Prompt laparoscopic cholecystectomy would reduce morbidity and save hospital resources

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ABSTRACT

INTRODUCTION Limited resources and organisational problems often result in significant waiting times for patients presenting with an indication for cholecystectomy. This study investigated the potential false economy of such practice.

METHODS Retrospective analysis of all patients on a waiting list for cholecystectomy between July 2007 and October 2010 was performed. The hospital computer document management system and patients' notes were used to collect data.

RESULTS A total of 1,021 patients were included in the study; 701 were listed from clinic and 320 were listed following an emergency admission. The median time on a waiting list before surgery was 96 days (range: 5–381 days). Eighty-seven patients (8.5%) had an emergency admission with a gallstone related problem while on a waiting list. This resulted in 488 cumulative inpatient days. There was a significant correlation between increased time spent on the waiting list and increased chance of an emergency admission ($p=0.01$). Patients added to the waiting list from emergency admissions were more likely to be admitted with complications than those listed from clinic (15.3% vs 5.4%, $p<0.01$). There was no association between age ($p=0.53$) or sex ($p=0.23$) and likelihood of emergency admission while on a waiting list.

CONCLUSIONS Prompt elective surgery and same-admission emergency laparoscopic cholecystectomy can reduce waiting list patient morbidity and is likely to save resources in the long term.

KEYWORDS

Cholecystectomy – Waiting list – Admission

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Gallstone related pathology is very common and laparoscopic cholecystectomy is one of the most frequent elective operations with over 50,000 performed annually in the UK.¹ Pressure on National Health Services (NHS) resources can result in lengthy delays between addition to a waiting list and actual surgery. This can be the case for patients who present via clinic as well as those with an emergency admission who are managed conservatively. There has been a more recent trend to offer same-admission emergency laparoscopic cholecystectomy.^{2,3} However, most hospital emergency lists do not have the capacity to offer this, and the majority of patients who present via an emergency admission are managed conservatively and discharged to a waiting list.^{4,5} Our study investigated the consequences of this practice in terms of gallstone related emergency admissions for patients on a waiting list for cholecystectomy surgery.

The main outcome measures were the incidence of patient admission with gallstone related problems while on a waiting list for cholecystectomy, the range of pathologies and the total resulting inpatient days. The secondary outcome measures were to assess any association between time on the waiting list and chance of admission,

and also to identify common features of those patients who present.

Methods

A retrospective analysis was performed of all patients added to a cholecystectomy waiting list between July 2007 and October 2010. Hospital waiting list data were used to identify the date each patient was added to the waiting list. Patients' notes and electronic patient records were used to collect all other data.

Waiting time was defined as the length of time between addition to a list and the date of surgery. Elective additions to the waiting list were defined as those patients seen in clinic from primary care referral and added to a list. Emergency additions to the waiting list were defined as patients admitted to hospital with gallstone related problems, managed conservatively and added to a list either at point of discharge or subsequent clinic consultation.

Laparoscopic and open cholecystectomies were included in the study, as were cases with delays due to hospital cancellations. Cases with delays as a result of patient choice or medical optimisation for surgery, on the other hand,

Table 1 Range of conditions presenting as emergencies while on waiting list for cholecystectomy, number of patients with each condition and resulting number of inpatient days

Complication	Number of patients	Total inpatient stay (range)
Biliary colic	29	46 days (1–6 days)
Choledocholithiasis	22	133 days (1–27 days)
Cholecystitis	20	137 days (1–44 days)
Pancreatitis	11	94 days (1–36 days)
Cholangitis	5	67 days (5–25 days)

were excluded. Same-admission emergency cholecystectomies for patients who had failed conservative management were also excluded. No investigation was made as to whether patients had presented to other hospitals with gallstone related problems.

Statistical analysis was performed using Fisher’s exact test and Spearman’s rank correlation coefficient.

Results

A total of 1,021 patients (median age: 55 years, range: 16–91 years) who were added to a waiting list between July 2007 and March 2010 were included in the study. Twenty-one patients had been excluded as they represented same-admission emergency cholecystectomies and three had been excluded as no accurate notes were available.

The overall median time on a waiting list was 96 days (range: 5–381 days). Of the 1,021 patients in the study, 701 (median age: 53 years) were added to a waiting list via clinic from a primary care referral. The median time to surgery for these patients was 96 days (range: 5–381 days). Thirty-eight of these patients (5.4%) were admitted with gallstone related problems while waiting for surgery.

In addition, there were 320 patients (median age: 59 years) added to the waiting list as a result of an emergency gallstone related admission. The median time to surgery for these patients was 101 days (range: 9–381 days). Forty-nine of these patients (15.3%) were admitted as an emergency with gallstone related problems after addition to the list. This was significantly more than those listed from clinic (odds ratio [OR]: 3.2, 95% confidence interval [CI]: 2.0–4.9, $p<0.01$).

Figure 1 Incidence of emergency admissions with gallstone related problem while on waiting list

Overall, 87 patients (8.5%) were admitted as an emergency with gallstone related problems (biliary colic, cholecystitis, cholangitis, choledocholithiasis and pancreatitis) prior to their date of surgery. This resulted in a total of 488 inpatient days (Table 1). When patients were grouped according to length of time on a waiting list before surgery (Table 2), there was a significant correlation ($p=0.01$) between increased waiting time and increased chance of an emergency admission with gallstone related problems (Fig 1). There was no correlation between patient age and chance of admission while on the waiting list ($p=0.53$). Furthermore, being male was not significantly associated with chance of admission either (OR: 1.3, 95% CI: 0.8–2.1, $p=0.23$).

Discussion

The majority (89%) of patients were operated on within the NHS government 18-week target. Our study reflects other studies in that delay in time to surgery increases the chances of gallstone related problems and emergency admission.⁶ We identified an expected range of pathologies related to gallstone disease; patients on trust waiting lists during the study period were responsible for 488 emergency inpatient days as a result of these. In addition to the basic cost of inpatient stay, the cost of treatment of the

Table 2 Number of patients divided into subgroups by time on waiting list and number of emergency admissions while on waiting list

	Days on waiting list						
	0–50	51–100	101–150	151–200	201–250	251–300	>300
Patients	125	400	271	123	49	25	29
Admissions	11 (9%)	23 (6%)	20 (7%)	14 (11%)	7 (14%)	4 (16%)	8 (28%)

admitting conditions and lost bed days for other elective activity during this period should also be considered. The emergency admissions to hospital are only likely to represent a fraction of patient morbidity. Gallstone related problems managed by a general practitioner would not be included although these are likely to translate to a large number of employment sick days.

Our study has demonstrated that emergency presentation patients are at most risk of admission while waiting for surgery. This adds weight to the argument for same-admission emergency cholecystectomy. Perhaps it is the size, number or nature of gallstones in these patients that makes them initially present as an emergency that then puts them at a higher chance of problems until their gallbladder is removed.

If the same cholecystectomy workload were performed over the same time period but organisational changes led to more prompt surgery, it is likely that a considerable resource saving would be realised by reduction in emergency gallstone related admissions for patients who wait longer.

Conclusions

No association was found between sex or age of patients and risk of gallstone morbidity. It appears that it is the nature of the gallstones that determines problems rather than the characteristics of the patients in whom they occur.

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