

Factors Involved in Unplanned Admissions from General Surgical Day-Care in a Modern Protected Facility

Abstract :

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Abstract

The aim in this audit study was to identify the rate of and the reasons for unanticipated admissions in general day surgery. All day ward procedures performed during the one year period from January 2011 to January 2012 were reviewed. Of 560 procedures performed, 25 (4.4%) patients were admitted. The age range of the patients admitted was from 26 to 83 years. The average BMI of the admitted patient was 28.9 (range 24-39).The average stay in hospital was 1.7 days (range 1-3 days). The reason for admission was potentially preventable in ten (40%) patients. This included eight (80%) out of ten admissions for control of postoperative pain, nausea and vomiting. Two (20%) were admitted for surgical observation due to high risk of bleeding. Fifteen (60%) of admissions were due to a non-preventable source, including 5 with a drain inserted at a perceived difficult laparoscopic cholecystectomy, 5 for urinary retention post open inguinal hernia repair, 2 for a cardiology review and 2 for further urgent investigations because of an unexpected intraoperative finding of malignancy. The rate of un-planned admission can be reduced by controlling potentially preventable causes, however a small contribution from unexpected scenarios is inevitable.

Introduction

Day surgery has provided a major advance in the process management of a broad spectrum of general surgical activity. Greater efficiencies reduce health care cost while maintaining or enhancing quality of care. With limited in-hospital capacity, there is an increasing trend to perform most low to medium risk surgery in a day care facility, and such structures have been widely developed in Ireland over the last decade in both the public and private hospitals. The quality of such a structure is rarely audited, and one rarely explored question is the frequency of unanticipated admissions, which is reported at between 0.3-9.5% in international series¹⁻⁴. The principal factors in unplanned admissions are surgical (38-58%) medical (17%) and social reasons (4.6-19.5%)⁵. The goal in any day surgical centre is to improve the efficiency of ambulatory services, and regular audit of quality and treatment intent is required, and the purpose of this study was to audit the quality of the day care service at a large university teaching hospital using unanticipated admissions as an index of case selection.

Methods

The Day Surgery Unit at St Jamesâ s Hospital caters for up to 6000 attendances per year covering a number of specialities. It is a separate unit from the main operating theatre but is situated within the hospital complex. It consists of two major and one minor operating theatre, a recovery unit, pre and post-operative patient wards and an admission area. The day surgery pre-assessment clinic is led by an experienced clinical nurse specialist with dedicated consultant anaesthetic support. The general surgical department in St. James's hospital is run by five gastrointestinal surgeons, breast and vascular being separate sub-specialities. There are two upper gastrointestinal surgeons and three colorectal surgeons.

Our standard patient selection criteria for day cases include patients of ASA status I to III, between 18 to 85 years old, undergoing procedures lasting less than 90 minutes that are not expected to cause excessive fluid shift or physiological impairment postoperatively. As a rule, no general anaesthesia is administered after 1500 hours to allow patients ample time to recover from the effects of anaesthesia prior to close of the day surgery centre. Patients are discharged by the surgical staff using Korttilaâ s criteria⁶, that is, stable haemodynamics, have minimal pain, minimal nausea, no vomiting, are able to drink, void and walk unaided and must be discharged to the care of a responsible adult⁷. Those who are unable to fulfil the criteria are admitted to hospital. In this study, all patients who were admitted after day surgery procedures from January 2011 to January 2012 were recorded. The medical records of these patients were then reviewed retrospectively to determine their physical status, perioperative complications and the main reason for their hospital admission.

Results

There were a total of 560 procedures performed (Table 1). Of these, 25 patients were unexpectedly admitted (unanticipated admission rate of 4.4%) (Table 2). The age range of the patients admitted was from 26 to 83 years (median of 55 years). 20 (80%) of the patients admitted were male. Eight patients had an ASA score of I, fourteen patients had an ASA score of II and three patients of III. The average BMI of the admitted patient was 28.9 (range 24-39). All patients were living within a one hour radius of the day surgery unit and were preoperatively assessed. The average stay in hospital was 1.7 days (range 1-3 days). The reason for admission was potentially preventable in ten (40%) patients. This included eight admissions for control of postoperative pain, nausea and vomiting. Open inguinal hernia repair and laparoscopic cholecystectomy were the operations that resulted in significant postoperative pain and nausea. Two patients (8%) were admitted for surgical observation due to high risk of bleeding. One was a patient who had a laparoscopic cholecystectomy and other was a patient with factor VIII deficiency post a large lipoma excision. These patients were discharged the next day without any complications or further treatment.

Sixty percent (15/25 patients) of admissions was due to a non-preventable source. A drain insertion in patients undergoing perceived difficult laparoscopic cholecystectomy was the reason in 5 patients. One patient had a direct surgically related complication resulting in a bile leak from an injury to the cystic duct stump post clipping. Two patients were admitted postoperatively for a cardiology review due to abnormalities in their ECG during anaesthesia. Two patients were admitted for further urgent investigations because of an unexpected finding of malignancy intraoperatively. Five patients developed urinary retention post open inguinal hernia repair and required urinary catheterisation and admission.

Discussion

Auditing the reasons for unplanned admissions in day surgery can identify potentially preventable causes of these admissions. Instigating changes in patient or anaesthetic selection based on the results could improve the overall efficiency of ambulatory surgery services. The unanticipated admission rate in our general surgical patient population was 4.4%, comparing favourably to other studies but perhaps higher than those at free standing ambulatory centres. A major difference is that the ambulatory unit at this centre allows for unanticipated admissions whereas at freestanding centres the operation would not proceed and the patient would be rescheduled for further surgery as an inpatient.

In this audit, 32% of unanticipated admissions were for post-operative pain and nausea. Notably, none of these patients received local anaesthetic. Adequate pain management remains a challenge in day surgery. A combination of infiltration with local anaesthesia or regional anaesthesia combined with an NSAID is usually sufficient for the range of cases done in day surgery, and this is now the unit standard. A commonly neglected area preoperatively is patient education. Patients often have unrealistic expectations of post-op pain relief. Perioperative anaesthetic related morbidity such as nausea and vomiting can also be reduced. Yogendran et al found that patients who received 20 versus 2 ml/kg of intravenous hydration had less giddiness, nausea and vomiting postoperatively^{1,2}. Routine use of a prophylactic antiemetic in susceptible patients who have previous history of postoperative vomiting and for those with significant risk factors for post-operative nausea vomiting (e.g. history of motion sickness, laparoscopic surgery, middle ear surgery), can prevent unnecessary delay in discharge or unanticipated admission. Simple measures like ensuring adequate hydration can contribute to reducing post-operative nausea and vomiting and admission rate.

A number of admissions could not be anticipated. Acute urinary retention was the reason of unplanned stay in 20% of patients. The results show that all patients admitted unexpectedly secondary to acute urinary retention were age 75 and above, falling in a group which is considered a high risk for this particular complication. Careful history and clinical examination and patient selection can avoid unplanned stay in the hospital.

Some admissions could be avoided by careful scheduling. This should take into account the complexity, duration of surgery and expected recovery period. The later slots of the day should be reserved for shorter procedures and those with least potential for complications. Other predictive factors for unanticipated admissions include male gender, surgery finishing after 1500 hours, postoperative bleeding, excessive pain, nausea, vomiting, drowsiness and dizziness⁷. In this study, we noted that the majority of unanticipated admissions were due to non-life threatening causes which were non-preventable. Despite careful patient selection, there will always be a small contribution from

unrelated medical causes or direct surgical complications. It is essential to monitor admission rates in order to maintain a high quality of patient care in this era of cost containment.

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