

The Influence of Continuity of Peri-Operative Anesthetic Care on Patient Satisfaction: A Prospective Cohort Study

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ABSTRACT

Background: The doctor-patient relationship, medical competence and patient expectations influence patient satisfaction with anesthesia. Pre-operatively all patients are routinely assessed by an anesthesiologist. However, in many centers, the anesthesiologist who performs the pre-operative evaluation will not necessarily be the anesthesiologist who provides the intraoperative service. This study evaluated the effect of this practice on patient satisfaction, level of confidence and anxiety among adult patients undergoing elective surgery.

Methods: This prospective cohort study included 100 patients scheduled for elective surgery under general anesthesia. In Group A (n=50) patients were evaluated and anesthetized by the same anesthesiologist. In Group B (n=50) the pre-operative assessment and actual anesthesia were performed by two separate anesthesiologists. On the first postoperative day patients completed a questionnaire designed to evaluate their pre-operative confidence and overall satisfaction with the anesthetic experience.

Results: Overall satisfaction was similar between groups. Upon meeting a familiar anesthesiologist on the morning of surgery expectation for continuity of care was significantly higher in Group A ($p = 0.07$). Similarly, the subjective feeling of confidence in the fact that continuity of care was maintained was significantly higher in Group A when compared with Group B ($p < 0.05$). No difference was found in reported anxiety level. Postoperative pain, nausea and vomiting were similar between groups.

Conclusion: The doctor-patient relationship established during the pre-operative anesthetic evaluation positively influences patient confidence. Therefore, continuity of care should be maintained into surgery. However, the use of multiple anesthesiologists did not affect overall satisfaction.

Keywords: Anesthesia; Perioperative; Continuity of Care; Divided Care

Introduction

Quality assurance has become central to Health Care Management [1]. Furthermore, patients' perception of their perioperative care is a major variable in the quality assurance process [2]. Consequently, patient satisfaction with anesthetic experience is increasingly important to medical institutions. The majority of surgical patients experience significant perioperative anxiety [3-5]. Anxiety is based upon an uncertainty regarding the anesthetic and surgical process, past experience, and personality characteristics including individual

copied mechanisms. This anxiety may adversely affect the induction of anesthesia and recovery, as well as substantially impair patient satisfaction with the perioperative care. Other sources of anxiety include fear of «not waking up», postoperative pain and nausea or vomiting, as well as the fear of needles and surgical drains [6,7]. Since patients' first encounter with anesthesiology occurs during the pre-operative evaluation, their satisfaction with anesthesia may be significantly affected by this initial interaction [8,9]. As a perioperative physician, the anesthesiologist performs a pre-operative evaluation, determines possible optimization of patient's condition prior to

surgery and assesses the risk of surgery related morbidity and mortality. During this evaluation, the patient's past medical history is reviewed, a physical examination is performed, and any relevant laboratory or imaging studies are observed.

The outcome of this doctor-patient interaction is the formation of a perioperative plan of care as well as obtaining informed consent regarding the planned anesthesia and postoperative pain management. In addition, the anesthesiologist must develop doctor-patient trust and instill patient confidence. This process relieves anxiety which may promote a faster recovery [10]. Operating room production pressures have resulted in the establishment of pre-operative anesthesia clinics in which large numbers of patients are evaluated by anesthesiology personnel. This prototype of «industrial medicine» is characterized by the lack of treatment continuity and the inability to procure a stable anesthesiologist-patient relationship during the perioperative period. When past studies regarding the importance of the patient-anesthesiologist relationship are considered [2,4,7,9,11], we theorized that the level of patient confidence will be adversely affected if the patient meets an unfamiliar anesthesiologist on the morning of surgery. However, our theory has not been subjected to rigorous investigation. Therefore, we performed a prospective study aimed to assess the effect of single versus separate anesthesiologists on patient perioperative anxiety and confidence as well as on their satisfaction with the anesthetic process.

