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Production and attempt to insert therapeutic glove in hospital context: a case report

Confecção e tentativa de inserção da luva terapêutica em contexto hospitalar: relato de caso

Confección e intento de inserción del guante terapéutico en contexto hospitalario: relato de caso

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The aim of this study is to present the construction, experience and attempt to insert the therapeutic glove resource in hospital context with preterm newborn. This is the description of an experience developed in a hospital context, from April to December 2016. The narrative focus on the description of the beginning of the gloves tests with the preterm newborns, highlighting the initial findings at a public hospital. Therapeutic glove is a positioning device which, combined with maternal scent, has its therapeutic effect enhanced. In the initial tests of this experiment, it was possible to observe a behavioral change of the baby after snuggling in the therapeutic glove, even without the introduction of maternal scent, as well as the diversity of presumed positions with the use of therapeutic glove. In turn, it is observed difficult to insert new therapeutic alternatives in hospital setting.
Descriptors: Infant, newborn **;** Humanization of assistance; Equipment and supplies.

O objetivo deste estudo é apresentar a construção, experiência e tentativa de inserção do recurso da luva terapêutica em contexto hospitalar com recém nascido pré-termo. Trata-se da descrição de uma experiência desenvolvida em contexto hospitalar, no período de abril a dezembro do ano de 2016. A narrativa tem o enfoque de descrever o início dos testes das luvas com os recém nascido pré-termo, destacando os resultados iniciais em um hospital publico. A luva terapêutica é um dispositivo de posicionamento que, aliado ao aroma materno, tem seu efeito terapêutico potencializado. Nos testes inicias desta experiência, foi possível observar a mudança comportamental do bebê após se aconchegar na luva terapêutica, mesmo sem a introdução do aroma materno, bem como a diversidade de posicionamentos presumíveis com o uso da luva terapêutica. Por sua vez, verificou-se dificuldade de inserção de novas alternativas terapêuticas em contexto hospitalar.
Descritores: Recém-nascido; Humanização da assistência; Equipamentos e provisões.

El objetivo de este estudio es presentar la construcción, experiencia e intento de inserción del recurso del guante terapéutico en contexto hospitalario con recién nacido pre-termo. Se Trata de la descripción de una experiencia desarrollada en contexto hospitalario, en el periodo de abril a diciembre del año de 2016. La narrativa tiene enfoque de describir el inicio de los testes de los guantes con los recién nacidos pres termo, destacando los resultados iniciales en un hospital público. El guante terapéutico es un dispositivo de posicionamiento que, aliado al aroma materno, tiene su efecto terapéutico potencializado. En los testes iniciales de esta experiencia, fue posible observar el cambio comportamental del bebé después de acomodarse en el guante terapéutico, mismo sin la introducción del aroma materno, bien como la diversidad de posicionamientos presumibles con el uso del guante terapéutico. Por su vez, se ha verificado dificultad de inserción de nuevas alternativas terapéuticas en contexto hospitalario.
Descriptores: Recién nacido**;** Humanización de la atención; Equipos y suministros.

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INTRODUCTION

According to the World Health Organization (WHO), preterm birth refers to any birth before the thirty-seventh completed week of gestation[1]. It is known that the smaller the gestational age of preterm infants, the greater the risk of death and complications in his health status[2].

According to WHO, the estimate of premature births is 15 million worldwide and, in this scenario, Brazil is in tenth position[3]. Data indicate that from 2007 to 2014, there was a growing number of premature births in Brazil, totaling 2,094,689, in which the Southeast region was the leader in the national ranking[4].

The Ministry of Health (MOH) points out that premature birth in the short term, among other consequences, increases the risk of causing physiological impairments such as sucking, swallowing and breathing in a coordinated manner, so that the immune system becomes more susceptible to infections, leading to an increased instability of body temperature[5].

