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Comparative Analysis: Implementation of a Pre-operative Educational Intervention to Decrease Anxiety Among Parents of Children With Congenital Heart Disease

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ABSTRACT

Purpose: The present study evaluated the efficacy of a nursing educational intervention in alleviating the level of parental anxiety in the parents of children who required heart surgery for the first time.

Design and Methods: A comparative study was used to explore the parents of children who had to undergo cardiac surgery. Parents of children were randomized into 2 groups: 1) control group and 2) experimental group or parents that received the educational intervention about PICU stay.

Result: The results of STAY-1 showed that the average anxiety score of group 1 was lower than that of group 2 (63.0 [SD = 3.5] vs. 70.4 [SD = 2.8]).

Conclusion: In order to decrease levels of parental anxiety and stress prior to paediatric surgery, parents should be adequately informed about planned therapeutic procedures.

Practice Implications: We speculate that pre-surgery parent education on what to expect before, during and after their child's cardiac surgery may improve parents' knowledge and satisfaction and decrease anxiety.

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Introduction

Congenital heart disease (CHD) is very common in the field of paediatrics. Its global prevalence has risen significantly, increasing from a rate of 0.6/1000 in 1930 to 9.1/1000 in 1995 (Bernier, Stefanescu, Samoukovic, & Tchervenkov, 2010), and is common in newborns in the U.S. (Reller, Strickland, Riehle-Colarusso, Mahle, & Correa, 2008) and in Europe (Dolk, Loane, Garne, & European Surveillance of Congenital Anomalies Working, Group, 2011; Sipek et al., 2010). The number of CHD cases are significantly higher in Europe and Asia, with a prevalence of 8.2/1000 and 9.1/1000, respectively, compared to North America ($p < 0.001$), South America ($p < 0.001$), Oceania ($p < 0.001$) and Africa ($p < 0.001$) (van der Linde et al., 2011).

Although medical and surgical techniques have improved the outcome of CHD, this disease continues to have a marked impact on the quality of life (QoL) of affected children. In recent years, a number of studies have focused on this issue (Bertoletti, Marx, Hattge Junior, & Pellanda, 2014; Eagleson, Justo, Ware, Johnson, & Boyle, 2013), with contrasting results (Brosig, Mussatto, Kuhn, & Tweddell, 2007;

Majnemer et al., 2006; Spijkerboer et al., 2006). Several studies showed that CHD was associated with physical limitations, and long-term neurological developmental disorders (Dulfer, Helbing, Duppen, & Utens, 2014; Marino et al., 2012; Wernovsky, Shillingford, & Gaynor, 2005), especially among children whose parents were overly protective (Dahan-Oliel, Majnemer, & Mazer, 2011); another study indicated that the cognitive, social, and emotional functioning of children with CHD was worse than that of healthy children (Landolt, Valsangiacomo Buechel, & Latal, 2008).

Even with the advanced diagnostic techniques that are now available, many parents only learn of their child's pathology after the birth (Marek, Tomek, Skovranek, Povysilova, & Samanek, 2011), and heart surgery is often the only possible option (Harvey, Kovalesky, Woods, & Loan, 2013). The types of heart surgery that children with CHD must endure have a significant impact on parents' emotional status and QoL. As has been previously reported, paediatric surgery, especially heart surgery, is a time of significant stress for parents (Bright et al., 2013; Franich-Ray et al., 2013; Menahem, Poulakis, & Prior, 2008), and this stress is linked to uncertainty regarding the child's survival (Doherty et al., 2009). The parents may also feel guilty, partly responsible for the situation, responsible for the health problems of their child, and worried that the child's condition could result in a life-long chronic

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condition (Kosta et al., 2015; Re, Dean, & Menahem, 2013). The parents of children with CHD experience greater levels of stress (Vrijmoet-Wiersma, Ottenkamp, van Roozendaal, Grootenhuis, & Koopman, 2009), anger (Dale et al., 2012), and depression (Yildiz, Celebioglu, & Olgun, 2009) than the parents of healthy children. Furthermore, it has been reported that caregivers of children with CHD develop anxiety (Fischer et al., 2012) and have a poor QoL (Hearps et al., 2014).

The anxiety felt by a parent can be transferred to the child (Vrijmoet-Wiersma et al., 2009), and can have an effect on the speed of recovery following paediatric heart surgery (Brosig et al., 2007; Majnemer et al., 2006). Finding of research conducted reveal the level of parental anxiety generally depends on their coping abilities and psychosocial relationships with nurses, rather on than the seriousness of the child's pathology (Kosta et al., 2015; Rempel, Ravindran, Rogers, & Magill-Evans, 2013). For nurses working in the paediatric heart surgery intensive care sector, the provision of holistic support to the child's family may be one of the most difficult tasks they face (Fegran & Helseth, 2009). Pre-surgical interventions that decrease parents' anxiety can serve to improve the child's emotional well-being (Agarwal et al., 2013; Kiliçarslan-Törüner, Kurnaz, & Keçalan, 2012; Lawrence, Stilley, Pollock, Webber, & Quivers, 2011).

