ABSTRACT
Objective: to describe the care provided by nurses to extreme premature babies during their admission to the Neonatal Intensive Care Unit. Methodology: this was a qualitative study where eleven nurses from the Neonatal Intensive Care Unit from a public hospital were interviewed between May 5 and July 5 of 2010. The data were constructed through an interview with a semistructured script and direct observation, analyzed by the Content Analysis technique. This study was approved by the Research Ethics Committee under the CAAE number 0017.0053.000 10. Results: the accounts from the interviewees were grouped into three categories: 1. << Care in the NICU organization >>, 2. << Care for the premature during admission >>, and 3. << Care for their families >>. Conclusion: the care for extreme premature babies must be provided by professionals with specific knowledge about the peculiarities ensuring the full assistance needed by these babies necessary for their full development. Descriptors: Premature; Nursing; Neonatology.

RESUMO
INTRODUCTION

About 20 million premature infants, at low birth weight, are born annually worldwide. A third of them die before completing one year of life. In Brazil, the main cause of infant mortality is perinatal infection including respiratory and metabolic problems, and difficulties in feeding and regulating body temperature that can occur in newborns (PNs).¹

The neonatal population is a strategic group with regards to reducing infant mortality and thus, represents one of the indicators of quality of life, health standards, and degree of development of a country. The neonatal component is responsible for 40% of the deaths in infant mortality rates, which requires the need for specific assistance and monitoring in order to contribute to the planning of health related actions.²³

While developing activities in the NICU, we observed that extreme premature neonates (RNPTs) who weighed less than 1,000 grams and with gestational age (GA) of less than 30 weeks needed intensive care soon after their birth due to organic immaturity. Thus, the admission of a premature baby urged us some concerns: what is the main care performed by the nurse upon admission of the extreme premature? How were the nurses experiencing this admission?

These questions have motivated us to search on the topic because the care for extreme premature babies requires specific nursing care including technological support, which makes procedures more elaborate and efficient, favoring the reduction of morbidity and mortality and elevation of their survival with the least possible number of sequels.

Thus, we realize that care for extreme premature is related to knowledge in its specificity and experience of professionals who assist them, and mainly of nurses.

From these reflections, we formulated the following questions << What is the care provided to the extreme premature baby upon admission? How do nurses experience this moment of admission? >> and, the following objective was formulated to respond these questions:

- To describe the care provided by nurses to extreme premature babies during admission to the Neonatal Intensive Care Unit.

METHODOLOGY

This article was composed from the Dissertation << The nurses’ experience in extreme premature babies admission to the Neonatal Intensive Care Unit >> presented to the Graduate School of Nursing from the Federal University of Bahia (EE/UFBA), Salvador-Bahia, Brazil, in 2011.

This is a descriptive and exploratory study with a qualitative approach undertaken between May and July of 2010. The study location was at a large public hospital in the city of Salvador-Bahia. This hospital serves patients from the Unified Health System (SUS) from the whole state and is the reference hospital for high-risk pregnancies and neonatal surgery. The hospital has 20 beds in the NICU and 28 beds in the Neonatal Semi-Intensive Unit (NSIU).

The subjects in the study were eleven nurses from the hospital’s NICU. The study’s inclusion criteria were: assisting nurses with at least one year of experience in the NICU and who had provided assistance to extreme premature neonates. The number of interviewees was not initially limited assuming that carried out interviews would be performed until they become repetitive and/or attended to the object of the study.

The data were obtained through techniques of descriptive direct observation and a semistructured interview. This observation was performed freely; however, the researcher had always focused on the object of the study.⁴ Thus, the observation focused on the following aspects: physical resources (equipment, materials, and supplies) involved in the admission of the premature; human resources (nursing staff and other professionals) who worked in the admission of the extreme premature, and the care provided at the time of admission. The data of these observations were recorded in a field journal.

