

Post-operative recovery: day surgery patients' preferences

K. Jenkins, D. Grady, J. Wong, R. Correa, S. Armanious and F. Chung*

Department of Anaesthesia, University of Toronto, Toronto Western Hospital, Toronto, Ontario, Canada
M5T 2S8

*Corresponding author

Due to the growing importance of quality assurance and cost containment in healthcare, eliciting patients' preferences for post-operative outcomes may be a more economical and reliable method of assessing quality. Three hundred and fifty-five day surgery patients completed a pre-operative written questionnaire to identify patients' preferences for avoiding 10 particular post-operative symptoms: pain, nausea, vomiting, disorientation, shivering, sore throat, drowsiness, gagging on the tracheal tube, thirst and a normal outcome. The two scoring methods used to evaluate preferences were priority ranking and relative value scores. The effects of age, gender, previous health status, type of surgery and previous experience of anaesthesia on patients' preferences were also examined. Avoiding post-operative pain, gagging on the tracheal tube and nausea and vomiting are major priorities for day-case patients. Anaesthetists should take patients' preferences into consideration when developing guidelines and planning anaesthetic care.

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Recent advances in surgical practice combined with the use of 'fast-tracking' anaesthetic techniques have led to a dramatic increase in the number of patients discharged on the same day as surgery. Although 70–80% of all elective cases in North America are now performed as day surgery, there has been little critical evaluation of the outcome of the service.

Obtaining patient perceptions may be more economical and reliable than traditional methods of assessing quality.¹ By identifying what patients want, we can tailor guidelines for anaesthetic care to suit patients' needs and improve the quality of care provided. Preference-based guidelines are more likely to meet criteria for high quality guidelines than those developed without considering patients' preferences.²

To our knowledge only one group of investigators, Macario and colleagues,³ has attempted to identify and measure patients' preferences for avoiding adverse outcomes in the post-operative period. Their study population included in-patients (63) and day-case patients (38) and was not powered to determine whether physiological characteristics, variables or type of surgery affected patients' preferences.

The aim of this study was to use patient and anaesthetist interviews to generate items for inclusion in a questionnaire, identifying day-case patients' preferences for avoiding post-operative symptoms. The secondary aims were to use this

questionnaire to measure patients' preferences for the post-operative recovery and to validate Macario's findings using a larger sample size. The effect of patient age, gender, American Society of Anesthesiologists (ASA) status, type of surgery or a history of previous anaesthesia on patients' responses was also assessed.

Methods and results

Institutional Ethics Committee approval was obtained and all the patients gave informed written consent. Qualitative in-depth interviews of 22 unpremedicated adult day-case ASA I and II patients and 15 anaesthetists were conducted. Items generated from patient and anaesthetist surveys were used to devise the final questionnaire, ensuring face and content validity.

The final questionnaire was administered to 400 consecutive unpremedicated adult ASA I and II patients in the day surgery unit, about to undergo short (1–2 h) day-case surgical procedures under general anaesthesia or regional anaesthesia with sedation. Physical characteristics including the patients' age, sex, ASA status, type of surgery and previous surgery were recorded.

Two different methods were used to elicit patients' preferences for avoiding 10 different post-operative outcomes. First, patients were asked to rank their preferences

Table 1 Description of post-operative symptoms

Symptom	Description
Pain	You wake up moaning or writhing and need extra painkillers
Nausea	You feel queasy with a strong desire to vomit
Vomiting	You are retching and bringing up liquid or solids
Disorientation	After waking up, you do not know your surroundings
Shivering	You feel cold and have shaking of your body
Sore throat	Your throat is painful and it may hurt when you try to swallow
Normal	You are awake, alert, comfortable and aware of your surroundings
Drowsiness	You feel very sleepy and tired and do not want to get out of bed
Gagging on the endotracheal tube	You have a choking sensation due to the presence of a small tube in your throat to assist your breathing
Thirst	Your mouth feels dry and you have a strong desire to drink

between 1 and 10 for avoiding a particular set of post-operative symptoms from 1 'least upsetting outcome' to 10 'most upsetting outcome'. Each symptom was clearly defined, for example, nausea as 'you feel queasy with a strong desire to vomit' (Table 1). Normal was included and defined as 'you are awake, alert, comfortable and aware of your surroundings'. They were instructed not to use the same score for more than one outcome. Second, preferences were elicited for the same set of outcomes using relative value scores. Patients were asked to imagine a situation where they were given \$100 to spend so that they could reduce the likelihood of particular symptoms occurring in the immediate post-operative period. The more money they spent on a particular symptom the less likely it was to occur, but the total amount had to equal \$100. The dollar allocations assigned to a particular outcome were used to determine the relative value of each outcome.

