

## The Effect of Informing Parents or Caregivers of Patients on Their Anxiety from Anesthesia Risks during Their Child's Surgery

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Received: 19 Feb. 2017; Received in revised form: 25 Mar. 2017; Accepted: 29 Apr. 2017

### Abstract

**Background:** Each patient who needs a surgical operation is going under general anesthesia with many risks. The purpose of this investigation was to determine whether the provision of detailed anesthetic risk information is associated with increased parental anxiety.

**Methods:** In this randomized clinical trial study 140 caregivers of patients admitted for surgery, was selected in order of their reference and they were asked to fulfill the test. In the next step, persons were distributed into two groups of the control group with an even number and the intervention group with odd number (according to the numbers on questionnaire). The routine information about the risks of anesthesia was given to the control group with an even number at the operation date in holding area, and they were asked to re-fulfill the questionnaire.

**Results:** The majority of parents (> 95%) preferred to have comprehensive information concerning their child's perioperative period, including information about all possible complications. For selected items, increased parental educational level was associated with increased desire for information ( $P < 0.050$ ). For Phase 2, when the intervention group was compared with the control group, there were no significant differences in parental anxiety over the 4 time points [ $F(1,45) = 0.6, P = 0.410$ ]. Furthermore, the interaction between time and group assignment was not significant [ $F(3,135) = 1.66, P = 0.181$ ].

**Conclusions:** We conclude that parents of children undergoing surgery desire comprehensive perioperative information. Moreover, when provided with highly detailed anesthetic risk information, the parental anxiety level did not increase.

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**Citation:** Mirmoeini SM, Hassani M, Habibi M. **The Effect of Informing Parents or Caregivers of Patients on Their Anxiety from Anesthesia Risks during Their Child's Surgery.** *Acad J Surg*, 2017; 4(2): 53-7.

**Keywords:** Surgery; Anxiety; Anesthesia; Risk; Children

### Introduction

Each patient during surgery, trauma and other causes of hospitalization may be affected to different side effects. This side effects not only cause pain and suffering in patients but also may put his life at risk. On the other hand, some of the complications of the surgery such as pneumonitis and hypoxia due to airway closure just be caused by anesthesia (1,2). In other words, each patient who placed under general anesthesia must be faced with the risks of anesthesia and awareness of the risks has been always questioned caregivers and especially parents of the patients (3-5).

It is obvious that these complications, in addition to endangering the lives of the patient makes medical and nursing staff spent more time and imposes additional costs to the patient who has suffered a lot already costs (6,7). The desire for information among parents of children undergoing surgery is of particular interest, as parents frequently are more concerned with their child's health than with their own (8-10).

Anesthesiologists have an ethical and legal responsibility to provide patients with detailed anesthetic risk information when obtaining the informed consent before surgery. How far disclosure must extend remains controversial. A common reason given for not providing detailed anesthetic risk information is that it may result in increased anxiety. Although an early study suggested that detailed procedural information may lead to increased patient anxiety (11-13), more recent reports disagree (5,14). All previous investigations regarding detailed anesthetic information were conducted either the day before surgery or on the day of surgery. Inglis and Farnill (5) suggested in their study that it is possible that increased anxiety in patients provided with detailed anesthetic risk information may eventually develop given enough time for contemplation of the risk information. Furthermore, with the increasing practice of same day admission surgery, the traditional pre-operative visit the evening before surgery has been virtually eliminated and most patients now receive their pre-operative anesthesia evaluation either on the

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morning of surgery or several days before the day of surgery. Since the timing of the anesthesiologist's pre-operative interview may have an effect on the anxiety level of the patient (5,15), previous investigations regarding detailed anesthetic risk information may be irrelevant for the present practice (16). This study aimed to hypothesized that the provision of detailed information about anesthesia-related risk, including incidence of adverse outcomes, is associated with increased parental anxiety.

