

Research Article

Explore the Effectiveness of Outpatient Surgery in Pre-school Children's Fear

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Abstract

Objective: Children are susceptible to sentiment because their physiology, psychology, comprehension and language expression has not yet matured. Therefore, when they have to undergo an operation there will be resistance because of fear of the unknown.

Methods: This study was conducted from September 2015 to March 2016. Pre-school children who underwent outpatient surgeries were the subjects of the study. The research methods were actual observation and questionnaire survey. The "Pre-school Children's Preoperative Fear Response Observation Record" was used as the survey tool. Mann-Whitney U Test was used to compare the children's responsive behaviors before and after intervention.

Results: A total of 11 subjects were included in the study. Only 13.3% of pre-school children were willing to cooperate, while 67.8% of pre-school children feel fear before the operation. In order to reduce their fear, this study used clinical care teaching, development of care guidelines for pre-school preoperative fear, the layout of surgery waiting area for outpatient and operating room, providing touch medical equipment and selective medical treatment, use of modeling balloons, use of games in tablets and stickers as a care auxiliary as intervention. Using these, they not only were willing to cooperate but also have reduced their fear. The degree of coordination increased from 13.3% to 76.7%, the extent of fear cut down from 67.8% to 10.3%, and 98% of the family members were satisfied.

Conclusions: Throughout the operation, professional nursing care that also focuses on the children's emotion by establishing good relationship were established. Through teamwork, the group provided the pre-school children with a wide range of care, thereby reducing the preschool children's preoperative fear and family members became more satisfied.

Keywords: Outpatient Surgery, Pre-school Children, Children's Fear

Introduction

To ensure the patients' safety during surgery, patients and accompanying person are instructed to change their cloths to hospital gowns before entering the operating room. Such standard operating procedure will oftentimes make the patient, even more so to pre-school children, and/or the accompanying person to feel afraid and anxious while inside the operating room. Since pre-school children's physical, psychological, understanding ability, and language development are not yet mature, their emotions are more susceptible to changes in their environment. As a result, a child who will undergo surgery, wearing unusual clothing and in an unfamiliar room may be scared and resistant to almost anything. At the same time, the families' preoperative anxieties also affects the young children, causing 65% of them to be extremely anxious and scared in the early stage of the surgery, especially during the induction of

anesthesia [1]. Medical staffs, on the other hand, usually ignore these emotional responses of young children and their families in order to efficiently complete all aspects of the surgical procedures. This response of the medical personnel towards the emotional response of the child is actually the motivation behind this study.

In our hospital, 70~80% of pediatric surgeries are outpatient procedures. Among them, 30% of the surgeries are done to pre-school children who, at this stage, would cry and be resistant to the unknown pressures. These emotional responses by the child may also affect the actual procedure as well as intensify the family's anxiety and stress. Therefore, this study aims to explore the fear of pre-school children in outpatient surgeries and provide possible intervention that may reduce the negative emotional response of the patient and family members. By providing unique and customized care, the nursing staff of the operating room may pay more attention to these pre-school children, enabling the establishment of a good and attentive relationship with them while waiting for the surgery to start. Through this intervention, the fear of the pre-school children towards the surgery may be reduced and the families may also feel more relieved, which would improve the quality of the whole procedure.

Patients and methods

This study was conducted from September 2015 to March 2016. Pre-school children who underwent outpatient surgeries were the subjects of the study. The research methods were actual observation and questionnaire survey. The patient (pre-schooler), accompanied by one of their parents or another family member, will proceed to the OR waiting room at the scheduled time for registration. The nurses will then perform various preoperative nursing measures. After which, the children and the accompanying person will then remain in the waiting room while waiting for the surgery. The waiting room of the outpatient surgery in our hospital is a single mixed area which includes the registration zone and the waiting area, thus, when the young children enter the room, not only would they face unfamiliar persons (medical staff, other patients and families) and environment, but will also possibly experience the fear of unknown treatments. This situation often makes the children feel uneasy, clingy to their parents and they may even cry or become unwilling to cooperate with the preoperative procedures and possibly delay the surgery. They might also have mucosal swelling in the throat due to the wailing which would affect the quality of the anesthesia. Before the surgery, the surgical team members will meet the patient in the waiting area, and the main caregiver will accompany the child to the operating room. The nurse will ask the child's name, and if the child refuses to respond, the nurse will communicate and interact directly with the accompanying person, while the main caregiver will hug or take the child to the operating room. However, most of the children refuse to be on the operating

table, or even wail, which would affect the induction of anesthesia.