The pre-term newborn babies (PNB) require a lot of care, due to the hospitalization in the Neonatal Intensive Care Unit (NICU), often for prolonged periods of time and because of their fragile biological condition, in addition to hospital restrictions, involving contact with the mother and family[6]. With the technological expansion available in the NICU, there is a progressive increase in PNB survival[7], highlighting an increase of five percent in the last four years in the survival rate of the PNB[4].

The restriction of maternal contact and the various painful procedures to which the PNB undergo generate stress and pain. To reduce them, there are some alternatives, such as drug and non-pharmacological therapies. The first is the drug administration prescribed alone or not, while the second includes actions such as reducing the painful stimuli, adequacy of technical procedures and oral glucose utilization, non-nutritive sucking, breastfeeding, therapeutic positioning, skin contact, and others[5].

In this sense, the public policies of assistance to child health direct their actions to the humanization of care. The MOH, from 2003, established the National Policy of Humanization (NPH), to carry out the principles of the Unified Health System (SUS), in search of a model of health transposing the biomedical one[5].

The MOH understands humanization as the appreciation of the various actors involved in the production of health action, with the guiding values: autonomy and the role of the subjects, the co-responsibility among them, solidarity ties and collective participation in health practices[5].

In the case of the humanization of neonatal care, there are several actions recommended by MOH, among which the Kangaroo Method (KM) stands out. This was created in Bogotá, in Colombia, in the 1980s, and provides skin-to-skin contact between mother and baby, in na "increasingly manner and by the time they both understand to be pleasurable and sufficient[9].

Among the benefits of the KM, one stands out the shorter period of hospitalization, favoring the mother-infant attachment, reducing the risk of infections, in addition to helping breastfeeding[9]. Even with numerous benefits and being an action recommended by the MOH, the KM was not effective in most Brazilian hospitals, since only 34.5% of qualified hospitals have implemented the three steps guided in the method[10].

Psychology studies on mother-infant relationship point out to the importance of skin-to-skin contact between them. According to Winnicott[11]:

> *"Babies need skin contact with the mother, to be moved by the rise and fall of her belly, to feel maternal breathing in order to decrease the rapid breathing after birth, approaching the heartbeat of the mother and learning to play rhythms and counter rhythms in a relationship of mutuality " (p. 168).*

However, because of his fragile physiological and biological condition and due to the routine imposed by the hospital environment, a significant portion of preterm infants are unable to take advantage of this important intervention[10].

It is understood that, without skin contact with the body of another person, the baby is born without the sense of their own corporeality, without the dimensions of time and space, unable to gather the experience lived in the womb with the experience that he will live with the gravity of his body, pushing him down and taking him to the center of the world[12].

In this sense, it is necessary to strengthen public health policies related to the humanization, in order to provide welcoming and friendly service to the physical, emotional and social development of PNB[13]. It is necessary to enable new alternatives when it comes to neonatal care and survival of preterm newborns increasingly immature, so as to incorporate new therapies aimed at benefits for the development and well-being.

It is noteworthy that the Winnicottian theory enables reflections to be made about the environment provided to premature NICU, which in addition to extra-uterine adaptation see themselves on maternal detachment. There is considerable stress load and excessive stimuli that make up the reality of a NICU, which can make invasive the initial setting of the baby's life, whereas it should be warm and responsive to the initial necessities of life. When considering therapeutic glove as an object that can mediate maternal absence, providing more safety and comfort to the baby, it is importante the discussion that Winnicott brings about the use and function of the "transitional object" to the child[14].

In general, the term described by Winnicott refers to an object, in which the baby clings in order to face the anguish for the contact with external and internal reality, making it possible to support some absences and environmental failures, since the transitional object, most often, is soft and refers to the care and caress[14].

An international study reported the use of a parental simulation device and its benefits for PNB. This device was tested from a randomized pilot study conducted in a Level III NICU in Georgia, USA, with 45 PNB from 24 to 38 weeks, divided into 4 groups[15].

