

Evaluation of patients' perception against the Modified Postanaesthetic Discharge Scoring System for home readiness after ambulatory surgery

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Abstract

Objective: To determine if the patients' or their guardians' perception of their home readiness compares with the Modified Postanaesthetic Discharge Score System (MPDSS).

Methods: Not less than one hour after discharge from the post anaesthetic care unit, the patient or patients' guardian was given a set of questions that he/she answered. The questions asked if the patient felt fit enough to be discharged. The investigator, unaware of the answers, assessed the patient using the MPDSS. Patients with MPDSS score 9 were considered fit for home discharge with escort. Both admission and readmission were recorded.

Keywords: Ambulatory surgery, Home readiness, Patient's perception, Modified Postanaesthetic Discharge Scoring system.

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Results: Data from 119 patients showed good correlation between the patients' perception of need to stay longer and the MPDSS ($p < 0.001$). Similarly both patients' prediction and MPDSS indicated the need for admission ($p < 0.001$ and $p = 0.003$ respectively).

Conclusions: Both patients' perception and MPDSS were indicative of fitness of discharge. A number of patients did not feel the need to stay longer despite having discomfort. Some patients would have preferred to see an anaesthetist before being discharged. This was more common in paediatric cases.

Introduction

With the use of fast-track anaesthesia and recent advances in surgical technique, more surgical procedures are now completed on an ambulatory basis. About 70-80% of all elective cases in North America nowadays are performed as day surgery [1]. Other countries are aiming for similar figures as well. The advantages of ambulatory surgery include cost reduction and the efficient use of resources. With the ever increasing patient demands and government financial pressures, cost containment in the healthcare industry is a worldwide concern. However, to ensure early discharge without compromising safety, patients usually need to be assessed by a nurse or an anaesthetist before going home. This is labour intensive and sometimes inefficient.

Appropriate discharge of the ambulatory patient is a multifactorial problem. Efficiency has to be balanced with patient safety, especially in the increasingly litigious society [2]. A number of studies have been conducted to ensure early and safe discharge. Tests include simple reaction time (SRT), choice reaction time (CRT), critical flicker fusion time (CFFT), digital symbol substitution test (DSST) and perceptive accuracy test (PAT) [3]. However these tests have not been validated. One efficient method is to use the modified postanaesthetic discharge scoring system (MPDSS) to assess home readiness. This scoring system has been validated by Marshall et al [4]. However, a patient could still be detained unnecessarily despite adequate recovery as a result of waiting to be assessed. It would thus be advantageous if the patients had a means of deciding their own discharge readiness. Moreover, a patient participating in his own discharge decision would be less likely to instigate litigious proceedings. It has been shown that patients who have an active role in decision making have increased patient satisfaction [5]. A search through the Medline database from

1966 to date did not reveal any investigations comparing a patient or guardian's perception of his/her own home readiness with the postanaesthetic discharge scoring system. We therefore proposed a prospective cross-over study to address this point.

Methods

Following ethical approval from the local Research Ethics Committee, 119 patients admitted for ambulatory surgeries from 1-11-04 to 31-1-05 were invited to participate in this study. Informed consent was obtained from all patients. Those who refused to participate or required inpatient stay due to intra-operative complications were excluded from this study.

Postanaesthetic recovery was divided into 3 stages [6]: Stage I recovery was from discontinuation of anaesthesia until patients have recovered their protective reflexes and motor function. This took place in the post anaesthesia care unit (PACU) with suitably trained nursing staff. Stage II recovery was the immediate clinical recovery to home readiness. Patients were coordinated and ambulating. This took place in an ambulatory surgical unit (ASU). Stage III recovery occurred after patients were discharged when they undergo full physical and psychological recovery at home. In our study, we concentrated on Stage II. Readmission was arbitrarily defined as admission to hospital within 48 hours after discharge due to a complication of surgery or anaesthesia. Patients undergoing day surgical procedures followed standard hospital procedure. After the surgery, the patients were transferred to the PACU. The patients were discharged from the PACU when deemed suitable by the attending anaesthetist. On discharge from the PACU, the patient returned to the ASU.

Patients were assessed for discharge using the Modified

Postanaesthetic Discharge Score (see Appendix I) by an independent investigator not less than one hour after arrival to ASU. On arrival of the investigator, the patient or guardian was given a set of questions (see appendix II) that he/she filled on his own, or with assistance should he/she be illiterate. The investigator, unaware of the results of a questionnaire, then assessed the patient using the MPDSS. In pediatric cases, the guardian assumed responsibility for the patient. Patients with an MPDSS score greater or equal to 9 were considered fit for home discharge with escort.

