



Preoperative Anxiety in Children

Essay

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بِسْمِ اللَّهِ الرَّحْمَنِ الرَّحِيمِ

قَالُوا سُبْحَانَكَ لَا عِلْمَ لَنَا إِلَّا مَا
عَلَّمْتَنَا إِنَّكَ أَنْتَ الْعَلِيمُ الْحَكِيمُ

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List of Abbreviations

CCLS	: Certified child life-specialists
CMRO ₂	: Cerebral metabolic rate of oxygen consumption
EEG	: Electroencephalogram
EKG	: Electrocardiogram
FDA	: Food and drug administration
GABA	: Gamma Amino Butyric acid
ICC	: Induction Compliance Checklist
ICP	: Intracranial pressure
IM	: Intramuscular
IQ	: intelligence quotient
IV	: Intravenous
mcg	: Microgram
MRI	: Magnetic resonance imaging
m-YPAS	: Modified-Yale Preoperative Anxiety Scale
NMDA	: N-methyl-D-aspartate
NPOC	: Negative postoperative behavioral changes
OR	: Operation room
OTFC	: Oral Transmucosal Fentanyl Citrate
PACBIS	: Perioperative Adult Child Behavioral Interaction Scale
PHBQ	: Post-Hospital Behavioral Questionnaire
PONV	: Post operative nausea and vomiting
PPIA	: Parental presence at induction of anesthesia
RCTs	: Randomized controlled trials
STAIC	: State-Trait-Anxiety Inventory for Children
UK	: United kingdom
US	: United states
vs	: Versus

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Introduction

Hospitalisation and surgery are undoubtedly one of the most difficult experiences the children and their parents have to face. The lack of appropriately provided information about treatment and other hospitalization-related aspects increases anxiety and uncertainty. The anxiety occurring during this period is a subjective feeling characterised by increased stress, nervousness, fear of the unknown. The observations covering 2-week preoperative periods demonstrated that 60% of children undergoing surgeries developed negative behavioural changes. Besides psychological consequences, preoperative anxiety is likely to prolong the induction of anesthesia (***Jacek et al.,2012***).

It should be remembered that perception and understanding of the world (the surroundings) in children and adults are different. The children without psychological educational preparation are likely to feel that the hospital stay and surgery are some form of punishment for their bad behaviour. Preparation of children to reduce their fears makes the hospital stay less unpleasant; therefore, it should be included in routine management. Numerous reports suggest that programmes for preoperative preparation of children reduce the level of anxiety and help to cope with new difficult situations. The behavioural

programmes have been changed over time. The preparation programmes, although relevant, are not the only form to soothe preoperative anxiety in children. In such cases, premedication should be beneficial. Pharmacological premedication appears to be well justified in the majority of children (especially in the pre-school children) (*Jacek et al.,2012*).

Aim of the Work

The aim of this work is to:

- Study the hazards of preoperative anxiety in children, It's proper management and to Raise the awareness of many anesthesiologists about the importance of management of preoperative anxiety.

Hazards of Preoperative Anxiety in Children and Proper Evaluation

Pre operative anxiety:

Anxiety in children undergoing anesthesia and surgery is characterized by feelings of tension, apprehension and nervousness. This response is attributed to separation from parents, loss of control, uncertainty about the anesthesia and uncertainty about the surgery and its outcome. That's why interest in children's perioperative behaviour has increased dramatically over the past 15 years. Specifically, there has been a recognition of the importance of developmental factors in perioperative research, resulting in a surge of investigation in this area. Developmental considerations that are relevant to the child's perioperative experience are (cognitive development, attachment and separation and temperament) *(Kain and Caldwell, 2005)*.