Methods

The current prospective observational study was conducted during the period from December 2018 to March 2019. Ethical approval for this study (Protocol 0226-18-MMC) was provided by the Research Ethics Committee of Meir Medical Center, Kfar Saba, Israel (Chairperson Prof Ilan Cohen) on November 15th, 2018. Since no intervention was made, and the study only considered existing data and questionnaires, the committee decided that a formal consent form was exempt and consent in the form of completing the questionnaire after a verbal clarification will suffice. One-hundred ASA I-III adult patients scheduled for elective surgery under general anesthesia were enrolled. All patients were at least 18 years of age and spoke Hebrew as mother tongue. Prior to the pre-operative evaluation, based on routine external random allocation by the departmental administration of elective surgical patients to anesthesia providers, and after reviewing consecutive patients' electronic charts for inclusion and exclusion criteria, patients were allocated into two equal groups: Group A was comprised of 50 patients who were scheduled for a pre-operative evaluation and actual intraoperative anesthetic care by the same anesthesiologist. Group B consisted of 50 patients who were allocated to two different anesthesiologists for their pre-operative evaluation and intraoperative care.

Patients with any known central nervous system or psychiatric

disease as well as those treated with anxiolytic medications were excluded from the study. In all cases the pre-operative evaluation was performed one day before surgery. Furthermore, all anesthesiologists involved in the study had at least 2 years of clinical experience and were blinded to the study. One day following surgery patients were approached and enrolled after providing consent. Patients completed a questionnaire (Appendix 1) based on the work by the American Society of Anesthesiologists (ASA) Committee on Performance and Outcomes Measurement regarding their level of satisfaction with anesthetic care, with additional questions specifically related to our study. In order to isolate the significance of continuity of care on patient satisfaction, level of confidence and anxiety, other factors known to affect these outcomes including postoperative nausea or vomiting, postoperative pain, and awareness during intubation or surgery were collected and compared. The sample size was calculated using values of 90% satisfaction for the single anesthesiologist group and 70% for the separate anesthetic care group. Based on this calculation, 100 patients would be needed to achieve a power of 80% with an α of 0.05.

Statistical Analysis

Continuous variables were compared using t-test. Categorical variables were compared using χ^2 test. $P < 0.05$ was considered significant. All p values are 2-tailed. Statistical analysis was performed using SPSS version 25.

Results

100 patients participated in this prospective cohort study. Age, type of surgery, level of education and other descriptive characteristics were similar between groups (Table 1). There were more females than males in group A ($p = 0.016$). Overall patient satisfaction was high in 93% of patients, without a significant difference between groups. Furthermore, patients' satisfaction with the information provided by the anesthesiologist, the explanation about expected adverse effects of anesthesia, the perceived professionalism of the anesthesiologists who performed the pre-operative evaluation or the actual anesthesia, all did not differ between groups. 53% of all patients expressed concern during the pre-operative visit as to whether the anesthesiologist in the pre-operative visit will also provide the intraoperative anesthesia. Patients in Group A stated that having a single anesthesiologist throughout the perioperative care answered their expectations, significantly more than in Group B ($p = 0.07$). When assessing patients' level of confidence on the morning of surgery, the questionnaire revealed that in Group A, 47 patients (94%) reported a subjective increased level of confidence upon meeting the anesthesiologist familiar to them from the pre-operative evaluation. Furthermore, within Group B, 30 patients (60%) reported a decreased level of confidence upon meeting an unfamiliar anesthesiologist on the morning of surgery. No significant

difference was found in level of anxiety in the morning of surgery. No difference in incidence of postoperative pain, postoperative nausea and vomiting, or satisfaction with the treatment for these adverse effects was found between groups. Furthermore, no difference was found in rate of intraoperative awareness or recollection of pain or suffocation from the breathing mask. Laryngeal mask airway (LMA) and endotracheal tube were used in similar rates between groups.

Table 1: Patient Demographics and specific descriptive characteristics.

