Newborn skin care strategies in neonatal unit

Estratégias de cuidado com a pele do recém-nascido em unidade de internação neonatal

Estrategias de cuidado de la piel del recién nacido en unidad neonatal

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ABSTRACT

Objective: To identify skin care strategies for newborns (NB) used in reference centers of the Kangaroo-Mother Care Method (KMC) in Brazil. Methods: Descriptive exploratory study, using a qualitative approach, performed with 13 nurses working in the different reference centers of the KMC in Brazil. Data were collected through an online form. Analysis was performed descriptively, comparing the different studies realities. Results: Four categories were described regarding skin care of NB through the experience of the nurses: strategies adopted by the team regarding skin care of NBs; dealing with the health team regarding bath and dipper disposal; care regarding fixation of devices in NBs, and strategies adopted by the NB team under phototherapy. Conclusion: The nurses presented capacity, and they were highly trained to act in their areas of experience and knowledge. The answers indicated that there is a great concern in avoiding the usage of materials and devices that could cause harm to NB skin.

KEYWORDS: Infant, Newborn; Neonatal Intensive Care Units; Skin; Kangaroo-Mother Care Method; Neonatal Nursing. Stomatherapy.
INTRODUCTION

It is estimated that, annually, over 20 million underweight, premature babies are born in the world, being one-third of these dead before completing one year of life. Over 60% of premature births happen in underdeveloped countries, and Brazil is among the 10 countries with higher premature birth index, as well as the USA, India, and Nigeria, being this a global issue. In 2015, 303 thousand women died of pregnancy-related causes, 2.7 million babies died over the first 28 days of life, and 2.6 babies were stillbirth.

Due to the gravity of the issue, the World Health Organization (WHO) idealize a world in which all women and their newborn (NB) can receive quality care in all steps of the pregnancy, from birth to postpartum period. Prenatal care is composed of a strategy platform regarding health promotion, screening, diagnosis, and prevention of illness. The quality of the services during pregnancy and birth may avoid many of the occurring deaths.

In order to collaborate to the quality of the care and diminish mortality rates, the Brazilian Unique Health System (SUS) establishes a standard humanized attention regulation not only to the premature newborn (PNB) but to all the family and makes the family co-participant regarding care to go through this process confidently and soothingly.

Advances in medicine and technology have allowed the vast majority of PNB to develop and grow healthy. On the other hand, these babies who are born prematurely are considered fragile, vulnerable, and need special care to survive. Many actions have been stimulated in order to enhance the attending pattern to this population and, among these, in Brazil, the Humanized Attention to premature and underweight newborns - Kangaroo-Mother Care Method (KMC), is highlighted.

Initially, the KMC was idealized by the Maternal and Child Institute, in Bogotá, Colombia, is the act of placing the NB in intimate contact with the mother’s skin an alternative to reduce costs of assistance, enhance care to PNM and promote the new bond between mother and baby. In Brazil, the KMC has been inserted in some units since the 1990s and, in the year 2000, the Health Minister launched the 693 from July 5th. Law, updated in 2007 by the 1.683 Law, which established...
O protocolo da Ministério da Saúde está dividido em três etapas e começa com a atenção pré-natal quando é diagnosticada a gestação de risco. A primeira etapa ocorre no Unidade de Terapia Intensiva Neonatal (UTIN) ou na Unidade de Cuidados Intermediários Convencional (UCINCo), quando o bebê é nascido e ainda está instável, dependendo da assistência do quadro. Nesta etapa, os pais devem ser encorajados pelo quadro a participar na assistência ao bebê e podem iniciá-la durante o banho e troca do fraldão.

A segunda etapa depende da disponibilidade da mãe para permanecer com o bebê em hospital, e em muitos casos, na posição do macaco. Esta etapa ocorre na Unidade de Cuidados Neonatais do Macaco, que é um amplo da UTIN, em que a mãe é o principal fornecedor de assistência ao bebê.

A terceira etapa ocorre após o bebê ser desencaminhado do hospital, que inicia quando o bebê atinge pelo menos 1.600g de peso, sendo clínica e apresenta crescimento de peso.

A mãe precisa ser motivada para levar o bebê em casa e fazer o compromisso de realizar o posicionamento do macaco durante o maior tempo possível. A consulta será realizada na sede pelo quadro profissional de saúde no mínimo uma vez por semana. O bebê é desencaminhado da terceira etapa quando atinge 2.500 gramas de peso.