## Materials and Methods

This randomized control trial study was conducted on parents of children who hospitalized for operation in Sina hospital, Tehran University of Medical Sciences, Tehran, Iran. Inclusion criteria including: individuals who fill informed consent form, and exclusion criteria were patients who hospitalized for non-surgical cases (such as internal disease). The study group contained parents or guardians of patients who underwent surgery. In total 140 patients were selected randomly, then using Stata software (version 8.0; StataCorp., College Station, TX) patients randomly were allocated into two groups (cases and controls), 70 persons in each group. Only one parent per child was allowed to participate in the study. All subjects were recruited 0-10 days before surgery while the children were undergoing pre-operative evaluation. After recruitment, sociodemographic data, including age, race, gender, marital status, educational level and income, birth order, number of siblings, family size, day care, and previous hospital, and surgical experience were obtained. The study was approved by our Institutional Review Board, and informed consent was obtained from all parents.

**Data collection method:** At first, 140 persons were selected among patients who hospitalized for operation in Sina Hospital wards. Then, to determine the basic anxiety of about them, the Zung standard test was conducted. Afterward, according to the numbers on the questionnaires, they were divided into two groups. In the next step, on the day of surgery, in the holding area and before entering the patient to the operation room for surgery, only routine information about the risks of surgery and anesthesia was given to the control group and routine information. In addition, to the detailed information was given to the intervention group. Then both groups, each having 70 members were tested by Zung standard test. After that, information was collected and compared with each other. Both control and intervention groups trained by the project manager which has been the General Medical Education and studied the authentic books in the field of anesthesia.

In control group, in the holding area and before entering the patient to the operation room, some routine information, such as information which given in surgery consent form, orally described for control

group (in 5 min for each one). And for cases, before entering the patient to the operation room, detailed information about operation conditions and complications were described to the intervention group. Some of this information included: heart disorders, seizures, kidney, hypoxia, reflux, damage to the vocal cords and hoarseness, tracheal stenosis, damage to peripheral nerve, or retina. Then, the gathered data from two groups were compared by statistical analysis methods such as t-test, chi-square, and Fisher exact test.

Demographic variables were examined using inferential statistics, including unpaired Student's t-test and chi-square analysis. To examine the effect of timing (in relation to surgery) of the pre-operative interview on parental desire for information, we analyzed the results based on 4 time categories: the day of surgery, 1-3 days before surgery, 4-7 days before surgery, and more than 7 days before surgery. Analysis of variance was used to compare the "overall desire index" of the 4 time groups. The association between the desire for information and various demographic variables was examined using Spearman correlation analysis, cross-tables, t-test, and analysis of variance. Furthermore, stepwise multiple regressions were used to determine which of the variables deemed relevant by the literature and our data could predict the desire for information. Comparisons were considered significant if  $P < 0.050$ . For the second phase of the study, demographic variables were examined using inferential statistics, including t-tests and chi-square statistics.

## Results

Baseline and demographic variables are presented in table 1. An overwhelming majority of parents indicated that they either "would like to know" or "have a right to know" for all the 14 items of the desire for information questionnaire (Table 2).

**Table 1.** Characteristics of children and their parents studied

Variables	Study subjects (n = 140)
Child's age (month), median (range)	60 (48-144)
Parent's age (year), mean $\pm$ SD	36 $\pm$ 6
Timing of study (days), median (range) <sup>a</sup>	4 (0-10)
Previous hospital and surgical experience (%)	
Yes	42
No	58
Parents	
STAI trait, mean $\pm$ SD	37 $\pm$ 9
STAI state, mean $\pm$ SD	41 $\pm$ 11
Education (%)	
> High school	89
< High school	11

STAI: State-trait anxiety inventory; SD: Standard deviation;  
<sup>a</sup>Number of days between start of study and surgery

Of particular interest was the finding that most parents indicated that they would like to know or have

a right to know about “all possible complications” (96%) and not only “common complications” (97%) or “dangerous complications” (95%). Scores on the overall desire index ranged from 15 to 42 with a median of 34.