The field journal was elaborated from observations during the researcher’s visits to the NICU. The record occurred spontaneously, without theoretical rigor, however, with notes pertinent to the object of the study.

The interview with a semistructured script was used for allowing greater interaction between the researcher and subjects. The guiding question was << Which is the care provided upon admission of the extreme premature baby? >> The data collection occurred in the NICU after explaining the objectives of the study and obtaining a signed voluntary informed consent from the subjects (SVIC).

The Analysis of Content of Bardin² was used for the data analysis in the thematic mode. The data ordering occurred with the transcription of the interviews and later, with...
the exhaustive reading of the material, linking it to the descriptive observations, object of study, and theoretical foundation. The responses were grouped by similarities of meanings in three specific categories.

The study followed the Resolution number 196/96 from the National Health System. Confidentiality and privacy of respondents were assured; they were identified by flower names to guarantee their anonymity. The study was approved by the Research Ethics Committee from the Health Secretary of the State of Bahia (CEP/SESAB) under the CAAE number 0017.0053.000-10 and memorandum number 441/2010.

**RESULTS AND DISCUSSION**

The admission of the extreme premature is a key moment in the maintenance of their clinical scenario, which can directly influence on their survival. The PN deserves special attention from professionals working in the NICU, particularly the nursing team due to their integral assistance. Therefore, studying the care carried out by nurses during the admission of extreme premature neonates in the NICU allowed knowing the main care provided to these patients and their families. The outlined categories in this study were: care in the organization of the NICU, care provided during the admission of extreme premature neonates to the NICU, and care provided to their families.

♦ **Care in the organization of the NICU**

The organization of the NICU requires professionals with specific knowledge in neonatology, physical area planning, necessary materials and equipment, and supporting sectors such as laboratories, blood bank, pharmacy, and bio-image service for the admission of the extreme PN. Accordingly, the extreme premature infants are transferred to the NICU shortly after birth where they will receive all the care required to maintain life favoring survival. The following aspects were described in interview lines:

*Firstly, from the profile of the patient who will be admitted, I prepare the unit and provide a heated humidified incubator […] (Daisy)*

*Thus, the care is provided by having everything set up, have the bed ready, aim to know the story of the baby in order to have whatever it takes closer to facilitate admission, making things available faster […] (Rose)*

The functional immaturity of the premature requires an environment that is appropriate to meet their basic needs and provide integral assistance. In this respect, the literature points out that one of the priority actions in premature admission is the preparation of the incubator, material for aspiration, oxygenation, monitoring, intubation supplies, and material for umbilical catheterization and orogastric probing. In this study, the nurses expressed that the prior preparation of the unity is essential during the admission of neonates.

♦ **Care provided to the extreme premature during admission**

The main care activities provided by nurses at the time of admission were: thermoregulation control, ventilatory support, monitoring, skin care, material adequacy, venous access, manipulation, therapeutic touch, comfort, and nursing annotation. These care activities require a specific theoretical knowledge from a nurse, in addition to skills and dexterity, in the procedures performed.

Thermoregulation was identified as the primary care during the admission of the extreme premature. The following lines describe this care:

*So I pay attention to the temperature, because we’re changing from one incubator to another, and then, the care is doubled in this regard, because of the sensitivity of the baby. (Fleur de Lis)*

* […] the extreme premature baby requires more attention with regards to heating and humidification of the incubator that maintains thermoregulation. (Sunflower)*

The thermoregulation is the ability to maintain a stable body temperature, with minimum calorie expenditure and oxygen consumption, for a successful extrauterine adaptation. This was reported by the interviewees as the primary care to the PNs.

During the study, it was observed that nurses were attentive to temperature control in premature infants using the appropriate equipment for their maintenance. It should be noted that the premature is highly susceptible to stress triggered by cold because they show disproportions between body area and weight that can lead to hypothermia, hypoxemia, and acidosis.