Data collected included age, sex, type of procedure and anaesthesia, duration of anaesthesia, time in PACU, time in ASU, end of anaesthesia to actual discharge time, complications (nausea, vomiting, excessive sedation, respiratory depression, excessive pain or bleeding) and unplanned admission and readmission.

Statistics

To detect a difference of 10%, alpha value of 0.05 and power of 0.9, a sample size of 112 was required. To allow for an attrition rate of 5%, we elected to survey 119 4 patients. Categorical data was analysed using the Pearson's Chi Square test. We examined the association between the MPDSS discharge criteria with the patients' perception of fitness for discharge using the Phi coefficient.

Results

1119 patients were studied (Table 1). Among them, 7 would have required admission using the MPDSS scoring system and 13 patients felt the need to stay longer. 6 patients were finally admitted. A 2x2 contingency table consisting of MPDSS for admission and patients' perception for need to stay is shown in Table 2. Results showed there was good correlation between the patients' perception for discharge and the MPDSS ($\Phi=0.485$, $p<0.001$).

Table 1.

Number of Patients	119
Mean Age in years (range)	36 (1-75)
Gender (M: F)	49:70
Mean anaesthesia duration in minutes (range)	38.7 (5-150)
Anaesthesia technique GA:SA:PVB	96:21:2
GA= general anaesthesia, SA=spinal anaesthesia, PVB=paravertebral block	

Table 2. Comparison of patients' perception of need to stay by MPDSS discharge score.

	Number of patients who felt no need to stay longer	Number of patient who felt the need to stay longer
MPDSS>9	104	8
MPDSS≤9	2	5

A Contingency table comparing the with that of the actual unplanned admission is shown in Table 3 and a contingency table for patients' need to stay longer and actual unplanned admission is shown in Table 4. Both MPDSS and patients' perception were indicative of the need for admission ($\Phi=0.269$, $p=0.003$ and $\Phi=0.472$, $p<0.001$ respectively).

Table 3. Comparison of patients discharged vs. admitted by MPDSS discharge score.

	Number of patients discharged	Number of patient admitted
MPDSS>9	108	4
MPDSS≤9	5	2

Table 4. Comparison of patients discharged vs. admitted by perceived need to stay longer.

	Number of patients discharged	Number of patients admitted
Number of patients who felt no need to stay longer	105	1
Number of patient who felt the need to stay longer	8	5

The incidence of unplanned admission in this study was 5% (6 out of 119). Two patients were young women suffering from postoperative nausea and vomiting (PONV) after laparoscopic surgery. One patient suffered from dizziness after staple haemorrhoidectomy. Two patients were admitted for acute retention of urine after spinal anaesthesia for inguinal hernia repair. One patient was admitted for social reasons. The readmission rate was 1.7% (2 out of 119 patients). Both of them were admitted for surgical complications after staple haemorrhoidectomy.

One patient did not feel need to stay longer at the time of assessment but was finally admitted. He achieved a full MPDSS score in the assessment and did not complain of any discomfort in the ASU. However, he developed dizziness and hypotension while waiting to be discharged. The reason for the hypotensive episode was unknown. No medication was given apart from intravenous fluids and all investigations were normal. He was discharged the next morning uneventfully.

8 patients felt the need to stay longer yet finally were discharged. 5 out of these 8 patients complained of various degrees of physical discomforts (pain, dizziness and PONV). All symptoms improved in later assessments after bed rest. Only 2 patients required medication to treat their physical discomfort.

38 of the patients felt some discomfort but did not feel they needed to stay longer. 8 patients wanted to see an anaesthetist although they did not need to stay longer.

Discussion

The weakest link in ambulatory surgery is often the discharge of patients [7]. Many patients are detained unnecessarily despite fulfilling the discharge criteria. Most of these delays are due to non-medical reasons. Waiting to be reassessed by nurses, transport, and escort account for most of the non-medical reasons. Persistent discomfort is uncommon and only accounts for about 4 % of delay [8].

Most patients who have an ambulatory surgery procedure recover in 2 hours time [8]. If patients had a reasonable perception of their physical condition, the discharge process could be initiated by them. By taking up an active role in determining their discharge readiness, the lag time between full physical recovery and home discharge could be reduced.