Using the same methods as Macario and colleagues,³ the internal validity of the questionnaire was tested by analysis of the correlation between the ranking data and the relative value data using Spearman-Rank correlation. Symptoms within the ranking scale and within the relative value scoring scale were compared using non-parametric testing (Kruskal-Wallis). A *P* value of <0.05 was considered statistically significant.

Three hundred and fifty-five day-case ASA I and II patients completed the questionnaire. The majority of patients were female (62%) and ASA class I (77%). Most patients were scheduled to undergo orthopaedic (46%), gynaecological (31%) or ophthalmic (17%) procedures and 79% of patients had undergone surgery and anaesthesia previously. The age range was 15–80 yr, average 39 yr.

Using patient rank scores to measure patients' perceptions of outcomes, pain, nausea and vomiting and gagging on the tracheal tube were considered to be most upsetting followed by disorientation, sore throat, shivering, drowsiness and thirst. Using dollar allocations to measure the relative value of avoiding each symptom, pain was assigned the highest relative value score, followed by gagging on the tracheal tube, vomiting and nausea (Table 2). The correlation coefficients between median rank score and relative

Table 2 Results of priority ranking and relative value scores

Outcome	Rank (median (range))	Relative value score (mean (SD))
Pain	9 (1–10)	26.1 (19)
Gagging on tracheal tube	8 (1–10)	16.9 (16)
Vomiting	8 (1–10)	15.6 (15)
Nausea	8 (1–10)	11.6 (11)
Disorientation	6 (1–10)	6.6 (9)
Sore throat	5 (1–10)	6.1 (8)
Shivering	5 (1–10)	5.1 (6)
Drowsiness	4 (1–10)	5.3 (8)
Thirst	4 (1–10)	4.9 (9)
Normality	1 (1–4)	0.5 (2)

value score were significant for all symptoms (*P*<0.05). These findings are consistent with those of Macario's smaller study of 101 patients which used 'anaesthesia outcomes' formulated by a group of experts with no patient input.³

Comment

To our knowledge, this study is the first to examine the effects of age, gender, previous health status (based on ASA classification), type of surgery and previous experience of anaesthesia on patients' preferences for day surgery. Comparing patient preferences in older (50+ yr) vs. younger age groups, the older patients attributed less importance to adverse outcomes than the young, ranking pain, nausea and vomiting lower (*P*<0.05). This finding is consistent with previous work that showed older patients were generally more satisfied with care than younger patients.⁴

There were no significant differences in scores among the other subgroups of patients. Regarding sex differences, other studies reported that women expressed more fears and different concerns about anaesthesia than men.^{4,5} This study found no difference in patient preferences between men (38%) and women (62%). ASA status and type of surgery, similarly, had no significant effect on patient preferences.

There were no significant differences in preferences of those who had never experienced anaesthesia (21%) and those who had (79%), in keeping with the results of Klaufa and colleagues.⁵ This finding is contrary to the normal expectation that previous good experiences may allay anxiety.

Measurement of patient satisfaction with anaesthetic care is inherently difficult as it depends on a multitude of factors. Patients may just be expressing global satisfaction with hospital care and surgery, relief that they have survived intact or may be unwilling to criticize the system for fear of jeopardizing their future care. Patients tend not to recall anaesthetic complications when questioned generally (10%); however, most of the same group (80%) will identify at least one complication when shown a list of specific symptoms.⁶ Hence single global ratings of satisfaction with anaesthesia, although uniformly high (>80%), are insensitive to detecting deficient areas of care. The use of psychometric methods, which quantitatively assess the desirability of health states or outcomes from the patient's perspective, may be more useful.

Patients' preferences in this study highlight areas for clinical improvement. Incidences of minor morbidity, such as pain and post-operative nausea and vomiting, have not changed significantly over the last 25 yr despite improvements in anaesthetic drugs and techniques. Post-operative pain should be aggressively managed, both in the recovery room and following discharge. The ongoing debate of the relative benefits of prophylactic vs. rescue antiemetic therapy should take each patient's preference for post-operative recovery into consideration.

Although efforts to minimize patients' discomfort as a result of gagging on the tracheal tube should be undertaken, patient safety must not be compromised. The description of 'a choking sensation due to the presence of a small tube in your throat to assist your breathing' may have influenced patients to assign a high score to this outcome. Anaesthetists should be encouraged to explain to their patients pre-

operatively that some outcomes may be inevitable if safety is to be ensured, but reassure them that they are temporary and short-lived.

Further work should assess patients' perceptions of quality of care including, not only clinical outcome, patient's expectations and satisfaction, but also other aspects such as the care environment, for example hospital facilities and of the interpersonal skills of the staff. Also, processes that enable the care to be delivered should be examined, for example technical aspects, operating room turnover and discharge procedures.^{7,8}

In this growing era of quality assurance and cost containment, clinicians should take patients' preferences into consideration when developing guidelines and planning anaesthesia care.

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