in the vitality of the newborns and the majority obtained an Apgar score of 7-10. This significant improvement in newborns, comparing the first with the fifth minute, is related to the good conduct of health professionals in the delivery room, both in attending to women and the newborn. It is noteworthy that the main recommendation to reduce maternal and neonatal mortality is the attendance of them by qualified personnel.[17]

A retrospective descriptive research, conducted in a hospital in the interior of Ceará, aimed to assess the vitality of newborns through the Apgar index, relating to maternal-obstetric characteristics. The relationship between the type of delivery and the newborn's vitality, assessed with the Apgar score, did not obtain results with significant differences, as the newborns obtained a satisfactory result for both types of delivery, cesarean and vaginal. It became clear that the NB's vitality is directly related to factors such as gestational age, maternal age and prenatal consultations.[18] This research confirms the data of the present study, as all newborns were preterm and the number of prenatal consultations was insufficient.

With regard to gestational age, PTNBs can be subclassified into: borderline preterm (35 to 36 weeks GA), moderate preterm (31 to 34 weeks GA) and extreme preterm (GA ≤ 30 weeks). In relation to weight, newborns should be considered low birth weight (less than 2,500 g), very low weight (less than 1,500 g) and extremely low weight (less than 1,000 g).[19]

As for gestational age and birth weight, what predominated in this study were extreme PTNBs, followed by moderate and borderline prematurity; extremely low weight, followed by very low weight and low weight. The most common type of oxygen therapy in both groups was MV.

A retrospective and documentary study of a Kangaroo sector that admitted PTNBs from the NICU of a reference hospital in Fortaleza-CE, researched the profile of these patients. There was evidence that most were born by cesarean delivery (76.6%), with Apgar ≥ 7 (63.3%) in the first minute and Apgar ≥ 7 (96.6 %%) in the fifth minute. Regarding gestational age, the majority (56.6%) were extremely preterm, followed by 36.6% moderate preterm and 6.6% borderline. As for weight, 56.6% were extremely underweight, 40% were very underweight and 3.3% were underweight, with 100% having respiratory distress syndrome as a diagnosis of admission to the NICU; and of these, 53.3% were on MV, 83.3% used Nasal Cpap and 90.0% Oxi-Hood.[20]

These results are in accordance with the present study, since the majority of deliveries were cesarean; most newborns were extremely preterm, with extremely low weight and were using MV. However, the study in question met with the aforementioned research only with regard to the Apgar bulletin in the first minute. This may be associated with a greater hypoxia suffered by patients at birth when it comes to the study in question. In addition,

most newborns were extremely preterm and extremely low birth weight.

CONCLUSION

This study found the main sociodemographic and clinical characteristics of the mothers identified, most of them young adult mothers, from the metropolitan region of Fortaleza, with high school, housewives, married/stable union and primiparous. In this way, it was possible to perceive that, although these mothers had characteristics favorable to the development of a healthy concept, except for the low level of education, their children needed more specialized assistance.

It was also observed that the mothers' average prenatal consultations were inadequate and that most of them faced problems during pregnancy, such as DHEG and UTI. In addition, cesarean delivery was the most prevalent. Thus, it was found that there is a great demand from these women in the metropolitan region for the capital, an event that could be avoided if some problems during pregnancy were detected early in prenatal care.

As for the profile of PTNBs admitted to the NICU, the present study revealed that, with respect to gender, male and female were in equal proportion. Regarding Apgar, newborns achieved an important improvement from the first to the fifth, with the largest number of patients being extremely preterm, with extremely low weight and under MV.

It is noteworthy that, when evaluating the results of this study, it was noticed that some maternal data of the analyzed newborns might have contributed to the worsening of their health, since most of their mothers did not perform an adequate prenatal care.

Furthermore, the high percentages of extreme prematurity and extremely low birth weight found are highlighted, in addition to other comorbidities that contributed to admission to the NICU, which could have been prevented or treated early with the help of appropriate prenatal interventions and less costly and complex perinatal procedures. In addition, due to gestational age and weight, a significant number of patients were using MV.

Therefore, through knowledge of the characteristics of hospitalized NBs, one should aim at the best prenatal care, provide resources and train professionals, with the goal of improving health care in the NICU and, even, in the pre-natal state.

As a limitation of this study, it is cited to be carried out in a single NICU; therefore, it is suggested a greater coverage in future studies in this context.

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