Centros e instituições de referência foram criados, com a formação de tutores, para fornecer implantação do método em vários hospitais no país. Hoje, no Brasil, há cinco centros de referência nacional e 27 de referência estadual, que são considerados como locais para o desenvolvimento de rotinas com o bebê em casa.

Entre as rotinas, a assistência ao bebê, especialmente o bebê prematuro, apresenta características anatômicas e fisiológicas específicas, devido às suas inseguranças, de menor, mais frágil, mais suscetível, o que torna essa população mais propensa ao desenvolvimento de lesões e infecções.

Por essa razão, a elaboração da assistência e a implementação de ações que visem à avaliação e assistência da pele é essencial para a qualidade da assistência e o sucesso do tratamento em neonatologia.


de quais estratégias são utilizadas em relação ao cuidado da pele do recém-nascido nos centros de referência de KMC no Brasil? O estudo teve como objetivo identificar as estratégias de cuidado da pele do recém-nascido utilizadas por enfermeiras em centros de referência de KMC no Brasil.

**MÉTODO**

Este é um estudo descritivo exploratório, com abordagem qualitativa, realizado através de um projeto macro intitulado “Assistência ao bebê e seus familiares tecnologias de cuidados KMC: contribuições dos enfermeiros da UTIN” desenvolvido pelo Centro de Medicina Universitária de Santa Catarina. Esta parte do estudo visou identificar as estratégias de cuidado da pele do bebê em uso nos centros de referência de KMC no Brasil.

Todos os centros de referência foram convidados para participar do estudo; no entanto, 27 apresentaram um consentimento. A comunicação ocorreu através do coordenador dos centros. Um total de 55 enfermeiras foram convidadas, através de um e-mail, de 27 não responderam o e-mail, 15 aceitaram participar, mas não preencheram a forma, e 13 enfermeiras de diferentes centros de referência participaram efetivamente do estudo. Os critérios de inclusão foram: ter trabalhado por pelo menos seis meses na unidade e ser tutor ou consultor da KMC. Os critérios de exclusão foram: ausência por doença ou licença de maternidade.

**Skin care of NB** should be present since birth and demand constant worry by the professionals that work in neonatal units. The skin of NB, especially premature NB have specific anatomic and physiological characteristics, due to its immaturity, being thinner, more delicate, sensible, which makes this population more likely to the development of lesions and infection. For this reason, planning the nursing assistance and implementing actions that aim evaluation and skin care is essential regarding the quality of the assistance and the success of the treatment in neonatology.

Reference centers have become places of good habits regarding assistance. In this scenario, skin care of NB needs double attention from the nurses and its staff. It is estimated that neonatal units constitute fertile fields in which new technologies may appear, helping the skin care of NB.

Within this context, the present study has elaborated the following question: which strategies are used regarding NB skin care in reference centers of the KMC in Brazil? The study had the purpose of identifying NB skin care strategies in reference centers of the KMC in Brazil.
The study was performed in neonatal units from 13 reference centers of KMC in Brazil, located in the states of Santa Catarina, São Paulo, Rio de Janeiro, Paraná, Ceará, Maranhão, Pernambuco, Piauí, Amapá, Pará, Espírito Santo, and Tocantins. Data were obtained using online forms by Google Docs®️, and those forms were answered from June to December 2016.

The form had 94 questions, which varied from multiple choices to open questions, which allowed the nurses to talk about the topic. Three sections were part of the form: participant characterization; data on the institution and questions about care technologies regarding NB assistance. This study focused on questions regarding the third part of the form, facing the NB skin care in UTIN, UCINCo, and UCINCoa.

Data analysis was performed through a grouping of content similarities, which allowed identifying the strategies used by nurses in NB skin care in several aspects of the assistance.

All ethical precepts were followed according to Resolution nº 466/2012 from National Health Council 11, and the Ethics Committee approved the research from Santa Catarina Federal University (CAAE 44889615.6.3003.5328). All participants signed the Informed Consent Form.

RESULTS

A total of 13 nurses participated in the study, being nurses that worked in the KMC Reference Centers in Brazil, all women, with age varying from 20 to 60 years and time of graduation between 11 and 20 years. Among these, nine were tutors, and four were consultants of KMC in Brazil.

