

## **REPORT**

# **The impact of parental presence in preschool children facial trauma surgery**

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**Abstract:** Wound repair surgeries are the most common childhood surgery in most countries. Medical treatment itself will impact children's mental health. The authors' objective was to study the impact of parental presence in preschool children and to reveal the conditions and precautions of it. Parental presence during facial trauma surgeries was analyzed, a group of 49 preschool children from April 1, 2013 to April 30, 2013 and their parents attended the experiment, contrasting with a group of 57 preschool children without parental presence. By means of clinical observation and questionnaire, the wound infection rate, surgery satisfaction, children and parents' anxiety level were studied. The authors found that parental presence would not increase the infection rate. Parental presence could reduce children's and their parents' anxiety level and increase the surgery satisfaction rate. Parental presence has a lot of positive significances about the children's emergency surgery, children's health care and parents' anxiety.

**Keywords:** Parental presence, preschool children, emergency surgery, psychological intervention, anxiety.

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## **INTRODUCTION**

Facial trauma is a common trauma form of young children. Children have to endure pain, fear and anxiety in medical treatment processing, which may affect children's mental health development. With the progress of health concept, people pay more and more attention to children's psychological health situation in medical treatment (Chen *et al.*, 2016; Gu *et al.*, 2016; Kain *et al.*, 2006; Luo *et al.*, 2016; Piira *et al.*, 2005; Zhong *et al.*, 2015; Zheng 2016). Medical providers try to reduce negative psychological impact produced by medical behavior on children, through the way of psychological intervention on both children and family members (Chen *et al.*, 2016; Gu *et al.*, 2016; Kain *et al.*, 2006; Luo *et al.*, 2016; Piira *et al.*, 2005; Zhang *et al.*, 2016; Zheng 2016). But in clinical practice, we found that the effects of psychological intervention supplied by medical provider during children's facial trauma surgery were very limited. In view of the importance of parents in children's psychological, we studied the parental presence in the facial trauma surgery. But there are few research articles studied the participation of family members in children surgeries (Chen *et al.*, 2016; Gu *et al.*, 2016; Kain *et al.*, 2006; Luo *et al.*, 2016; Piira *et al.*, 2005; Zhang *et al.*, 2016; Zheng 2016). It is still a doubt that whether family member's participation has its effect in children psychological interventions, whether family member's participation increases the chance of wound infection, whether family member's participation affects the surgery satisfaction

(Cahill *et al.*, 2015; Cahill *et al.*, 2015; Lee *et al.*, 2015; Spence *et al.*, 2001; Yung *et al.*, 2015; Zheng *et al.*, 2015). In this paper, we compared the group with parental presence in facial trauma surgery and the group without parental presence in facial trauma surgery within the same period, to find an effective way which can reduce the negative impact of surgery on preschool children's psychology.

## **MATERIALS AND METHODS**

### ***Clinical data***

All the participants were selected randomly from the preschool children (3 years to 6 years) who suffered from facial trauma and visited our department from April 1, 2013 to April 30, 2013; all of them were accompanied by their parents and were given cosmetic facial trauma surgical sutures under local anesthesia; a total of 114 cases. We differentiated those 114 cases randomly into 2 groups and each group had 57 cases. After preoperative screening, 49 cases of children and their parents in one group participated in the surgery which formed the experimental group (ratio of 86.0%). In accordance with the principal of voluntariness, all the 49 patients and their parents are willing to participate in the surgery (ratio of 100%). Another group formed the control group with 57 cases.

### ***Methods***

First, the parents who will present during the surgeries should fill in the form of self-linear anxiety score truthfully according to their physiological and

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psychological state. Then guide the parents to follow some basic principles and methods through simple and clear preoperative education. An aseptic principle is the first question should be educated. Medical practitioners should guide the parents to wear disposable hats and facial masks properly and not to pollute the surgical areas. The second question should be educated is the children psychological intervention methods. Children's fear of pain during surgery can be reduced by the methods of transfer their attention. Before the parents who involve in the operation help the nurses to fix the children, they should be told to fix the children's head, limbs and body through modest strength. If the force is too small, the anchor effect will not achieve, so children's actions will affect the operation. If the force is too large, it may not only cause the patient's discomfort or even damage, but also consume their parents strength. The communication of parents with medical personnel is also very important. The parents should know that their main feeling during the operation such as nausea, vomiting, flustered, etc, must be told to the medical staff. Before taking any action, parents have to get the permission of the medical staff. Before the children entering the operating room, medical staff and parent give a simple psychological intervention to the children together and encourage the children be brave to match the doctor's treatment. It will be useful that the children have been told before operation that if they cooperate with the treatment they can get a certain amount of bonus, such as delicious food, beautiful flowers, or a chance to go to the zoo with their families. Parents should also get the corresponding encouragement.