Two groups were positioned with a weighted parental simulation device (called *"Zaky"* by the authors and translated into Brazilian Portuguese as Therapeutic Glove, name adopted for the device in this study) with and without maternal scent. The third group was placed in a soft seating device with maternal scent, but without the weighted parental simulation device (therapeutic glove). Infants in the control group received routine care without maternal scent or parental simulation device. Results indicated that PNB positioned with a weighted maternally-scented parental simulation device (Therapeutic Glove) significantly showed more self-regulating behavior and were less likely to experience episodes of apnea and bradycardia favoring physiological stability[15].

Thus, the aim of this study is to present the construction, experience and attempt to insert the therapeutic glove resource in a hospital context with PNB.

METHOD

This is the description of an experience, developed by occupational therapists, through a multiprofessional residency program in hospital context. It is worth noting that the study started in 2016 in na experimental research format, although its development has been interrupted by normative issues of the hospital. Therefore, the focus here is to describe the start of the glove tests with PNB, highlighting the initial results.

In this experiment, we tried to reproduce the Brazilian device with features similar to the American one. To this end, the glove was made in partnership with the hospital using the plush-type tissue, with a view to its composition that provides a soft and cozy touch to the PNB.

Initially, the production of the therapeutic glove was performed in the mold of 45 cm in length and weight of 100 grams acquired by filling it with acrylic yarn. The seam was sewn closed with Velcro at the edge of the lower end of the therapeutic glove. The color used was in light green tone,

seeking a soft color to avoid exacerbated visual stimuli.

Gloves are an ergonomic and multifunctional device with the potential to support the necessary conditions for the physical, physiological and neurological development, essential for the development of the baby. In addition, they can provide controlled exposure to different proprioceptive, tactile, olfactory and visual stimuli and promote calmness and regulate behavioral state[15].

The suggestion of the use of gloves is that they are made available to mothers for at least one hour, with the orientation to put them on her breasts to acquire the mother's scent, enhancing the therapeutic effect. So the gloves are placed next to PNB after the end of the visits and at night, staying with the baby during the day and changing its positioning as NICU routine.

The study was approved by the Committee of Ethics in Research of the Federal University of Triângulo Mineiro (UFTM) under Opinion 2,041,665.

RESULTS

After cleaning of the therapeutic gloves in the hospital laundry, the first test with the preterm infant hospitalized in a NICU was performed. Although the mother's scent has not been used, it was possible to observe the change in the baby's face after snuggling in the therapeutic glove, as it is possible to see in Figures 1 and 2.

Figure 1 depicts the baby's first position in which he cried and showede discomfort in his face. In other images, after being snuggled in the therapeutic glove, it is visible the change in his behavioral pattern expressing comfort, serenity and relaxation. It is noteworthy that the test did not use the mother's scent because it is initially a pilot application from the making of the first therapeutic glove, with a view that it would have modifications in order to meet the peculiarities of the PNB sector.

Figures 1, 2, 3 and 4 depict the various positioning possibilities the glove can provide:

Figure 1. PNB in the lateral decubitus position with the therapeutic pair of gloves positioned in the posterior and anterior region.

Figure 2. PNB prone positioned on the therapeutic glove.

Figure 3. PNB prone positioned on the therapeutic glove with nest use.

Figure 4. PNB prone positioned between the therapeutic gloves.

Tests conducted as shown in the pictures had the partnership of some members of the hospital sector. Through teamwork, an interesting result was the suggestion of the professionals themselves so that changes were made in the structure of the therapeutic glove. Such notes were of great value to the experience, because the staff know more closely the characteristics prevalent in hospitalized PNB.

Since then, changes have been made in the glove model to ensure greater functionality and ergonomics, being able to suppress the various demands of positioning. The glove changed from 45 to 30 cm long, and the weight was reduced from 100 to 45 grams, with the velcro positioned more internally to avoid contact with the PNB.

However, although the team were taking part in an active way in the work, it was noted that the professionals who held senior positions in the sector were insecure before a new proposal of humanization, especially with regard to hygiene issues of the materials and the risk of infection for patients.

Thus, by decision of the medical team, it was not possible to perform the test with the therapeutic glove with the changes made. The test was interrupted, allowing the analysis of some results from the initial attempt to establish the therapeutic glove resource in the sector.

