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Original Research Article

Profile of newborns discharged from the intensive neonatal care unit submitted to the kangaroo ward

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ABSTRACT

Background: Describe the profile of newborns discharged from the neonatal intensive care unit (NICU) sent to a kangaroo ward and their neonatal variables.
Methods: Retrospective and documentary study with a quantitative approach, performed at the General Hospital César Cals, whose sample consisted of 30 charts. The following variables were analyzed: weight, gestational age, Apgar score, gender, race, adequacy of the pregnancy and assistance provided in the NICU and kangaroo ward. The variables were analyzed using Microsoft Excel® 2010 program to obtain percentages.
Results: There was a prevalence of extremely premature infants with high underweight and small size for the gestational age, male gender and browns, with Apgar score at 1st and 5th minutes more than 7, born by cesarean section, who used mechanical ventilation and surfactant, with prevalence of respiratory distress syndrome, with admission weight in Kangaroo ward less than 1.250g, making use of exclusive breast milk, who were attended by physiotherapy and with weight less than 1.600g at discharge, of the variables studied.
Conclusions: Kangaroo care is an excellent cost-effective model for the newborn coming from the neonatal intensive care unit.

Keywords: Birth weight, Kangaroo care, Morbidity, Newborn, Prematurity

INTRODUCTION

The Brazilian public health has been addressing for decades before the fragmentation of hospital care, especially in the aspects of obstetric care and neonatal risk.[1] In this way, the Kangaroo Care (KC) was deployed as a tool developed in the context of humanization and care to the high underweight newborn.[2]

The KC is a type of neonatal assistance that implies the skin contact, through a support band that copies the marsupial pouch of the kangaroo, where the newborn (NB) is placed between the mother's breasts in an upright position (preventive posture to gastroesophageal reflux and pulmonary aspiration), allowing a growing bond between the mother and the baby, as long as both understand to be pleasurable and sufficient, promoting autonomy and parental responsibility from team support, family interaction and social networking.[3,4]

The method has its assistance origin in Colombia through doctor Dr. Edgar Rey Sanabria in 1978 and later in 1979

by pediatricians Héctor Martínez Gómez and Luis Navarrete Pérez, doctors at Children's Medical Institute of Bogotá, who improved the so-called Kangaroo Mother program, that had the objective of reducing abandonment in maternity wards, overcrowding and the cross-infection; common at the time.[5,6]

The KC began in Brazil in 1991, at the Hospital Guilherme Álvaro, in Santos / São Paulo and deployed in Recife in 1997, in the nowadays Integral Medicine Institute Professor Fernando Figueira. On July 5, 2000, the Ordinance 693 is published approving the humanized care to underweight newborns: Kangaroo Care, that has as guiding principles: respect for singularities, welcoming to the baby and his/her family, promotion of skin contact (kangaroo position), breastfeeding stimulation, mother's involvement in caring for the child and building support networks.[3,7] The main benefits of KC include: institutional benefits that emphasize the reduction of the risk of cross-infection and nosocomial infection, reducing length of stay and readmissions caused by infections, define themselves as a cost-effective and cost-effectiveness model.[7,8] Regarding to maternal benefits, the method promotes the stimulation of lactation and breastfeeding, developing the mother's confidence in the role of caregiver, and generate family attachment bonds.[4]

Regarding to the premature infant, by increasing breastfeeding, provides the transfer of maternal antibodies to the newborn through colostrum and contact; helps in the physical and emotional development of the newborn; stabilizes heart and respiratory rate, oxygenation and body temperature, with an increase of physiological responses. This skin contact produces endogenous mechanisms that reduce the crying, the signs of pain and stress after painful stimulation, promotes the maintenance of homeostasis, improve neuro motor behavior as well as providing calm and serenity by listening to the mother's heart sound and the mother's voice.[7-9]

The method is applied in three distinct stages: the first stage begins in the prenatal facing the diagnosis of high-risk pregnancy with continuity in the neonatal intensive care unit (NICU). The second stage requires clinical stability of the child, minimum weight of 1.250g, interest and mother's availability to stay with the RN the most desired and possible time in the kangaroo position.[5] The third stage of the KC starts at discharge; implying the use of kangaroo position and the baby monitoring by the multidisciplinary team until he/she reaches the weight of 2,500 g/or a minimum weight of 1.600g.[2] The fact is that the KC is a strategy that contemplates the tendency of humanization and integral healthcare for newborns. In this context, the study is justified by proposing to raise relevant information fulfilling the possible idle gaps in the literature, contributing to the visualization of the real benefits found in the application of this method in a public hospital in Fortaleza. Therefore, the aim of this study has been to describe the profile of newborns discharged from the neonatal intensive care unit sent to the kangaroo ward and its neonatal variables.