According to the answers given in the forms, four categories were elaborated, regarding NB skin care, related to the experience of the nurses from the 13 KMC reference centers in Brazil, which were: Strategies adopted by the nursing team related to NB skin care; Bathing and diaper exchange; Care with device fixation in NB; and Strategies adopted with NB under phototherapy.

Strategies adopted by the nursing team regarding NB skin care

Similar actions were verified, and upcoming specific protocols for each unit were also analyzed. The concern regarding not to use adhesive tapes directly to the skin was highlighted, as well as the usage of protection products.

"Avoid the usage of substances, especially abrasive ones, and diminish the usage of adhesive tapes, care when removing adhesive tapes, avoid exposition and unnecessary maneuvers." (E1)

"Moisten newborn incubator for newborn under 1.000 grams, removal of adhesive with moisture." (E4)

"Written routine regarding premature skin care and prevention of skin lesions commission." (E6)

"Protocol of skin lesion, care with oximeters" (E10)

"Cavilom®️ barrier; Dersani®️ age; bath at every 72 hours (extremely underweight babies)." (E11)

"Use of oils. Do not fix adhesive tapes directly to the skin. Use hypoallergenic adhesive tapes. Use of proper antiseptic according to NB weight." (E12)

"Urea cream, hydrocolloid plaques, change of position, comforting massage." (E13)

It was observed the diversity of conducts; thus, similar interventions were established regarding NB skin care. The nurses described that they avoid the use of adhesive tape, which may be harmful to the skin. Frequently, answers such as the use of oil, creams, and hydrocolloid plaques were given as best adopted conducts. However, there is no recommendation in the literature regarding the use of urea cream in NB, as described by one of the participants in the study.

Bathing time and diaper exchange

Regarding NB bathing time, it was observed that the protocol and the routine in each unit vary, since they were cited by some participants, as others just mentioned the cleaning of the perineum area. Regarding diaper exchange, it was performed laterally, to avoid complications.

"Bathing only when needed, or when the baby presents itself as stable, respecting the signs and tolerance, using..."
the rolling technique and diaper exchange carefully performed, not to elevate the MMII, always inviting the mother to participate.” (E1)

“A protocol is followed regarding skin, bathing according to weight, and laterally diaper exchanges.” (E3)

“According to the Kangaroo-Mother Care Method, ratified by a protocol.” (E5)

“Humanized bath, hot tub, and diaper exchange laterally.” (E6)

“Baths are not performed on premature NB, only cleaning of the perineum.” (E8)

“According to our skin lesion protocol and following the operational procedures bathing is at every 48h, using cotton, tepid water and nothing with perfume.” (E10)

“Bathing is performed every other day and depending on the gravity of the NB, diaper exchange is at every 3 hours, before dieting or whenever necessary.” (E12)

NB bathing appeared as a specific strategy in every unit, not being something unique for all units, since each and every unit has its internal routine regarding the NB’s body cleaning. Bathing was also described as a way to implement other care actions, such as nursing and family bonding at this time.

Care with device fixation in NB
In this item, again, it was noticed the reality of each unit, with different answers showing the availability of some needed material for the practice of nursing in NB care.

“Bandages less aggressive as possible to the skin, plaster minimum as possible.” (E2)

“Minimize the use of adhesive tapes, use of hydrocolloid.” (E3)

“Fixation of a gastric tube with TOP, CPAP and Tensoplastâ, removal of adhesives with Dersani.” (E4)

“Transparent bandage that allows remaining in position for seven days and it is not irritant to the skin. TOT is fixed with Tensoplastâ, and gastric tubes are fixed with gauze on the zygomatic bone.” (E5)

“Abocath and PICC are fixed in transparent film.” (E6)

“Use of micropore and prioritize the smaller size possible when considering adherence on the skin.” (E7)

“Avoid the use of unnecessary fixation, with proper materials for each catheter. Extra-thin hydrocolloid bandage is what we use and elastic bandages to involve the sensors.” (E10)

“TOT, CPAP, oxygen catheter, a gastric tube is fixed with plaster, but first we put Duoderme. PICC and Abocath are fixed with sterile film bandage, when it is available in the hospital, being the exchange performed every seven days, as long as it is clean and whole, or with micropore or gauze, being exchanged every 48 hours.” (E12)

Different materials usage was identified regarding the low potential of skin lesion, as well as different strategies at the moment of device fixation. The answers of the participants highlighted that the NB care presents specificities that vary according to the availability of materials and routine in each service.