A number of scoring systems have been used to help discharge patients after ambulatory surgery. To improve efficiency, it is possible to bypass the PACU and transfer patients directly from the operating room to the ASU. Song et. al. showed that bypassing the PACU after short ambulatory procedures could significantly decrease recovery time without compromising patient satisfaction; however, the overall nursing workload and the associated cost were not significantly affected [9]. Chung's Modified Post-Anaesthetic Discharge Scoring System is validated and commonly used to assess home readiness after the patient arrives in ASU [4]. It assesses patients' vital signs and common postoperative symptoms.

In our questionnaire, we asked for symptoms of physical discomfort such as pain, dizziness and PONV as these are common medical causes of Stage II recovery delay [10]. 48 patients (40.3%) complained of discomfort after surgery but only 10 (8%) of these felt they needed to stay longer. This correlates with other surveys suggesting patients continue to suffer from a variety of discomforts after discharge from the ASU [11]. This may be related to patients' attitude toward postoperative care. In general, patients prefer to be at home if their discomfort can be tolerated [12]. Hong Kong is a small place with convenient transportation. Most patients do not need to travel long distances to access to public and private hospitals. In cases of emergencies, an ambulance service is usually available within 12 minutes [13]. This helps explain why some people prefer resting at home instead of in hospital for mild discomfort.

Some patients would have liked to see a doctor before being discharged home. In our study, 8 patients wanted to see an anaesthetist although they did not need to stay. Half of them were from the paediatric patient cohort although the numbers were too small 8 to suggest significance. None of the patients ended up with unplanned admission or readmission. Pamphlets have traditionally been used to provide patients with basic information about the surgery and anaesthesia. However, they have not been shown to be particularly useful [14] and have had problems of lack of precision, complicated jargon and difficult comprehension [15]. The use of a preanaesthetic video had been shown to be effective in educating and reducing anxiety in parents whose children underwent paediatric ambulatory surgery [16].

Unplanned hospital admission after ambulatory surgery could be used as an index for patient morbidity. Reported incidence varies between 0.1% and 5% [8], depending on individual units' discharge criteria. PONV was a significant contributor to the unplanned admission rate. This is consistent with observations that PONV is one of the leading reasons for delayed discharge and unanticipated admissions [2]. acute retention of urine after spinal anaesthesia was another reason for unplanned admission after inguinal hernia repair. There have been suggestions that patients could be discharged safely after spinal or epidural anaesthesia [17]. Surgical complications after stapled haemorrhoidectomy also contributed.

In conclusion, there was no significant difference between the patients' perception of their need to stay longer and the MPDSS score. Using patients' perception to indicate discharge would be a good alternative to reduce the length of stay. As maintaining the personnel running a ward constitutes the major expense in the health care, discharging patients efficiently helps reduce manpower need and so reduce surgical cost. Further studies on the impact of discharge time and cost after using patients' perception to aid discharge is warranted.

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Appendix I

The Modified Postanaesthetic Discharge Scoring System is a modified version of Chung's Post-Anaesthetic Discharge Scoring System for home readiness after ambulatory surgery. It has been employed in our hospital to aid ambulatory surgery discharge since 2002.

DAY SURGERY UNIT

Modified Postanaesthetic Discharge Scoring System (MPADSS)

1. Vital sign	Score
Within 20% of preoperative value	2
20-40% of preoperative value	1
40% of preoperative value	0
2. Ambulation	
Steady gait/no dizziness	2
With assistance	1
None dizziness	0
3. Nausea/Vomiting	
Minimal	2
Moderate	1
Severe	0
4. Pain	
Minimal	2
Moderate	1
Severe	0
5. Surgical Bleeding	
Minimal	2
Moderate	1
Severe	0

The total score is 10

Patients scoring _9 considered fit for discharge to home with escort

Appendix II

Day surgery discharge form

Date:

Operation:

Anaesthesia:

Time:

a. End of Anaesthesia:

b. Duration of Anaesthesia:

c. Discharge from PACU:

d. Discharge from ASU:

e. Time of assessment in ASU:

1. Is patient discharge less than 1 hour after discharge from PACU? YES/NO
2. Do you have any discomfort (nausea, vomiting, dizziness or pain)? YES/NO
3. Do you feel the need to see an anaesthetist? YES/NO
4. Do you feel you need to stay longer in hospital? YES/NO
5. Are you going home alone? YES/NO

If the answer is YES to any question 1-5, an anaesthetist or anaesthetic nurse would be referred before discharge.