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Clinical rounds with parental involvement in a neonatal unit

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1. Introduction

The admission of a critically ill newborn is a stressful event. The stress experienced by parents impairs their abilities to interact optimally with their infants and may lead to poorer child developmental outcomes [1,2]. The major concerns of neonatal intensive care unit (NICU) parents during this stressful time are their informational needs, their parent–child role development, stress and coping, and social support [3–5]. The family-centered care has become the standard care model in Neonatology [6]. This care approach emerged with the intent to strengthen the health-care provider–parent relationship, decrease patients' and parents' stress, and enhance medical decision making [7,8]. One highly recommended suggestions for supporting parents' role as caregivers is the parents' participation in medical rounds [9].

However, existing gaps between the goals of family-centered care and its actual practice have been demonstrated [10,11]. When attempting to incorporate parents in practice, some barriers have been identified such as increased duration of rounds, parental stress and decreased teaching and professional satisfaction [12–14]. Furthermore, facilitating the participation of parents in NICU and rounds has raised debate [15]. Moreover, there are a limited number of published reports about participation of parents in the rounds on pediatric units and the data are even fewer in neonatal units. Most of these reports do not resolve the existing debate. These studies were mostly performed in the United States [6], Australia [17], and many northern European countries [18–20]. Nevertheless, incorporating family-centered care is delayed in southern European countries [20]. For instance, the initiative to empower parents to care for their children has been implemented in all neonatal units in the United Kingdom, Sweden and Denmark, with this policy being much more restrictive in France (73%), Italy (80% %) and Spain (41%) [21]. Therefore, the family and professional effects of parental involvement in clinical rounds in the southern cultural context is unknown. Therefore, our present study is the first to measure the family and professional impact of incorporating parents in clinical rounds in a southern European neonatal unit.

The hypothesis of our study was that the implementation of the new round model based on family-centered care in the NICU, the adapted family-centered care model (AFCR), does not decrease parents' satisfaction, doesn't increase parental stress generated by the baby's income and that professional satisfaction is improved compared with the traditional round model (TR). The primary aim of the study was to compare the level of stress and the degree of family satisfaction, as well as the degree of professional satisfaction between both models of rounds. The secondary aim was to define the characteristics of the parents who selected the AFCR model.

2. Patients and method

2.1. Study design

In April 2016, the new round AFCR model was implemented in the NICU, which included parental involvement. This model allowed parents to voluntarily choose to participate or not in clinical rounds. Data collection was performed between June and December in 2016 with surveys given to parents and professionals. Prior to the implementation of the AFCR model, prospective data collection was also performed from October 2015 to March 2016, during which time there was no possibility for parents to participate in the medical round (TR model).

Three groups of parents were defined: those who decided to willingly participate in rounds (group 1), those who voluntarily decided not to participate in rounds (group 2), and parents from the previous period in which they did not have the option to participate in rounds (group 3). Three other groups of professionals were also defined: professionals of patients whose parents decided to participate in rounds (group A), those whose parents voluntarily decided not to participate in rounds (group B), and professionals from the previous period whose parents did not have the option to participate in rounds (group C).

The study was performed in a IIIC-level neonatal unit with 900 admissions per year. The neonatal unit is a NIDCAP training center. The NICU had 19 beds that were distributed among 3 rooms (A, B and C). Room A mostly included term infants (or close to full-term gestational age) who required admission for surgical pathology, malformations,

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sepsis or any process requiring admission to the NICU. Rooms B and C were predominantly reserved for preterm infants.

2.2. Study population

All resident doctors, assistant physicians and nurses who consented to study participation were considered candidates. Parental inclusion criteria were parents of patients admitted to the NICU for at least seven days and signed the informed consent acknowledging agreement to study participation. Parents were excluded from the study if they were < 18 years of age.

2.3. The TR and the AFCR rounds models

Every morning the physicians and resident doctors visited the patients. Parents were always allowed to attend these visitations. In addition, what this study included was that parents were permitted to be present at clinical rounds during late mornings, when the patient information was transmitted to the doctors who came on duty. Prior to implementation of the AFCR model, morning rounds were performed following the TR model: in a ward away from the NICU, all the members (attending, nurses and residents) were invited to participate in a daily census of the NICU's patient's clinical situation. The medical residents or the attending physicians made comments with the remaining staff providing their opinions about the patients, but in the absence of family.

The AFCR model was implemented in the neonatal in April 2016. No data were collected during the first 2 months after implementing this new model. The AFCR took place in the same ward away from the NICU, with the same characteristics of the TR model but with parents of the NICU's patients present. The parents witnessed medical discussions during rounds. Moreover, they were permitted to hear first-hand the development of their baby's care plan and to ask questions. The parents left the ward after the discussion of their child's plan.