In 1941, Pearson observed significant emotional reactions in young children undergoing anesthesia and surgery. These emotional reactions may be that the child may appear scared or agitated, breathe deeply, tremble, stop talking or playing and start to cry. Some may wet or soil themselves, display increased motor tone and actively attempt to escape from

medical personnel. These behaviors may give children some sense of control in the situation and thereby diminish the damaging effects of a sense of helplessness. In a retrospective study by Eckenhoff in 1953 on more than 600 Children, identified a link between “unsatisfactory” anesthetic inductions (i.e., those characterized by heightened child anxiety) and postoperative negative personality changes. Around 40% and 60% of children who undergo surgery experience anxiety (*Wright et al.,2007*).

Some children verbalize their fears explicitly, whereas other expresses their anxiety only by negative post operative behaviours such as sleep or eating disorders. In addition to the behavioral manifestations, several studies have documented that anxiety before surgery is associated with neuroendocrine changes, such as increased serum cortisol, epinephrine, growth hormone and adrenocorticotrophic hormone levels and increased natural killer cell activity. Significant correlations between heart rate, blood pressure and behavioral ratings of anxiety have also been reported (*Kain et al.,2000*).

Developmental Issues:

1. Cognitive Development and Understanding of Illness:

Children’s stress during the perioperative period results from multiple sources, one of which is a limited understanding of their illness and the need for surgery. Early developmental

theories suggest that a child's understanding of illness changes qualitatively as he or she matures cognitively. In terms of understanding of surgery, a child's concepts are particularly underdeveloped. Young children have difficulty defining "an operation" suggesting that it is the same as being sick, going for a doctor's checkup or taking a nap. Given these developmental considerations, it is not surprising that young children are more likely to have misconceptions about hospitalization and surgery than older children and adults and are at unique and disparate risk for perioperative stress when compared with adults (**Maclaren et al.,2009**).

In 1980, Bibace and Walsh described a model of the child's progressive understanding of illness that evolves from prelogical explanations such as phenomenism (e.g., magical thinking), to concrete-logical explanations such as contamination (e.g., eating bad food), to formal-logical explanations (e.g., physiologic causes). This is the most widely cited model for the child's perspective of illness. Although less theoretically developed, children's understanding of the treatments for illnesses is thought to follow a similar developmental pattern.

2. Attachment and Separation

Another child-specific consideration during the perioperative period is his or her attachment style to the parent/caregiver and how the parent-child relationship influences the child's response to the separation associated with surgery/anesthesia. In infants the attachment style that is developed is determined by the quality of relationship with parents. A poorly attended infant may develop poor coping skills in new settings. Although adults also undergo separation from family, the separation of children from their parents is particularly stressful. Coping with separation is a lifelong challenge that is inevitable and necessary for a child's normal healthy development (**Turner,2009**).

Separation experiences such as saying good-bye at the door of school or sleeping overnight at a friend's house, facilitate normal childhood psychological growth and personality organization by mobilizing opportunities for learning and adaptation. Other separation experiences, especially those occurring in the context of loss, illness or other stressors, can precipitate states of confusion, anger and anxiety. Brief separations such as those associated with surgery are most stressful for infants, toddlers and preschool-aged children. Indeed, for school-aged children, responses to separation may

reflect, in part, response patterns established early in the preschool years (*Provence et al.,1996*).

The style of attachment of infants and children:

Children and infants may be:

a. Securely attached:

Infants who are more “*securely attached*” to their parents deal more adaptively with the stress of brief separation and with the novelty of the hospital experience. These infants are more willing to explore their world and respond positively to their mother’s return, using her as a secure, stable base from which to approach strangers and new situations (*Turner 2009*).

b. Anxiously attached:

Toddlers are classified as “*anxiously attached*” to their mother tend to be distressed in unfamiliar situations, like those found in the perioperative environment, even when their mother is present. When their mothers returns after brief separations, these infants tend to be angry and distressed and avoid physical contact (*Turner, 2009*).

C. Insecurely attached:

A form of “*insecure attachment*” is avoidance. Avoidant children do not explore their surroundings as much as securely attached infants do and tend to ignore their mother. They