With regards to the ventilatory support, the interviewees described:

* […] the baby comes with some ventilatory support, and when it comes to the extreme premature, the vast majority comes intubated for ventilation through the AMBU. In general, it is the neonatologist from the delivery room who brings the baby already with some ventilation support […] (Victoria Régia)*

At the admission time, I’ll see which the ventilatory support is. Thus, the use of
ventilatory support is a significant concern, not small. (Lily)

In regards to ventilatory support, premature infants with gestational age of less than 30 weeks benefit from prophylactic surfactant administered in the first few minutes of life through tracheal intubation.\(^3\) This was evidenced during all admissions.

It should be noted that the respiratory function in neonates is hampered due to the incomplete development of alveoli and capillaries, deficiency in surfactant production, and immaturity of the respiratory center.\(^6\)

Another care described was the monitoring, which includes cardiac and oxygen saturation (oximetry):

[...] monitoring. And when I admit a neonate with the help of another nurse or another technician while one monitors, the other installs the respiratory support, in general, the respirator is installed with the help of the physiotherapist and the doctor. (Victoria Régia)

I then move in installing the oximeter to check the saturation in the newborn. (Tulip)

It should be noted about the cardiac and oxygen saturation monitoring that these assist in the autonomous control of the neonate; however, the accurate observation of vital signs is needed to carry out procedures during the admission of the premature.\(^10\) All interviewees performed continuous monitoring of the newborns.

The extreme premature present capillary fragility, therefore, two types of care were singled out as crucial in the admission: appropriateness of material and skin care:

Another caution is to not hurt the baby’s skin because it can become the means for infection [...] these are the care we pay most attention to, skin care, checking how the baby is doing. (Jasmine)

Baby skin care, using adhesives as little as possible, reducing the size of micropore used, and avoiding the use of abrasive solutions. (Sunflower)

The literature discusses that accesses and probes must be adequately secured to prevent skin accidental loss and exfoliation in the neonate. The reduced use of bandage tapes in dressings must be practiced to reduce skin lesions in the extreme premature because they can become a gateway to pathogenic microorganisms, in addition to trigger pain in these children.\(^11\)

The most widely used venous access in the admission of the extreme premature is the umbilical catheterization.

Another care taken with all babies is the venipuncture, which in the case of extreme premature, is almost always done through the catheterization of the umbilical tip, procedure performed by the neonatologist, however, the nursing staff should assist. (Victoria Régia)

Well, when it does not come catheterized, the umbilical catheterization is performed here in the unit [...] (Fleur de Lis)

With respect to the umbilical catheterization, this is usually the first choice for central vascular access in newborns at risk and admitted to NICUs. Often this procedure is carried out still in the delivery room for emergency drug administration in neonatal resuscitation and/or maintenance of intravenous therapy in the first days of life; veins and/or one of the umbilical arteries can be catheterized.\(^12\) In this regard, the nurse must be attentive to their maintenance, obstruction, infiltration, and signs and symptoms of infection.

Minimal manipulation, use of therapeutic touch, promotion of comfort, and use of nests were observed procedures during the descriptive direct observation performed by the researcher at the unit, described in the following lines:

[...] let's work together to not manipulate the baby too much, i.e., let's work all together so that when we finish this baby will stay well and can be fine for a long time. (Lily)

I think that the basic difference in the admission of premature babies from other babies is in the handling, therapeutic touch, and manipulation. (pause) Because when I'm handling the admission of an extreme premature baby, I remember the issue of bleeding, I'm more agile to lessen the exposure of the baby. (Victoria Régia)

[...] to promote the baby's comfort, fulfilling his needs quickly since here is an ICU and babies in serious conditions are usually admitted. (Rose)

Also with the choice of sheets, worrying about the arrangement of the ‘nest’ so the baby can feel more secure as if he was in the womb. (Daisy)

So it is necessary to provide as much as we can from warmth, creating a warm atmosphere, making the little rolls, the heat that is important to the baby. (Orchid)