A variety of previous studies have shown that nurse-led educational interventions are effective in reducing parental anxiety during the time of paediatric recovery (Trecartin & Carroll, 2011; Verhaeghe, van Zuuren, Defloor, Duijnste, & Grypdonck, 2007) for parents with children in the intensive care unit (Bracht, O'Leary, Lee, & O'Brien, 2013), children with diabetes (Sullivan-Bolyai, Bova, Lee, & Johnson, 2012) and children scheduled for elective surgery (Adams, 2011). However, no studies of the efficacy of educational programs for the parents of children with CHD during hospitalization for heart surgery have been conducted. Studies of nurse-led educational interventions could help shed light on how best to provide assistance for the parents of children scheduled for heart surgery, and how best to help the children cope with this surgery.

The present study evaluated the efficacy of a nursing educational intervention in alleviating the level of parental anxiety in the parents of children who required heart surgery for the first time.

Methods

Design

The present study evaluated the efficacy of a nursing education intervention in alleviating the level of anxiety to parents of children who required heart surgery for the first time using a comparative research design.

Sample

The study sample was selected from a population of parents of children elective for cardiac surgery for surgical correction of interventricular defect for the first time. Initially, we enrolled 96 parents to participate to the study, but only sixty subjects signed the informed consent. Enrollment, explanation of educational intervention, and the administration of the questionnaires were conducted by the nursing staff inside headquarters of a *foundation of children with heart disease* non-profit fund of children. Here the questionnaires were administered to the subjects making up the sample in the study. Next step was the implementation of educational intervention. Then we moved to the educational intervention evaluation. We obtained prior authorization from the director of cardiac surgery and director of the ward.

Inclusion criteria for this study included the following:

1. Their child was scheduled to undergo heart surgery in the next 24 h;
2. They had no prior experience of hospitalization of their child in intensive care;

3. They had read and signed a form giving their informed consent to participate.

Prior to signing the consent form, the parents were advised of the aim and nature of the study. They were given a guarantee of complete anonymity in all phases of the study, and told that they could withdraw from the study at any point. The parents were also advised that refusal to participate in the study or withdrawal from the study would not in any way undermine the quality of care provided. After signing the consent form, the participants were randomly divided into two groups. Group 1 (the experimental group) consisted of parents who received the educational intervention, while group 2 served as a control group and did not receive any educational information.

Instruments

The State Trait Anxiety Inventory (STAI) is a commonly used tool to analyse state anxiety (Spielberger, Gorsuch, Lushene, Vagg, & Jacobs, 1983). The STAI Y-1 scale evaluates state anxiety (i.e. anxiety as an emotion felt at specific moments), and the STAI Y-2 scale evaluates trait anxiety. State anxiety, which is considered a stable characteristic of a person's personality, is defined as the tendency to perceive stimuli and environmental situations as dangerous and threatening. The STAI consists of 40 items, which focus on how individuals feel in general, rather than at particular times. The STAI Y-1 consists of 20 items, which are evaluated using a 4-point Likert scale and scored from 1 (almost never) to 4 points (almost always). Examples of items are, "I feel very anxious" or "I feel calm." The lowest possible score is 20, and the highest total score is 80, with higher scores indicating a higher level of anxiety. The internal coherence coefficient has obtained excellent values from 0.86 to 0.95 (Spielberger et al., 1983), and test-retest ranged from 0.65 to 0.75 over a 2-month interval. The scale provided constructive and reliable evidence (Spielberger, 1989). In the original study, two factor (S-anxiety and T-anxiety), obtained with factor rotation, described 71% of variance. Item communalities for two-factor solution ranged from 0.16 to 0.58. As suggested by authors, since STAI-Y was developed, a two-factors solution was employed, supported by scree plot examination. Cronbach's α , for the T-anxiety scale, analysed with the item-total correlations, ranged between 0.38 and 0.69. The STAI has been employed both in the clinical setting to diagnose anxiety and distinguish it from depressive syndromes (Sala et al., 2011; Shimpuku et al., 2014), and in the research setting in order to identify caregiver stress (Iavarone, Ziello, Pastore, Fasanaro, & Poderico, 2014). It has also been used to evaluate parental anxiety in specific areas of paediatric cardiology (Geggel et al., 2002).

A tool developed by our research group was used to collect information on the socio-demographic characteristics of our study participants, including their gender, age, and marital status.

Sample Procedure

Before implementing a pre-operative educational intervention to decrease anxiety among parents, nurses were trained. The nurse's training consisted of a class with simulated interviews wherein the researchers explained several themes about CHD paediatric patient, such as inpatients unit, cardiac surgery devices etc., after the participants had received medical information regarding the heart surgery intervention, and had signed the informed consent form, the STAI Y-1 was administered by the research team member. Specially trained nurses who had not previously met the participants provided the information. The STAI Y-1 tool was administered to group 1 before the specific educational intervention.

Intervention

The first step of the educational intervention consisted of presenting some photographs pertinent to post-surgery hospitalization in the ICU

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