DISCUSSION

The benefits of the weighted parental simulation, called therapeutic glove, are proven in international scientific results, so that, together with the maternal scent, its therapeutic potential is intensified in the development of PNB[15].

Currently, there is concern with the

development of devices focused on PNB, not limited to the creation of new alternatives, but also possibilities to indicate more practical and less money, to enable greater accessibility to different socioeconomic conditions. An example is the *Skin Age Light Scan*, a low-cost device in pen format with led light which, when interacting with the newborn's skin is able to specify the gestational age immediately[17].

Similar to this study, there is the Danish project for the therapeutic octopus, who was recently the agenda of the Technical Note 08/2017 of the Ministry of Health, which has reservations and considerations in relation to its use[16], and has been the subject of research at several universities in Brazil. The low cost is one of the landmarks of this device that, in opening remarks, brings benefits as behavioral change, calming the baby, reducing the accidental removal of cannulas and decreasing physiological alterations such as apnea and bradycardia.

These two examples are low-cost technologies that aims to provide a better quality of life for PNB. Thus, therapeutic glove emerges as a low-cost device that seeks to produce physical, physiological and neurological effects to the baby, providing controlled exposure to different proprioceptive, tactile, olfactory and visual stimuli and promoting calm in regulating the behavioral state.

Regarding Winnicottian theory, one discusses the concept of individual-environment, which concerns the mother-infant initial fusional unit, in which the pair is experienced as one. From this merger, the mother can identify the baby's needs in order to offer an environment good enough in physical and psychological favorable conditions[12].

The NICU's mother is faced with an entirely new context, and often unexpected, causing a range of feelings. The birth of a premature baby breaks with the expectations created by the mother during pregnancy, causing mixed feelings of love, fear, anxiety, grief, worry and insecurity, as well as doubts about the prognosis and the child's living conditions. This can affect her power of motherhood, as the NICU environment involves a number of restrictions on maternal contact[18].

Within this context, the therapeutic glove becomes a mediator proposal to approach and enable the maternal contact as early as possible with the baby in order to rescue the possibilities for interaction and mother's care with her baby, since the maternal scent is the promoter of the therapeutic effect[15]. The intention of therapeutic use of the glove is not to replace the mother in the hospital, but offer it as a mediator object of this fundamental relationship in human development.

Based on the Winnicottian theory, the idea is to offer an object that provides relief to the baby on the mother's absence, to mediate his relationship of suffering and pain with the hospital invasive environment. The proposal, in this way, is to offer an intermediary between mother and child[19]. This resource would facilitate the baby's contact with the world, making it less frightening and invasive, assisting in the resumption of emotional maturation process, although there are environmental failures, especially in relation to the absence of the mother at the times determined by the hospital routine.

Limitations of this study are directly linked to institutional constraints, so it was not possible to assess the practical and applied effects in relation to the therapeutic effect of the glove. However, it emphasizes the importance of studies that highlight resources like this in the hospital environment, as regards the humanization in PNB.

The use of therapeutic glove is not limited to PNB care, but to every baby away from his mother or responsible caregiver, and with a suggestion by the authors to include it in shelters and other institutions where it identifies deprivation or reduction of maternal contact.

CONCLUSION

The construction, experience and attempt to insert the therapeutic glove resource in the hospital setting with PNB was initially

conducted in line with the objective of this study.

In its turn, it is shown that it is necessary for the hospital to approach new practices, which will aggregate and implement the guidelines of the National Policy Humanization and expand the family trust, minimizing the extreme distress experienced by a mother and her baby in this delicate moment of life.

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CONTRIBUTIONS
Fabiana Silva Alves Corrêa was responsible by the writing of this study. **Karina Piccin Zanni** contributed with critical review. **Fabiana Silva Alves Corrêa** and **Karina Piccin Zanni** participated in the preparation and production of the therapeutic glove. **Luana Rodrigues Oliveira Tosta** participated with the critical review.

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