Strategies adopted with NB under phototherapy

“Protection of the eyes, exposition of the maximum of area possible under the light. Avoid the usage of substances on the skin. Use of diapers.” (E1)

“Protection goggles, alternate the kangaroo position, temperature under the arm, control of diuresis.” (E2)

“Correct posture, rolls, non-nutritional suction (use of pacifiers when needed).” (E3)

“Change of masks every 24 hours and every 3 hours phototherapy is turned off, and the mask is removed for a few minutes.” (E5)

“Use of protective goggles and if possible breastfeeding.” (E8)
“Plastic film protection to reduce the cold temperature [...]” (E9)

“No type of cream on the skin, change of position, temperature control under the arm every 4 hours.” (E10)

“Eye protection with tissue goggles (UCINCa) and eye protection with disposable goggles when available (UTIN).” (E11)

“Temperature and diuresis control, use of eye protection.” (E12)

The vast majority of nurses described concerns regarding NB eyes when phototherapy is performed. They also described actions regarding skin care, such as avoiding the use of topical substances that could be harmful to the NB skin and the need for changing the NB position.

DISCUSSION

The main strategies adopted by nurses showed that they have the necessary knowledge regarding essential and indispensable care to the prevention of NB skin lesions. One crucial topic pointed by the majority of the participants was the need to avoid the use of adhesives. Skin lesions related to medical adhesives (medical adhesive related skin injury – MARSI) occur when the bond between the adhesive and the skin is higher than the cohesion between the skin layers and include mechanical lesion, tension lesion or skin blisters. In the neonatal population, the most common mechanism of MARSI is epidermic pickling12.

The use of adhesives for the fixation of devices such as an orotracheal tube (TOT), nasogastric catheters, venipuncture, among others, may cause considerable epidermic loss when considering NB. To avoid those lesions, the skin must be protected using a product that forms a barrier between the skin and the adhesive, such as the hydrocolloid plaque12. This fact is proven and used by professional of these reference centers when definite answers emerge regarding the use of hydrocolloid plaque as a way to avoid skin lesions. Adding to this conduct, one must pay careful attention to the removal of fixation, using gauze compresses soaked in saline solution or mineral oil, to prevent lesions during procedure12.

Care in neonatal units embraces several techniques and procedures such as the use of antiseptic solutions, invasive procedures, temperature maintenance, positioning of the NB, body hygiene, fixation/removal of adhesive, use of invasive devices and monitors, among other procedures and actions, which predispose NB to the onset of lesions13,14.

Studies have shown that the leading causes of these skin lesions are related to the use and device fixation, heat sources, use of drugs intravenously administered, incontinence, and use of chemical products13-15.

The use of antiseptics, for instance, is considered a great dilemma regarding NB skin care, since at the same time that the help the prevention of infection, they also may cause lesions. Another point to be considered is the inexistence of a safe and adequate product to use for this specific population. The formulation of such products must be carefully considered, avoiding solutions with alcohol, prioritizing solutions with water and irrigating the area with saline after the disinfection, in order to remove the excess of the antiseptic, avoiding absorption, chemical irritation, and lesion formation16.

The continuous positive airway pressure (CPAP), which is a non-invasive ventilation system for the upper airways, is considered one of the principal causes of NB lesion. The device consists of the use of tracheas and a nasal mask, adapted to the child’s nose. The tracheas are fixed on the head of the NB, bilaterally or in the frontal region, depending on the manufacturer. The mask stays in intimate contact with the nose, upper lip area, and all regions around the nose. The constant pressure of the tracheas may cause pressure lesion. A systematic review showed that babies with less than 30 weeks of gestational age are more susceptible to this type of lesion and showed that the use of barriers, such as hydrocolloid plaque in the areas of CPAP contact to the skin, is a solution17.

Regarding bathing, there were divergent answers of the participants in the study. The units have each an established routine and protocols, which are followed by the professionals, in order to maintain the NB homeostasis Bathing is considered a routine procedure that follows a cultural tradition and has the purpose of removal of bacterial colonization. Thus, it alters skin pH and may compromise skin integrity8.

Diaper exchange is also a procedure that demands care, once that diaper dermatitis is lesions that occur due
to the skin contact with urine and feces, which makes urea to be converted to ammonia, making the pH of a region more alkaline. It is believed that antibiotics may favor the occurrence of diaper dermatitis since these medications alter the consistency of feces. To prevent its occurrence, diaper exchange should be performed whenever needed, using soft tissue or cotton and water for the cleaning of the perianal area of the NB, since chemical products may cause skin irritation, especially in extremely premature babies. Another essential care during diaper exchange is the use of products to form a protective barrier over the skin, in order to avoid dermatitis caused by diaper contact to the skin, which is very common and has a prevalence of 7 to 50% of NB.

