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Timing of unplanned admission following daycare laparoscopic cholecystectomy

N. Seyednejad [a, *], M. Goecke [b], D.E. Konkin [c]

[a] University of British Columbia, Department of General Surgery, Vancouver, BC, Canada
[b] University of British Columbia, General/Trauma Surgery, Royal Columbian and Eagle Ridge Hospital, New Westminster, BC, Canada
[c] University of British Columbia, General Surgery, Royal Columbian and Eagle Ridge Hospital, Fraser Health Authority, Department of General Surgery, New Westminster, BC, Canada

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ABSTRACT

Background: Outpatient laparoscopic cholecystectomy is the treatment of choice for symptomatic biliary colic. There is controversy regarding the optimal candidate, and postoperative observation time for patients receiving daycare laparoscopic cholecystectomy.
Methods: A retrospective, multi-centred, case-control chart review was performed from January 1, 2009 to December 31, 2011 on consecutive patients undergoing planned laparoscopic cholecystectomy. Patient demographics, surgical details, and postoperative details were analyzed.
Results: 1256 daycare laparoscopic cholecystectomies were performed. One-hundred and twenty-one (9.6%) required unplanned admission the day of surgery. Forty (3.2%) were re-admitted within one month of surgery. The median time from surgical procedure to unplanned day of surgery admission was 218 min ± 143. The unplanned admission patients were older (54.6 vs 45.1, $p < 0.005$), and had ASA scores 3 or higher (24% vs 3%, $p < 0.005$). Comorbid conditions associated with unplanned admissions included hypertension, cardiac conditions, and chronic pain.
Conclusions: The majority of patients can be successfully managed with daycare laparoscopic cholecystectomy. A median time of 4 h is sufficient for postoperative observation. Risk factors for unplanned admission include age, ASA, hypertension, diabetes, and chronic pain.

1. Introduction

Since the 1990s, laparoscopic cholecystectomy has been the gold standard treatment for symptomatic gallstone disease. Many centres now perform this procedure in an elective daycare surgery setting. The safety, efficiency, cost effectiveness, and patient satisfaction with daycare surgery are well documented by several authors.[1–21]

Studies have also demonstrated that multiple factors contribute to whether or not laparoscopic cholecystectomy can be performed successfully in an outpatient setting. Currently, there are no standardized clinical discharge criteria nor a recommended postoperative observation time.

In the health authority in which this study was carried out, one of the discharge criteria was an arbitrary 6 h postoperative observation time. Due to the staff coverage of the surgical daycare unit, this 6 h postoperative observation time limits the number of cases that can be performed during an elective OR slate. The primary objective of this study was to determine the time at which the decision was made for an unplanned admission. By determining how long after surgery the decision for unplanned admission was made, a more appropriate postoperative observation time could be established.

To help elucidate the ideal daycare laparoscopic cholecystectomy candidate, a second study objective was to identify patient demographics and clinical characteristics that resulted in an increased rate of unplanned admission. Furthermore, an analysis of the indications for surgery, intraoperative factors, and their influence on unplanned admission rates was also carried out. Ultimately, the ability to predict which patients might fail daycare surgery would allow a healthcare centre to better plan for

* Corresponding author.
E-mail addresses: nseyednejad@gmail.com (N. Seyednejad), Michelle.goecke@fraserhealth.ca (M. Goecke), David.konkin@fraserhealth.ca (D.E. Konkin).