METHODS

It is a retrospective and documentary study with a quantitative approach, conducted from December 2014 to March 2015, in the General Hospital Dr. César Cals (HGCC), characterized as a tertiary service of high complexity and knowledge, reference in Fortaleza in obstetric and neonatology area.

Inclusion criteria

Medical records of newborns discharged from NICU and sent to the kangaroo ward were used as inclusion criteria, from January 2012 to December 2014.

Exclusion criteria

Illegible medical records and incomplete data related to the study variables. During this period, the kangaroo ward admitted 168 newborns, among these, only 80 records representing (47.61%) have been identified. Obeying the inclusion criteria, we recognize that only 30 records answered the survey requirements, representing (37.5%) and about 50 records (62.5%) were excluded from the study.

The variables analyzed were: weight, gestational age (GA), Apgar score at 1st and 5th minute, gender, race, fitness (weight/GA), length of stay in the NICU, ventilatory support (invasive mechanical ventilation, continuous positive airway pressure and oxygen helmet), resources used in the NICU (surfactant, transfontanel ultrasonography and parenteral nutrition), diagnostic morbidities in the NICU (respiratory distress syndrome, apnea of prematurity, jaundice, periventricular and intraventricular hemorrhage, bronchopulmonary dysplasia, retinopathy of prematurity and after birth asphyxia), admission weight and kangaroo ward discharge, type of nutrition and administration tract used, return to NICU, admission time in the kangaroo ward and multidisciplinary care (physiotherapy and speech therapy). Data were charted in Microsoft Excel® 2010 program and presented in absolute numbers, simple frequencies and percentages. The work was approved by the Ethics Committee of the Public Health School of Ceará and HGCC through the following opinions nº 889,617/2014 and nº 924,514/2014, obeying the rules of Resolution 466/2012 for human beings researches.[10]

RESULTS

In Table 1, we have found a prevalence of high underweight newborns, extremely premature and small for the gestational age. Regarding gender, it presents a male predominance.

All records have identified the NBs as brown in relation to their race. Regarding the Apgar score at 1st and 5th minute were observed values above 7. In relation to childbirth there was a predominance of cesarean deliveries.

Table 1: Characterization of newborns at birth in HGCC. Fortaleza (Ce).

	Total (n=30)	Frequency	
Variables	**N**	**%**	**Analysis patterns**
Birth weight			
Underweight	1	3,3	Less than 2.500 g
Very underweight	12	40	Less than 1.500 g
High underweight	17	56,6	Less than 1.000 g
Gestacional age			
Limitrophe	2	6,6	35 e 36 weeks
Moderate	11	36,6	31 e 34 weeks
Extreme	17	56,6	Less than 30 weeks
Adequacy weight/ga			
Sga*	13	43,3	Curve between 10 and 90 percentiles
Sga**	17	56,6	Curve between 10 percentile
Gender			
Male	18	60	-
Female	12	40	-
Race			
Brown	30	100	-
Apgar 1st minute			
≥ 7	19	63,3	-
< 7	11	36,6	-
Apgar 5th minute			
≥ 7	29	96,6	-
< 7	1	3,3	-
Type of delivery			
Normal birth	7	23,3	-
Cesarean	23	76,6	-

* Suitable for Gestational Age; ** Small for Gestational Age.

Table 2: Characterization of newborns according to the assistance in the NICU of HGCC. Fortaleza (Ce), 2015.