It is fundamental that, besides the knowledge of NB's specific physiological and anatomical particularities, nurses should also identify the risk of upcoming lesions, regarding better quality of assistance and, consequently, making it more humane, reducing complications, hospitalization time, mortality, treatment costs and minimizing the physical and emotional suffering of NB in critical conditions, as well as their families.

In the neonatal unit, procedures such as bathing, hydration with oils, use of antiseptic solutions, fixation of adhesives and prevention of water loss and heat are care actions that should be frequently monitored, as well as procedures that involve an exchange of bandages, catheters insertion, punctures, and change of position, among others. All these procedures are part of the nursing assistances and, if poorly executed, may lead to the appearance of lesions, due to the frequency of such procedures during hospitalization time, which is generally long.

Another procedure that may cause NB skin damage, which the purpose is the treatment of hyperbilirubinemia, through the exposure of the NB to artificial light through devices. It is a high impact non-invasive method, which diminishes the level of plasmatic bilirubin, since exposition to light breaks the bilirubin, enabling its metabolism and excretion. For the phototherapy to be effective, the nursing staff must pay attention to some aspects, such as body surface exposed to light, proper distance from the light source, irradiance from the phototherapy device, eye protection, vital signs observation, water balance and avoiding the use of skin substances on the NB.

Eye protection is essential to avoid damage to the retina and, so, the use of eye goggles that do not need adhesive to direct fixation to the skin must be prioritized. Nowadays, there are eye goggles that adjust correctly to the NB's head, through Velcro or elastic and should be used carefully so that they do not get too tight, leading to lesions nor to loosen, leaving the eye unprotected. It is also essential to remove the goggles when turning the light source off, to examine the eyes regarding edema, drainage, and evidence of infection, as well as providing visual stimulation and encouraging the interaction between baby and parents, when appropriate, according to the clinical stage of the child.

The evaluation of the NB skin is a care strategy to avoid lesions and must be performed by the nurse using the NB Skin Condition Scale (ECPRN), which evaluates dryness, erythema, and lesion. The interval of evaluation may vary from six to 24 hours and must be based on the score of the skin condition, as well as risks, treatment such as phototherapy, use of devices, edema, sedative drugs, diarrhea, among other factors that could contribute to the appearance of lesions.

CONCLUSION

This study demonstrated the importance of a well-prepared nurse, who is aware of the peculiarities involved in newborn care, especially regarding the maintenance of the integrity and skin. This care must be observed, evaluated, and thoroughly executed to prevent damage that could be avoided appropriately.

Facing the obtained results from this present study, it can be stated that the nurses have shown themselves highly capacitated to act in their respective fields of experience and living. There is also the concern in adopting the best care strategies, in order to avoid the usage of materials or harmful products which could compromise the integrity of the NB skin.

Although different reference centers were studies, distributed in several regions in Brazil, the answers of the participants were homogenous regarding skin care strategies, as well as specific routines of each center when it comes to assistance.

This study has contributed to highlighting the theme which is little addressed in the literature, in order to foment discussions regarding the best care practice, fundamental to the quality of the job, protection of the development and safety of the NB population.

Within the limitations of the study, there was low adherence of nurses regarding the devolution of the forms in the reference centers.

It is highly recommended that the nursing staff is always in constant search of updating and empowerment.
to effectively act in NB skin care, fomenting good actions, preventing complications and contributing to NB patient’s security and health.

**FUNDING**

This research was performed with the financial aid from the National Council for Technological and Scientific Development (CNPq), 14/2013.

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**AUTHOR’S CONTRIBUTION**

Conceptualization, Delgado BS; Costa R; Vesco SNP; Santos FA and Santos SV; Methodology, Delgado BS and Costa R; Investigation, Delgado BS and Costa R; Writing – First version, Delgado BS; Costa R; Vesco SNP; Santos FA and Santos SV; Writing – Revision and Editing, Delgado BS; Costa R; Vesco SNP; Santos FA and Santos SV; Grant acquisition, Costa R; Resources, Delgado BS and Costa R; Supervision, Costa R.