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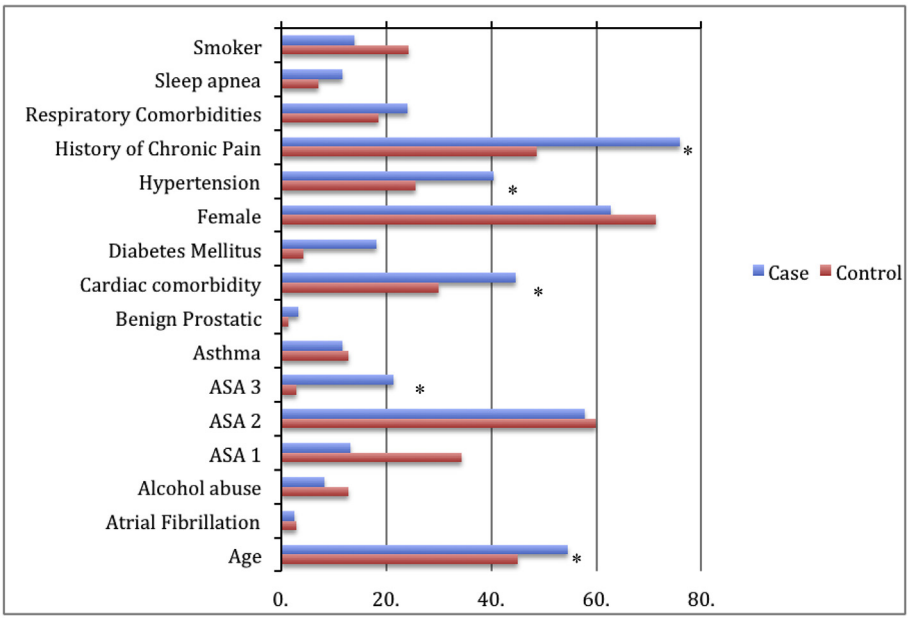

Fig. 1. Patient demographics and comorbidities. (Color version of figure available online.)

postoperative admissions and this in turn would lead to greater patient satisfaction and resource management.

2. Methods

A multi-centre, case-control retrospective chart review was performed. Data was extracted from January 1, 2009 to December 31, 2011 on consecutive patients undergoing planned laparoscopic cholecystectomy in three hospitals in the Fraser Health Authority (FHA): Royal Columbian Hospital (RCH), Ridge Meadows Hospital (RMH), Eagle Ridge Hospital (ERH) in British Columbia, Canada.

A case control group was selected in a random fashion from the group of successfully discharged patients to aid in comparison. Patient demographics, co-morbidities, indications for cholecystectomy and intraoperative surgical details for both the cases and controls were analyzed by extracting data from the Fraser Health Authority electronic medical record system (EMR). A multivariate analysis was utilized in determining factors that increased same day admission rates. A qualitative analysis of the chief complaint that resulted in readmission on postoperative days 1–30 was performed through an electronic chart review of the chief complaint on presentation to the hospital.

Time to decision for unplanned admission was collected in a similar fashion through a chart review.

Chi-square analysis was performed, and a p value of <0.05 was considered statistically significant.

3. Results

From January 1, 2009 to December 31, 2011, 1256 patients underwent an elective daycare laparoscopic cholecystectomy. 1095 (87.1%) were successfully discharged on the same day as the procedure. The study population was comprised of 161 patients who had an unplanned admission following an elective laparoscopic cholecystectomy. Of the 161 who required an unplanned admission, 121 (75%) patients were admitted on the same day as their procedure. Twenty-three of these admitted patients had the decision for an unplanned admission made intra-operatively. Forty of the 161 patients had an unplanned readmission on postoperative day 1–30 (25%).

3.1. Time elapsed until decision for unplanned admission

Excluding the 23 patients who had the decision made for an unplanned admission intra-operatively and the 2 patients who had missing time values, the mean time elapse before a decision for an unplanned admission was 225 min ± 143 min.

3.2. Patient demographics and comorbidities as risk factors for readmission

An increased age, an ASA score of 3 or greater, a history of chronic pain, hypertension or cardiac comorbidities were factors which resulted in significantly increased unplanned admission rates when compared to the control population (see Fig. 1)

3.3. Reasons for same day unplanned admissions

From the total number of patients who had a planned elective laparoscopic cholecystectomy, 121 (9.6%) patients were admitted on the same day as their planned surgery. The reasons for their unplanned admission are listed in Table 1. The 'other' category encompasses disposition difficulties such as a lack of social support

Table 1
Reasons for unplanned admissions.

Reason for unplanned admission	Number of patients	Percentage (%)
Respiratory concerns	46	38.0
Urinary retention	17	14.0
Other	17	14.0
Surgeon discretion	12	9.9
Pain	10	8.3
Cardiac concerns	10	8.3
Bleeding	9	7.4