After bring the child into the operating room and ask him to lie in surgical bed in the appropriate position according to the operation requirement, keep his limbs parallel to his torso, then wrap him with light and soft blanket, brake him assisted by nurses and parents. Parents may choose a body part to fix from head, torso, arms or legs. In the process of surgery, medical staff should repeatedly tell the parents not to attach the surgery areas according to the actual situation. The psychological intervention guidance for both parents and their children also should be constantly repeated. The nurse must record the accidents happened intraoperative period. The accidents include: a) events of the aseptic principles violated, b) parents show syncope performances, c) parent's emotion is out of control, etc. Parents accompanied the surgeries should fill in Self-rating Anxiety Scale according to their intraoperative and postoperative psychological situation. General questionnaires should be completed after surgery. After surgery, parents should be informed to review the hospital after the first 5 days. In addition to observing the recovery of facial trauma when reviewing the hospital, the parents should fill in the "Preschool Anxiety Scale (parent report)" which is used to assess the anxiety psychology of the children during the first 5 days.

In the control group, everything are same to the experimental group except there are not parents present during the surgery and only health care professionals can give the children psychological intervention. Finally, all the obtained data were analyzed by statistical software.

For statistical analysis, SPSS 13.0 (SPSS Inc., Chicago, IL, USA) was used. For variables following normal distribution, data were presented as mean and standard deviations and were analyzed by student t test.  $P < 0.05$  was considered statistically significant.

## RESULTS

The Self-rating Anxiety Scale score of experimental and control groups: a) there are not significant differences between experimental and control group before the surgeries; b) both the parents of the 2 groups have higher anxiety level during preoperative periods than after the operation periods; c) the differences of the anxiety after operation between the 2 groups are clinically significant.

Postoperative wound infection of experimental and control group: the differences of postoperative wound infection rate between the 2 groups do not have statistically significant. In the experimental group, there are 6 cases violated the aseptic principle. The difference of infection rate between the cases occurred aseptic principle violation and the others has not been studied because the number of these case is so small. We will study this in the future.

The comparison of operation satisfaction between the experimental and control group: the operation satisfaction rate has statistical significance, and the operation satisfaction rate of experimental group is higher than that of control group. In cases of unsatisfactory operation, the ratio of parents who believe medical personnel "have tried their best" in experimental group is significant higher than that in the control group.

The impact of parents presence on children's mental anxiety: children's anxiety level of experimental group after the first 5 days is lower than that of the control group, the differences are statistical significant.

## DISCUSSION

With the popularity of the concept of the overall treatment of the medical services, the negative impact on children's psychological health caused by medical practice gets more and more concerned. In the previous treatment, we do psychological interventions during preoperative, intraoperative and postoperative periods, but the effect is limited. Especially in emergency situations, the effect of psychological intervention in children and their parents is dissatisfied because of the relatively limited preoperation

**Table 1:** General Contrast of experimental and control group

	Content	Experimental Group (n=49)	Experimental Group (n=49)	
Children's gender	Male	23	27	p>0.05
	Female	26	30	
Children ages	3-4	9	10	p>0.05
	5-6	16	18	
Parents' gender	Male	21	20	p>0.05
	Female	28	37	
Parents' ages	<30	22	27	p>0.05
	30-40	19	16	
	>40	8	14	
Parents' education	Primary	5	10	p>0.05
	Middle	7	11	
	University	37	36	
Parents' address	Rural	13	23	p>0.05
	City	36	34	

time before surgeries. Li Mei and other studies have shown that children's perioperative anxiety is mainly due to the fair of unfamiliar environment and separation with their families. We consider that children need parents company to deal with fear when they are in face of unfamiliar places and scenes (Dobson *et al.* 2015; Ghoneum *et al.*, 2015; Kain *et al.*, 1996; Mellotte *et al.*, 2015; Sterling *et al.*, 2015; Sandri *et al.*, 2015). At the same time families are isolated outside the operating room, they grasp nothing about the status of children, anesthesia situation and surgery situation, and they need company the children in order to reduce the anxiety. So it is particularly important that let the parents involve in facial trauma emergency surgeries. For this purpose, we conducted this preliminary research about the participation of parents in the children facial trauma emergency surgeries.