From September 2 to 9, 2015, the preoperative responses of 20 pre-school children were observed via actual observation method. It is learned from the results that: 1) In the face of treatments of which the children had not been exposed to, such as placing the ECG adhesive or using the oximetry, they would react with pre-crying fear or resistant reactions. For instance, they might refuse to body contact, avoid eye contact, be unwilling to be in touch with or lie on the operating table, wail, cling to the main caregiver, and others. 2) Most of the parents were also at a loss after they entered the operating room and when facing the strange environment and medical instruments. They were prone to be affected by the children's emotions, especially when they are crying, as they seemed to be more anxious. When the children had stronger emotional reactions, they might even need to be suppressed and constrained by the families and medical staff so as to successfully complete the anesthesia procedure. When the families were taken out of the operating room after the children fall asleep, they seemed to be reluctant to leave the children and would frequently look back.

In order to specifically and objectively show the children's fear of surgery, the "Pre-school Children's Preoperative Fear Response Observation Record", with 11 items including "refuse others from touching their bodies", "crying", "yelling", "cling to his/her family member" and others, was established based on literature review and the results of observation. We have divided our questionnaires base on dichotomous choices which is, 1:-presence of preoperative fear response, 2:- absence of preoperative fear response. Observation Record was reviewed and validated by two pediatric surgeons, two senior nurses, and one anesthesiologist. In our study, the reliability score from KR 20 was 0.76. The statistical analysis was based on the reactions of every child. The observation was conducted from September 9th to 30th, 2015, with a total of 30 children. It was learned from the statistical results; only 13.3% of the children were willing to cooperate with the medical treatment, while 67.8% of the children had fear reactions before the surgeries. Among the 11 items of fear reactions, "expression of fear and retreat", "cling to his/her family", and "plead for negotiation (no injection)" ranked the top (Table 1). It was also found in the observation that when parents had good interactions with the children at the operating room, it might cheer and encourage the children. It was learned that these children had never had surgical experiences, and their ages were between 5 to 6 years old. They all had preoperative communication of the instructions and agreed to rewards, which means that if appropriate measures are given to the children before the surgeries, the fear reactions may be reduced.

To reduce the preoperative fear of preschool children and to make the families more relieved of the surgical procedures, this

study had established various interceptive measures, including 1) the organization of educational training for the nurses in the operating room. The contents include the pre-schoolers' physical and mental development and characteristics, the effects of surgery stressors on young children, the impact of the negative emotions, the expectations of family members, the communication patterns with pre-schoolers, how to divert attention (such as via multimedia aids, folding flower balloons), and cooperation with anesthesia team. 2) The "Care Guidelines for Pre-schoolers' Preoperative Fear" was set according to the characteristics of pre-school children which can strengthen the nursing staff's care on the preoperative fear psychology of the children and the caring techniques as well as the integrity of the caregivers who perform the pre-operative child care in the operating room. 3) In terms of the waiting room for out-patient surgery, the area can be divided into one report area and one kid's waiting area with cartoon posters on the walls, sofa and TV playing videos suitable for pre-schoolers while they wait for the surgery. A friendly and comfortable environment may be created so as to reduce the children's fear and insecurity. 4) Cartoon posters (e.g. Sponge Bob and Bob the Train) may be placed on the walls of the pediatric surgery rooms and wall-mounted TV could be installed so that the children could watch videos as they enter the surgery room. This makes the surgical environment more pleasing and can distract the attention of the children. 5) The use of selective communication, which is a communication between the anesthesia nurses and young children for the injection or to blow the balloon 10 times (inhalation anesthesia).

Depending on the child's reaction in the operating room, the child can sit, hold by family or lie on the operating table, and explanation suitable for the child's age should be given for any of the medical treatment, allowing them to see and touch the

instrument. For instance - (a) Explain to the family the oxygen is inside the mask and allow the family the demonstration of the action of blowing air with the oxygen mask on; (b) When placing the ECG patch, place one patch first on our own hand, and tell the child that we will give him or her three stickers; (c) When using the oximetry, tell the child that he or she can listen to his or her own heart beats. When the child is willing to cooperate, the rounding nurse may give verbal praises and provide several cartoon stickers for the child to choose as a reward, and on the other hand, support the main caregivers and comfort their emotions. The nurse may even pre-notify the child's family about the treatment procedure and the child's reaction after inhaling the anesthesia. The child may struggle or cry for a short period of time due to the smell of the narcotic drug, so the nurse may sit at the child's side and appease with positive encouragement so as to reduce the child's fear. 6) To provide and use care aids. Such as, (a) to use tablets with the child's favorite game installed. When going into the surgery room, the pediatrician may let the child to choose the game and communicate with the child so as to reach the child's consent to cooperate for, for instance, the placing of ECG patch, measurement of blood oxygen, or inhalation with the balloon (inhalation of the anesthesia drug). Sitting posture may be adopted for the child so that he or she can play the tablet while others place the mask for anesthesia inhalation. The rounding nurse shall remind the families of the child's safety after falling asleep and the prevention of falling. (b) When the child enters the surgery room, the doctor or the rounding nurse may allow him or her to choose the color of the balloon and teach the child to inflate the balloon with a pump. The balloon may be of a shape of a dog, sword, bear or stick. They can teach the child to fold the balloon so as to distract the child's attention by creating certain sense of novelty.