Studies report that the neonate's accommodation in nests, made with linen and gauze, provide coziness, greater flexion, improves tonus and posture, and behavioral responses.\(^13\) These interventions related to postural and motor organization also contribute to decreasing the discomfort for the baby. Placing the premature in a ‘nest’ with uterine format allows them to feel like inside the womb and provides boundaries and support for the body. The use of blankets or rollers positioned on the sides of the body, above the head and below the feet, are also reassuring to babies.\(^15\)
The interviewees used sheets and bandages forming a real nest in order to the baby to feel inside the womb where movements are limited by the uterine wall. The annotation of procedures performed during admission is another care activity described below:

- After all, it comes the writing, after you give all the assistance to the baby, you will evolve the admission, writing how he arrived, his general status, schedule, what came with him if he came intubated. Describe everything you did when he arrived. (Calla Lily)

The annotation was cited as nursing care in this study corroborating the literature that describes annotation as an indispensable communication tool in the process of caring for human beings.  

- The family care

The care for the family emerged in this study, considering that the presence of parents in the NICU is critical for the formation of bonds between family and neonate. As shown by the testimonials:

- [...] provision of information to the chaperone/guardian (usually the father, grandmother, aunt, because the mother often is still hospitalized. (Violet)

- Each professional search for the specific assistance, the doctor with the diagnose [...], the nursing team with the continuity of assistance, and other professionals with complementing, i.e., involving this child and his parents or families. (Daisy)

The family care is essential during the admission of extreme PNs because of the fact of having a premature baby raises doubts in parents about survival; this is often associated with feelings of inadequacy, fear, and guilt because they feel responsible for the suffering of their child, which may interfere with their relationship with the newborn, even if such a process is not fully conscious. In this context, the importance of establishing early contact is emphasized for parents with a child in the hospital.  

During the interviews, only two nurses pointed out the assistance to parents as a form of care. This reinforces the importance of broadening the professional-family interaction so that professionals understand the need for the insertion of parents in the process of caring for premature babies.

CONCLUSION

The admission of the extreme premature to the NICU requires a complex and adequate assistance carried out by a multidisciplinary team, highlighting the nursing team, as essential for the direct and continuous care provided to the neonate. This care starts from the communication between professionals in this unit with the ones in the delivery room, towards bed preparation, reception of the PN, installation of equipment, and care required for the baby’s survival with minimal possible number of sequels.

The results of this study identified the care described by the interviewees, underscoring thermoregulatory control, ventilatory support, venous access, skin care, and comfort for the neonate through preparing the nest to keep him in the fetal position, and handling in conjunction with professionals who are involved in assisting with the purpose to reduce caloric loss and sequels.

It was evidenced that care for the family during the admission was little discussed by the interviewees, although fundamental because parents are distressed, anguish, scared, and frustrated because their dreamed child is different from a normal child. Thus, it is up to professionals to welcome family members and inform them about the health condition of their child inserting them in the care of that child as soon as the clinical picture allows. Thus, this study points to the need for professional preparation in nursing teams, working in the NICU, through study groups and discussions that can help them to take care of extreme PNs.

Considering the aspects identified in this study about the care provided to extreme premature babies, the researcher is jointly developing an intervention project in this unit with nursing residents with the aim of inserting the participation of parents in the care of hospitalized children. Therefore, it is suggested that other studies in this topic be encouraged with the purpose of contributing to the acquisition of knowledge about the admission of extreme premature babies in NICUs and establishment of public policies to increase the number of beds, professionals, and equipments that are appropriate to the complexity of the service for which it is intended.

ACKNOWLEDGEMENTS

This study received financial support through a research scholarship from the Coordenação de Aperfeiçoamento de Pessoal de Nível Superior-CAPES.

REFERENCES

1. Ministério da Saúde (BR). Secretaria de Atenção à Criança. Área de Saúde da Criança. Atenção Humanizada ao recém-nascido de...