	Total (n=30)	Frequency
Variables	**n**	**%**
Length of stay in the NICU		
≤10 days	1	3,3
11 - 20 days	12	40
21 - 31 days	7	23,3
≥ 32 days	10	33,3
Ventilatory support		
IMV*	16	53,3
CPAP**	25	83,3
HOOD***	27	90
Pathologies		
RDS****	30	100
Prematurity Apnea	28	93,3
Jaundice	22	73,3
Resources used in the ICU		
Surfactant	19	63,3
Transfontanel ultrasonography	30	100
Parenteral Nutrition	29	96,6

*Invasive Mechanical Ventilation; **Continuous Positive Airway Pressure; *** Oxygen Helmet; **** Respiratory Distress Syndrome.
Source: Elaborated by the author

In Table 2, it was observed that (76.6%) of newborns was admitted in the NICU for longer than 20 days. Regarding the ventilatory support was a prevalence of non-invasive ventilatory ways. It was noticed unanimity of respiratory distress syndrome (RDS) followed by apnea of prematurity and jaundice. Furthermore, it was observed that 5 (16.6%) of the NB developed periventricular and intraventricular hemorrhage, about 3 (10%) bronchopulmonary dysplasia, 3 (10%) retinopathy of prematurity and 3 (10%) after birth asphyxia. Regarding, the resources used in the NICU, most NBs made use of surfactant and all performed transfontanel ultrasonography. In what concerns to parenteral nutrition, only 29 (96.6%) newborns had used that route.

Table 3: Characterization of newborns in the Kangaroo ward of the HGCC. Fortaleza (Ce), 2015.

	Total (n=30)	Frequency
Variables	**n**	**%**
Admission weight in kangaroo ward		
≤1.000g	7	23,3
1.001 - 1.249g	16	53,3
1.250 - 1500g	6	20
1.501 - 2.000g	1	3,3
Type of nutrition		
Exclusive breastfeeding	30	100
Feed Way		
Orogastric catheter	28	93,3
Translactation	6	20
By mouth	30	100
Multidisciplinary care		
Physiotherapy	26	86,6
Speech therapy	12	40
Return to NICU		
Yes	11	36,6
No	19	63,3
Length of stay in the kangaroo ward		
≤10 days	9	30
11 - 20 days	6	20
21 - 31 days	6	20
≥ 32 days	9	30
Weight at discharge		
≤1.500g	13	43,3
1.501 - 2.000g	15	50
> 2.000g	2	6,6

In Table 3, it was observed that at the time of admission to the kangaroo ward, about (76.6%) of newborns were admitted weighing less than 1.249g. Prevailed exclusive breastfeeding as nutrition used in the nursery, with the following routes of administration: orogastric catheter, translactation and by mouth. Regarding to multidisciplinary care, NBs had both physical therapy and speech therapy. It was noticed that a small portion of the kangaroo ward newborns had to return to the NICU. The length of stay in the ward oscillated between 10 to 32 days. The weight at the time of hospital discharge was lower than 2,000g

DISCUSSION

Prematurity and its neonatal variables can define the child growth and/or the development of significant pulmonary, ophthalmological, neurocognitive and metabolic morbidities, being recognized as an indicator of public health in Brazil.[11,12]

It was observed in this study a prevalence of NBs with high underweight, extreme premature and small for the gestational age (SGA). Similar results to the current study were found in a survey conducted in Maceió-AL, in which were found 29 (76.3%) premature NBs and 11 (28.9%) underweight.[3] In a similar survey conducted in Fortaleza were found 106 (91.2%) premature NBs and 104 (89.6%) underweight.[12] In a study conducted in Recife, the percentage of NBs, SGA was 68 (65.1%); data that corroborate with the results of this study.[13]

Regarding gender and race, there was a predominance of male births in this investigation. Similar results were found

in other studies.[12-14] This result is consistent also with the Ministry of Health (HM) that reveals that more NBs are male, about 2.5% more than females. And more than half (52.4%) of NBs are recorded on birth certificates as the brown race.[15]

Regarding the Apgar score, it was observed that most NBs obtained values above 7, both in the 1st minute and in the 5th minute. It is known that this evaluation is an important indicator to detect the fragility of the NB soon after their first hours of life, and measure the quality of service in neonatal care.[12,14] And the results of this study suggest that most NBs have adequate adaptation immediately after birth, implying an endorsement of the healthcare team by the services provided.