The AFCR model was offered twice a week, on Tuesdays and Thursdays. The rest of the week the rounds were performed following the TR model. A staff member explained the AFCR model to the parents when an infant was admitted for at least 7 days in the NICU. Parents also received information that AFCR represented one opportunity to speak with the medical team, but that their baby's medical team would still communicate with the parents if the parents were unable to attend the AFCR round. If the parents accepted attendance to the round, they willingly noted the name of their baby in the gaps that were available on a blackboard. They could attend as many times rounds as they desired.

2.4. Parents' surveys

When an infant was admitted to the NICU for at least 1 week, both parents were offered an assessment that consisted of two questionnaires, the Parental Stress Scale-Neonatal Intensive Care Unit (PSS:NICU) [22], and the Neonatal Instrument of Parent Satisfaction (NIPS) [23], as well as additional questions about studying levels and demographics data. Both questionnaires were completed at two different times: on the seventh day of admission and on the day of discharge from the intensive care room.

The PSS:NICU questionnaire [22] is a validated scale that measures how much stress parents have experienced as a result of their baby's illness and hospitalization. It comprises three sections: sights and sounds (SS), looks and behaviour (LB), and parental role (PR), totaling 34 questions with responses graded according to a Likert scale ranging from 1 to 5 (a higher number corresponds to greater stress). The NIPS questionnaire [23] comprises 26 questions with responses graded according to a 1–7 point Likert scale with regard to satisfaction in the NICU.

When parents attended the round they were asked to complete one additional questionnaire about their opinion of the round. This test comprised a total of five questions with responses graded according to a 1–5 point Likert scale at the moment of discharge from the NICU. We refer to this questionnaire as the simultaneous AFCR questionnaire.

2.5. Healthcare providers' surveys

No questionnaires for evaluating professional satisfaction in a NICU currently exists. An ad-hoc survey related to satisfaction (four questions), teaching (three questions) and inter-professional collaboration (two questions) was distributed to staff (physicians, resident doctors and nurses who provided care to the baby) at the moment of the discharge from the NICU. The survey comprised nine questions with responses graded accorded to a 1–5 point Likert scales (a higher score indicates a higher level of collaboration, teaching and satisfaction).

Another satisfaction questionnaire was completed by professionals during intervals of each intervention period, before and after implementation of the AFCR model. This questionnaire had a total of five questions with responses graded according to a 1–5 point Likert scale. This questionnaire was given for five consecutive days to all staff members who attended rounds.

One additional questionnaire was distributed to professional when the parents of their patient attended AFCR. We refer to this test as simultaneous AFCR questionnaire. It comprised five questions about the usefulness of AFCR for parents, with responses graded according to a 1–5 point Likert scale.

2.6. Statistical analysis

Categorical characteristics of the population were described by the absolute and relative percentages, and numerical characteristics were summarized by the mean and standard deviation. The comparisons between groups were performed using non-parametric Wilcoxon tests, chi-square test (Fisher's exact test) and Kruskal-Wallis test (provided that there were > 2 populations). The Bonferroni test was used for the post-hoc multiple comparisons. Values of $p < 0.05$ were considered statistically significant.

2.7. Ethical aspects

The principles of the Declaration of Helsinki were respected during the development of this project. The study was approved by an Ethics Committee for Clinical Research. An informed consent document was offered to parents and healthcare providers who choose to participate in the study. Parents only participated in their child's rounds. Under no circumstances were they informed information about other patients.

3. Results

A total of 156 parents received the questionnaires during the study. Finally, 136 parents answered the questionnaires. The distribution was as follows: 47 parents in group 1, 26 parents in group 2 and 63 parents in group 3. The parents in group 1 presented a higher basal score in the section regarding stress induced by alarms and sounds in the NICU when compared with that of group 2 (Table 1). The response rate of the parental questionnaires was 87.2%. Table 2 shows differences in the satisfaction and anxiety results by comparing baseline scores and scores at discharge.

A total of 129 professionals answered the questionnaires: 37 in group A, 29 in group B and 63 in group C. The distribution by categories was as follows: 37.3% were physicians, 40.3% were resident doctors and 22.4% were nurses. The response rate was 78.5%. Table 3 shows the results of the professionals' satisfaction levels at discharge regarding their NICU patients. Professional from group A showed significantly higher satisfaction scores than those from group B with regard to how decisions about patients were accepted.

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