**Table 2.** Characteristics of studied children and their parents

Variables	Control (n = 70)	Intervention (n = 70)	P- value
Child's age (month), mean (range)	67 (48-140)	75 (51-136)	0.732
Parent's age (year), mean ± SD	34 ± 5	36 ± 6	0.644
Timing of study (days), mean (range)*	4 (0-10)	4 (0-10)	NS
Baseline parental anxiety, mean ± SD	39 ± 6	41 ± 11	0.611
Parental education (%)			0.501
≥ High school	85	94	
< High school	15	6	

\*Number of days between start of study and surgery. SD: Standard deviation

Timing of the pre-operative interview had no effect either on the overall desire index ( $P = 0.580$ ) or on the responses to 12 of 14 questionnaire items ( $P > 0.050$ ). Parents who were studied on the day of surgery, however, indicated that they have a right to know about all possible complications less frequently than parents who completed the questionnaire 1-3 days before surgery (49% vs. 67%,  $P = 0.020$ ). Similarly, parents who were studied on the day of surgery indicated that they have a right to know about common complications less frequently than parents who completed the questionnaire 1-3 days before surgery (44% vs. 58%,  $P = 0.050$ ).

We have also examined whether any of the demographic or baseline variables are a predictor for increased desire for information. Temperament of the child; race, gender, marital status, educational level, and income of parent; birth order, number of siblings,

day care, previous hospital or surgical experience of the child and parent, ASA status, and the surgical procedure were not associated with an increased desire for information. Similarly, a multivariate linear regression model, in which the overall desire index was the outcome, identified no demographic predictors. For questionnaire items 2, 3, and 8-14, however, a large proportion of parents with a higher level of education chose the “have a right to know” option ( $P < 0.050$ ).

There were no significant differences between the control and intervention groups regarding demographics such as age, gender, educational level, or baseline anxiety and temperament of the child, or parent (Table 3). The mean state-trait anxiety inventory (STAI) pre-intervention anxiety scores of the routine and detailed information groups were 46 + 11 and 42 + 10, respectively ( $P = ns$ ). These means are similar to those reported by Spielberger for medical and surgical patients (42 + 14). There were no significant differences in parental anxiety for the two groups over the 4 time points. Furthermore, the interaction between time and group assignment was not significant. Further, there was also no evidence to suggest that parents with an anxious personality (upper 25% of STAI trait subscale) who had been given highly detailed information became more distressed at any of the three post-interview assessments ( $P < 0.050$ ) compared with calm parents (lower 25% of STAI trait subscale).

## Discussion

This study demonstrates that the vast majority of parents prefer to have comprehensive information concerning their child's general anesthetic, including information about all possible complications. Moreover, in parents of children undergoing general anesthesia and outpatient surgery, very detailed anesthetic information of what might go wrong does not increase parental anxiety, and has the advantage of allowing parents a fully informed choice.

**Table 3.** Parental desire for perioperative information

Variables	Parental desire preference (%)		
	Prefer not to know	Like to know	Have a right to know
All possible complications	4	35	61
Dangerous complications	5	36	59
Common complications	2	44	54
Details of needles used	4	49	47
Length of anesthesia	1	51	48
Details of pain/pain relief	1	46	53
Alternative methods of anesthesia	4	51	45
When allowed to get up	1	55	44
When allowed to eat and drink	1	54	45
Location of operating rooms	2	55	43
Meeting the anesthesiologist	1	57	42
Details regarding an intravenous Foley catheter	1	49	50
Place of anesthesia recovery	1	56	43
Details of premedicant drugs	1	44	55

Comparative studies, investigating anxiety levels in patients given a limited amount of information versus more detailed information concerning procedural and anesthetic risks, report conflicting results. In another study found that, although the majority of patients were satisfied when they received more detailed information about the risks of angiography, up to 35% of patients were made uncomfortable by the information. Similarly, in another study (4), adult patients who were given extensive information preoperatively were found to be more tense, depressed, and uncomfortable. Conversely, no increase in pre-operative anxiety was demonstrated in a study of British and Scottish men undergoing elective herniorrhaphy when presented with detailed risk information (7) or in Danish patients undergoing general anesthesia (6). Likewise, in a recent study (5) showed that patients who received detailed information, including numerical estimates of anesthesia-related complications, were no more anxious than those given minimal information regarding risks. Some of these contradictory results may be explained by the methodological complexity of this issue. None of the previous studies have examined the effect of variables, such as coping, on the response of the individual patient, and most studies used global measures of anxiety with no documentation of adequate instrument reliability and validity.