Concerning the type of delivery there was a prevalence of caesarean sections; about (76.6%). According to the World Health Organization and UNICEF, cesarean percentage above 15% suggests abusive use of this procedure.[16] These data indicate the need for more effective action to reduce unnecessary Caesarean sections, as it is a risk factor for premature birth, underweight and neonatal morbidity.[15]

Analyzing the results in Table 2, it is noticed that the majority of NBs remained hospitalized in the NICU for more than 20 days, about (76.6%). This result indicates that the higher the length of stay the shorter the GA and the weight; data that are consistent with Table 1.[17]

According to the HM it is estimated that in Brazil, every year, 300,000 newborns demanding help to start and maintain breathing at birth and about 25 thousand premature underweight NBs require assisted ventilation in the delivery room.[15] According to the data found in this study, it was observed that most NBs admitted to the NICU, used some ventilatory resource during their hospitalization, and being the non-invasive ventilation the most used feature. This suggests a better adjustment by the neonate to less invasive practices.

Prematurity by itself also carries the occurrence of various neonatal morbidities. Among the variables that make up the morbidity outcome found in our study described in Table 2, the RDS was unanimous among the other found pathologies developing at (100%) all NBs in the NICU.

The RDS is the most common respiratory morbidity in the neonatal period and is considered the major cause of morbidity and mortality in this age group.[18] Its main cause is pulmonary immaturity, that causes a deficiency of surfactant, primarily affecting premature infants in the early hours of life and is characterized clinically by shrinkage of the back and the breastbone, tachypnea, and whining.[12]

Similar result to the current study was found in a survey conducted in Fortaleza, where were diagnosed 99 (85.3%) of NBs with RDS.[12] This result corroborates the findings of this study and indicates a warning, related to linear growing of this condition, indicating an increasing number of premature babies who required special care.

The other morbidities analyzed in our study are also originated from prematurity and low birth weight, and the prevalence of these, agree with published reports except retinopathy of prematurity, which is often proportional to the GA, and in premature infants less than 1.250g, it is observed incidence of 66% and, with less than 1.000g, 80%.[19] In our findings, we have observed a disparate effect related to what was described in the literature.

Regarding to the resources used in the NICU, most NBs have made use of surfactant and parenteral nutrition, due to their prematurity and underweight, in addiction to, all have done transfontanel ultrasonography. These resources are favorable to the prognosis and early hospital discharge.

Analyzing Table 3, we have noticed some relevant data. According to the HM eligibility criterion for NB's stay in 2nd stage of MC is the minimum weight of 1.250g.[5] However, we have observed that at the time of admission to the kangaroo ward (76.6%) NBs had weight less than 1.249g, data that contradict MS' recommendation and that may explain the readmission rate in the NICU (36.6%), found at this work.

Other different data from recommended by the HM refers to the weight at discharge in kangaroo ward, where we have observed that (43.3%) of NBs in this study were discharged with weight less than or equal to 1,500g. MS recommends that the minimum weight for the discharge in the kangaroo ward be 1.600g.[5] This finding also contradicts a study conducted in Maceió, where the weight of the newborn in the kangaroo ward was higher than 1,800g at the time of hospital discharge.[3]

These results suggest credibility of the multidisciplinary team in real benefits that kangaroo care can provide to premature NB, ensuring early recovery through skin contact with the mother, besides of exclusive breastfeeding, providing an early discharge. This information agrees with those found in Table 3.

It's important to point that another strategy that ensures recovery and early hospital discharge from premature NB has been the active participation of the multidisciplinary team, composed of several professionals, being the physiotherapist an important member that seeks to attenuate the peculiarities of each newborn, according to his/her need, reducing neonatal morbidity and promoting sensory and motor stimuli.[12] Such actions have contributed incisively in the early discharge of most newborns admitted to the kangaroo ward.

In Brazil, the HM anticipates that the successful recovery of newborns admitted to the NICU is due not only to their survival and hospital discharge, but also by integrating links that will support the continuation of breastfeeding and care after discharge.[9]

CONCLUSION

We have concluded that the profile designed in our study is consistent with published reports in many ways, however, brings new data: Regarding to admission weights and discharge of Kangaroo ward NBs who are lower than those recommended by MS; revealing the real benefits of the method and it has proved to be an excellent cost-effective model for the newborn from the NICU, besides expose the importance of breastfeeding and multidisciplinary team effort in the early recovery of this newborn.

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