Table 1
Preschoolers' preoperative fear reactions

(N=30)

| Item | Before intervention | | After intervention | |
|--|---------------------|----------------|--------------------|----------------|
| | n | Percentage (%) | n | Percentage (%) |
| Refuse others from touching their bodies | 23 | 76.7 | 2 | 6.7 |
| Crying and yelling | 24 | 80.0 | 3 | 10.0 |
| Cling to his/her family | 27 | 90.0 | 4 | 13.3 |
| Refuse eye contact | 17 | 56.7 | 1 | 3.3 |
| Verbal attack (e.g. "go away") | 21 | 70.0 | 4 | 13.3 |
| Punching, kicking and hitting | 15 | 50.0 | 1 | 3.3 |
| Plead for negotiation (no injection) | 25 | 83.3 | 7 | 23.3 |
| Silence and ignoring | 3 | 10.0 | 1 | 3.3 |
| Expression of fear and retreat | 28 | 93.3 | 4 | 13.3 |

| | | | | |
|--|----|------|---|------|
| Back out of the negotiated term | 21 | 70.0 | 5 | 16.7 |
| Refused to lie down or touch the operating bed | 19 | 63.3 | 2 | 6.7 |
| Average | | 67.8 | | 10.3 |

Results

After introducing the intervention of this study, the preoperative fear condition of the pre-schoolers improved. The degree of cooperation increased from 13.3% to 76.7%, while the fear reaction was reduced from 67.8% to 10.3% (Table 1). Our result comparing pre- and post-intervention was statically significant using Mann-Whitney U Test ($p < 0.001$) (Table 2). Although some children in the face of unknown pressure still have negative emotional performance, their attention could still be gradually diverted with the balloon or tablet games and the fear could be reduced. We conducted interviews with the family according to the caring satisfaction survey of pre-schoolers' preoperative fear. The questionnaire was validated with Likert Scale. Response to the questionnaire was evaluated using a 4-point scaling method, i.e. 1 point: very dissatisfied, 2

points: somewhat dissatisfied, 3 points: somewhat satisfied, 4 points: very satisfied. Once the questionnaires are completed, the total score will be calculated and converted to percentage point with this formula: Total score/ 98 x 100 % in table 3. The higher the score in percentage will denote the degree of satisfaction amongst the family members. A total of 30 families were selected in our study. The results show that 98% of the parents feel satisfied (Table 3). Most of the parents indicated that they felt uneasy upon entering the surgery room; however, with the presence of the nursing staff by their side, they felt less nervous. They also had positive feedback on demonstrating the use of the oxygen mask to the children and allowing the children to learn how to make different figures by folding the balloons and play with multimedia games. Thus, they had high appraisals towards the implementation of this project.

Table 2
Comparing Before and After intervention

| Variable | N | Median(interquartile range) | p Value |
|----------|----|-----------------------------|---------|
| Before | 30 | 8.5(5.0 to 10.0) | <0.001 |
| After | 30 | 1.0(0.8 to 1.0) | |

Table 3
Families' satisfaction degree survey of the caring of pre-schoolers' preoperative fear

(N=30)

| S.No | Item | n | Percentage (%) |
|------|---|----|----------------|
| 1 | Can you feel more at ease with the decoration of the waiting room and cartoon movies that distract the attention of the children | 30 | 100 |
| 2 | Do you feel satisfied with the interaction between the nursing staff and the child before the surgery | 28 | 93.3 |
| 3 | Do you feel satisfied with the surgery related information during the reception by the medical staff | 29 | 96.6 |
| 4 | Do you feel satisfied with the options of medical treatment provided to the child | 29 | 96.6 |
| 5 | In terms of the cartoon pictures hang on the walls of the surgery room, do you feel satisfied with a more vivid and fun environment | 30 | 100 |
| 6 | Do you feel satisfied with the fold balloons or iPad games that distract the child's attention | 30 | 100 |
| 7 | Do you feel at ease allowing the child to touch and learn about the medical instruments to be used before giving the anesthesia | 30 | 100 |
| 8 | Do you feel satisfied with you demonstrating the usage of oxygen mask allowing the child to learn before giving the anesthesia | 29 | 96.6 |

| | | | |
|----|--|----|------|
| 9 | Do you feel satisfied with the psychological support given by the medical staff when awaiting the anesthesia in the surgery room | 30 | 100 |
| 10 | Do you feel at ease and satisfied with the caring experience provided by the hospital in this surgery | 29 | 96.6 |
| | Average | | 98 |