Analog anxiety scale and a single numerical estimate to compare two groups of patients who either received no information or information about eight significant risks (16). The anxiety level after the provision of information in that study, however, was determined in the operating room, after the patients were premedicated with secobarbital. Furthermore, all previous investigations were conducted either the day before surgery or on the day of surgery, and it is possible that, as time passes between receiving detailed risk information and surgery, rumination in patients will result in increased anxiety (5). In addition, most patients now receive their pre-operative anesthesia evaluation either on the morning of or several days in advance of surgery, and thus conclusions obtained from previous investigations may be irrelevant for the present clinical practice.

We have noted that the parents who were studied on the day of surgery indicated that they have a right to know about both all possible complications and common complications less frequently than parents who completed the questionnaire 1 to 3 days before surgery. This phenomenon may be related to a greater degree of situational anxiety experienced by parents on the day of surgery. We also demonstrated that increased desire for information was not related to variables such as age, race, marital status, educational level, history of previous hospitalizations, ASA status, and the surgical procedure the child underwent. All parents studied had a consistently high desire for

information. We should emphasize, however, that our study population for Phase 1 consisted of parents of children ASA physical Status I or II who were about to undergo outpatient surgery, and it is unclear from these data how parents of sick children, ASA III or IV, undergoing major nonelective surgery would respond.

For anesthesiologists, the issue of informed consent poses a special dilemma. Although we recognize the legal and moral need for informed consent, we must consider the effects of extensive information disclosure on patients, specifically with respect to increased anxiety. Increased pre-operative anxiety in adults has been shown to correlate with post-operative outcomes, such as increased post-operative analgesic requirements and prolonged recovery and hospital stay (17). Further, increased parental pre-operative anxiety has been shown to result in increased pre-operative anxiety in their children, which in turn may lead to immediate post-operative negative psychological changes, such as sleep and eating disturbances and new onset enuresis (18). We should, however, recognize that anxiety is only one of the issues that need to be considered when discussing informed consent. Indeed, the primary rationale of informed consent is to support and respect the autonomy of the patient, and not to decrease anxiety. That is, some patients may want to know all possible risks of anesthesia and surgery, even though it makes them exceedingly anxious.

At present, there is a considerable debate in the anesthesia literature, and in medical literature generally, regarding how far the anesthetic disclosure should extend. In a study (19) author recommended that "it would not be unreasonable to mention all material risks, i.e., those risks which the average, reasonable patient would regard as significant." More recently, another study (20) recommended that an informed consent should include mention of any risk that "would result in permanent severe injury." In contrast, Waisel and Truog (21) recommended that the information provided should be tailored to fit the special needs of each individual. The findings of our study do not support the use of therapeutic privilege in withholding information about the risks associated with general anesthesia. We, therefore, believe that informed consent should strike a balance between providing the patient with details regarding significant risks while considering the individual needs of each patient.

In our study population, however, 85% of the control group and 94% of the intervention group parents had more than 12 years of education (Table 3). Further, even after we excluded all parents with <12 years of formal education, our findings persisted. Finally, all children involved in this investigation were of ASA Physical Status I or II who underwent elective outpatient surgery and it is unclear from this investigation how parents with a history of previous surgery or hospital experience, or parents of sick

children, ASA III or IV, undergoing major nonelective surgery would respond to different levels of anesthetic risk information. However, nonelective or major surgery shares most of the anesthetic risks associated with elective outpatient surgery, these findings were consistent with previous studies (22,23).

This study demonstrates that most parents prefer to have comprehensive information concerning their child's perioperative period. Further, very detailed anesthetic information of what might go wrong does not increase parental anxiety and has the advantage of allowing parents a fully informed choice.

## Conflict of Interests

Authors have no conflict of interests.

## Acknowledgments

The authors would like to thank Sina Hospital staff and participants of this study.

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