Parental presence can improve surgical satisfaction rate. This opinion is same with Kain who reports parental presence can increase the satisfaction rate (Breitenbuecher *et al.*, 2015; Bruera *et al.*, 2015; Kowgier *et al.*, 2015; Moore *et al.*, 2004; Smithers *et al.*, 2015; Othman *et al.*, 2015). Cui Gang thinks patient satisfaction rate lies in satisfaction of patient needs, living facilities, humanities, emotional investment of health care workers and so on (Apostolakis *et al.*, 2015; Dagher *et al.*, 2016; Horgan *et al.*, 2015; Freeman *et al.*, 2015; Kain *et al.*, 2000; Morise *et al.*, 2016; Ram *et al.*, 2002). These conditions also apply to pediatric patients. From the aspect of children's families, parental presence in the operation, on the one

hand, satisfies their requirements to know the surgeons clinical professional abilities, dispels their doubts about surgery doctors' professional ability, on the other hand satisfies their requirements to understand the trauma and surgery which can make the understanding more intuitive and imagic. From the aspect of children, parental presence meets the needs of children depending on their parents against perioperative anxiety. Those above are the primary factor by which parental presence improve the surgical satisfaction. Parental presence enable parents to understand the humanistic accomplishment conditions and medical conditions of the operating room better, so the emotional engagement of medical staff for the children and their parents can be observed and be felt better. This is the second factor improving the surgical satisfaction. In the physiological aspect, excessive anxiety can increase sympathetic nervous system excitable, and can cause the heart rate, blood pressure and breathing change, even lead to nausea or vomiting. In behavior, excessive anxiety always cause resistance and violence, which will hinder the operation smoothly. So the third factor improving surgical satisfaction is that parental presence can make children in a low level of anxiety which is conducive for children to understand the surgery and cooperate with the surgery. In the end, parental presence will improve the surgical satisfaction on the other hand because it can make the parents get more medical knowledge and can reduce the families excessive high expectations. The clinical significance of parental presence also lies the group constituted by dissatisfied parents. The ratio of parents in experimental group who

feel the surgical inefficient but think the surgeons have done their best is significantly higher than that of the control group. We consider the reasons are: a) parental presence can reduce the postoperative anxiety level which will help parents make rational judgment; b) parental presence can make parents more clearly understand the degree of trauma, can reduce the unknown of the children's status, surgery and anesthesia methods which may produce misunderstanding. Parental presence is commendable that it is a method to increase rationality and reduce misunderstanding.

Parental presence can significantly reduce the level of postoperative anxiety, especially when parents distract their child or reverse their child's anxiety perfectly. The result is consistent with Kain who considers children can benefit from the parents with lower anxiety (Chen *et al.*, 2016; Gu *et al.*, 2016; Kain *et al.*, 2006; Luo *et al.*, 2016; Piira *et al.*, 2005; Zhang *et al.*, 2016; Zheng 2016). In our impression, the ratio of children who adopt violent means to against medical practice is lower in experimental group than in control group. This means that parental presence can change the children's behavior of treating pain and anxiety during the operation. This is different with T Piira's report that parental presence doesn't have direct relationship with children's pain and behavior. The children's anxiety level after the first 5 days comparison shows that parental presence can significantly reduce children's persistent anxiety level.

According to our observation, although the related clinical data is still under study, we find that the higher the level of parental involvement during the surgery the more both parents and their children will benefit from it. For example, parents who help to fix the children have lower postoperative anxiety than the parents just looking on by the operating table. Another example, children who have both father and mother presence have a lower anxiety level than children who have only father or mother presence. This may be related to the following factors: a) both father and mother present during the surgery can give their children more security; b) there are two different ways from which we can choose out one more suitable to the children; c) if both the father and the mother are present during the surgery, they can provide psychological support to each other and can reduce each others psychological anxiety levels, and reduce the impact of negative emotion from parents to children. In addition, we also observed that mother's presences are more effective than fathers in reduce children's anxiety. This preliminary conclusion also needs further clinical data confirmation. The reasons may lie in: mothers take care children's daily living usually in China and children rely more on their mothers than fathers; parenting styles of mothers are moderater than fathers, children will benefit from the moderate parenting styles.

## CONCLUSION

This study allows parents to participate in the surgeries in order to reduce the negative impact of the medical treatments. Although parental presence has a lot of positive significances about the children's emergency surgery, children's health care and parents' anxiety, the study of this aspects are seldom involved before. From the angle of evidence-based medicine, this study proves that the parental presence has many advantages. Parental presence not only doesn't increase the infection rate or doesn't affect the operation effect, but also reduces children's and parents' anxiety.

In summary, parental presence has a lot of positive significances about the children's emergency surgery, children's health care and parents' anxiety.

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