Discussion

The main stressors to the child by the surgery are the discomfort of the disease and the treatment. Due to the lack of sense of security, loss of control, separation anxiety, fear of pain and the damaged physical integrity originated from the unknown environment and medical staff, the children might express their fear with behaviors like crying, anger, sense of helplessness, attack, refusal, and retreat. If there is no appropriate response, it may negatively affect the psychological and personality development of the child. Thus, when the pre-schoolers react with fear during intravenous injection, they might have worse reactions than children of other age and be harder to control. The nursing staff often comforts the children verbally and request the families to constrain the body, causing the children to fear more the injection treatment. As the families might be reluctant for the children to be in such situation as well as worry about them not only a relation of trust and care cannot be established between the patient and the nurses but also intensify the nursing staff's stress, waste precious time and possibly increase cost. In this study, multimedia was used to distract the children's attention. When they cried during the hospitalization period, parents were encouraged to join in the caring activities so that parents and children had more time to spend together; through conversations, staring, hugging's, and gentle stroking, not only could they improve the dependence relationship, but also comfort the children's anxiety. According to Lee et al (2012) research, 130 children of age 3 to 7 were observed. Based on the results of the impact caused by watching cartoons before receiving the anesthesia for the surgery, watching cartoon was a very effective method to reduce the children's anxiety, and to reduce most of the fear of the children from being exposed in a strange environment before the anesthesia and the great anxiety of separating from their parents [2]. In addition, in Mifflin, Hackmann & Chorney (2012) research of teaching children of age between 2 to 10 to inhale the anesthesia before the surgery, parents were allowed to hug the children giving them adequate comfort and support during the anesthesia induction period and children's attention was attracted to their favorite cartoon movies or interactive games. It was found that the latter was more effective to reduce the anxiety and to smoothly go under anesthetic state before the surgery than the former [3].

The research pointed out that for pre-schoolers, the use of therapeutic games in conventional treatments before the surgery allowed a higher degree of cooperation of the children

in the anesthetic induction, and less negative emotions and behaviors would be shown [4]. In addition, the medical staff should always establish a relationship of trust with the children before executing any treatment. To avoid children having any disturbing imagination, they can let the children touch the medical instruments. The children can simulate the situation by sensing and role-playing within the operating facility, and by clarifying their doubts with appropriate explanation, the children's degree of acceptance would increase, and cooperation would be obtained by reducing the children's refusals [5]. Through playing with the surgery team members of this research, the children were allowed to learn, simulate, role play and conduct other social behaviors which would reduce the preoperative fear.

When the children are under threat, in great discomfort or in pain, they would still wish to be in-control of the situation, to be accompanied by the relatives and to demand a familiar environment [6]. Before carrying out any treatment by the surgery team member of this research, the children were allowed to express their emotions and their reactions were all accepted. They were properly encouraged and their ideas and needs were listed; they were also given the opportunity to choose so as to increase their sense of control or divert their attention. When they have good behaviors, rewards and appraisals (such as balloons and stickers) were given to promote cooperation. This could reduce the stress before the treatment and strengthen their compliance. With regards to operating room environment, different colors were used to create a vivid and fun atmosphere. Pictures of common cartoon characters were hung on the walls to comfort their emotions. Having the children's families by their side could also relieve their fear, which also indirectly relieved their families' stress and anxiety. Lastly, a cross teamwork could improve the caring quality, the cockpit resource management developed in the aviation industry in the US, which is called CRM (Crew Resource Management), the effective usage of the staff, facilities, communication resources and other resources could complete the missions with high efficiency and security. The concept includes team leadership, condition monitoring, mutual cooperation, effective communication, threats and error management. The clinical medical system has similar characteristics with the aviation security, and both of them are high-risk teams. As shown in the research, trainings can further reduce medical mistakes, improve the communication and assistive abilities of the medical staff, improve the quality of patient care and reduce the workload of health care workers

caused by job burnout, and increase the working atmosphere and staff satisfaction. This could further be applied to patient safety, in particular, the anesthesia and surgical training of the ICU nurses and surgical teams [7].

Conclusion

The research team is grateful for the cooperation and supports of all departments as we were able to provide pre-schoolers dynamic care service in the mode of cross-team cooperation. Not only did it enhance the sense of accomplishment of nurses responsible for the pre-schoolers, but also took into account the feelings of their families, providing them information related to the sense of participation and the surgeries. This has increased the families' degree of satisfaction towards the preoperative care service and the degree of trust. However, this research did not explore and track the negative behaviors of the young children after returning home, such as night crying, nightmares, bedwetting, and others. It is recommended that future follow-up studies should be done for such relevant issues.

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