	Group A	Group B	P-Value
Number (n)	50	50	
Age (yr)	49.1	51.4	NS
Gender (F/M)	30 / 50	18 / 32	*0.016
ETT / LMA	42 / 8	45 / 5	NS
Previous GA	37/50	41/50	NS

Discussion

Our study examined the influence of continuity of anesthetic care on patients' confidence, anxiety, and level of satisfaction. Even though maintaining continuity of care is commonly recommended, few studies have rigorously investigated this recommendation regarding anesthesia and perioperative anesthetic care [12]. Furthermore, it appears that this recommendation is, in fact, an extrapolation from other medical disciplines where continuity of care was found to increase patient satisfaction [11-13]. In our study, the overall level of satisfaction with perioperative anesthetic care was high. This is consistent with the findings of other studies that reported a similarly high level of patient satisfaction with perioperative anesthetic care (90%) [11,14]. Furthermore, similar to the findings of Harms et al [12], in our study the lack of continuity of care did not affect overall level of satisfaction with the perioperative anesthetic care. However, the results of our study demonstrate that continuity of care significantly affected the pre-operative level of confidence in the anesthesia related care. This finding is supported by the fact that almost all patients in Group A (94%) reported an increased level of confidence upon meeting an anesthesiologist familiar to them from the pre-operative evaluation, as opposed to patients in Group B who reported a decreased level of confidence as a consequence of meeting an unfamiliar anesthesiologist. When analyzing our results, we postulate that the lack of correlation between patient confidence and overall satisfaction is likely multifactorial. First, it should be emphasized that questions regarding level of confidence deals with the specific time immediately prior to anesthesia and surgery, while questions regarding overall satisfaction relates to the whole perioperative process, after the surgery is over.

Furthermore, when patients regarded the effect of meeting an unfamiliar anesthesiologist on their subjective sense of confidence, they were immediately before anesthesia and surgery and therefore

emotionally preoccupied with the uncertainty of success of these procedures. The unfamiliar anesthesiologist magnified the feelings of vulnerability and uncertainty. By contrast, overall patient satisfaction is assessed after the patient has already successfully undergone surgery and anesthesia. We postulate that this has a positive causal effect upon overall patient satisfaction regardless of continuity of care. Secondly, the fact that the anesthesiologists performed a postoperative patient visit in order to provide and gather the questionnaires may have improved overall satisfaction with anesthesia and surgery. This hypothesis is supported by the findings of Heidegger [13], who reported that a single postoperative visit by the treating anesthesiologist (or another member of the anesthesia team) significantly increased patient satisfaction with anesthetic care. Thirdly, patients consider interpersonal doctor-patient relationships and their emotional experience as very important [11]. In our study, during the pre-operative assessment, over 50% of patients actively enquired the anesthesiologist whether they will also provide the intraoperative anesthesia. In a study by Simini, [14,15] 165 patients were asked during their pre-operative evaluation, whether their level of anxiety would be affected by having the knowledge that the anesthesiologist performing the pre-operative assessment would be the treating physician during the surgical procedure.

The majority of patients (74%) reported that their level of anxiety would be decreased. In recent times, soaring medical expenditure and consequent operating room production pressures have resulted in the establishment of pre-operative anesthesia clinics. By definition, this work model does not facilitate treatment continuity or the creation of a perioperative anesthesiologist-patient relationship. The results of our current study highlight the possible implications of multiple anesthesiologists being responsible for perioperative patient care. Furthermore, we postulate that meeting the patient for the first time immediately before surgery and providing anesthesia based upon the pre-operative assessment of a colleague is detrimental to the desired standard of anesthetic care. However, this subject requires further investigation. While anesthesiologists and administrators are in agreement as to the importance of the clinical aspects of the pre-anesthetic assessment (medical history, previous anesthesia etc.), the possible implications of «industrial medicine» and the lack of treatment continuity from the patient's perspective are seldom discussed. The results of this investigation demonstrate that the doctor-patient relationship created during the pre-operative anesthetic evaluation positively influences patient confidence. Our study, incorporating a practical, real-world design, is therefore generalizable and ought to be considered where divided care is practiced. Overall, when determining policy, it should be remembered that for the patient, continuity of care is associated with improved confidence and security with the perioperative process.

Authorship Criteria

1. Concept and design of study or acquisition of data or analysis and interpretation of data.
2. Drafting the article or revising it critically for important intellectual content; and
3. Final approval of the version to be published.

This manuscript has been read and approved by all authors, the requirements for authorship as stated in this document have been met, and each author believes that the manuscript represents honest work.

Conflict of Interest

None.

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