Utilisation of Clinical Networks to Facilitate Elective Surgical Workload; A Preliminary Analysis

Abstract:

Clinical networks have potential to increase elective surgical workload for benign conditions in non-cancer centres. The aims of this study were to determine outcomes for elective laparoscopic cholecystectomy in our unit and to evaluate early experience in managing benign surgical workload referred from the tertiary centre within our clinical network. An analysis of cholecystectomies performed at Mayo General Hospital was conducted (2003-2013). A review of elective procedures more recently referred from Galway University Hospital (GUH) waiting lists was also conducted. 1937 consecutive cholecystectomies were performed with an overall laparoscopic conversion rate of 1.7% (33/1875). The total major complication rate was 0.93% (18/1937). 151 selected procedures originating from GUH have been performed since December 2013 without adverse events. Laparoscopic cholecystectomy can be performed in significant volume in the general hospital environment. This and other appropriate benign surgical procedures may be performed outside of tertiary units according to network agreements.

Introduction

The recent establishment of hospital networks in Ireland combined with strategic policy changes outlined in the document Securing the future of Smaller Hospitals may facilitate the designation of certain benign procedures to be performed electively in large volumes in general hospitals. Potential changes to the delivery of elective surgical services within each hospital network will have implications for patients, hospitals and surgical training. Laparoscopic cholecystectomy is considered in many institutions as a non-specialist operation and a significant training procedure for aspiring laparoscopic surgeons. It has been suggested recently that improved outcomes and reduced conversion rates can be achieved if laparoscopic cholecystectomy is performed by specialist upper gastro-intestinal surgeons performing a high volume of cases annually. Furthermore the author advocates that the procedure should be moved from the non-specialist surgeon to the exclusive domain of high volume upper gastro-intestinal surgeons. Against this background, the primary aim of this study was to perform a systematic review of the practice of laparoscopic cholecystectomy at our institution. The secondary aim of our study was to perform an analysis of elective surgical caseload transferred from the regional tertiary centre to our unit.

Methods

A comprehensive analysis was performed of all cholecystectomies performed at Mayo General Hospital (MGH) during the study period, January 2003-December 2013 inclusive. MGH is a teaching hospital within the Galway University Hospital Network (Saolta) and primarily serves a catchment population of 130,000 people. Our institution contains 325 in-patient beds across multiple specialities and a 24 hour accident and emergency department (Model 3 hospital). The surgical unit previously consisted of 60 in-patient surgical beds. Seventeen of these beds were decommissioned in 2010 for budgetary reasons. The remaining 43 beds were then ring-fenced to elective and emergency general surgical patients, across two adjacent wards. The surgical department is staffed by four consultant surgeons without a declared interest in upper gastro-intestinal surgery. It is our unit policy to avoid cholecystectomy for the acutely inflamed gallbladder. Interval cholecystectomy for acute cholecystitis is performed routinely between four and six weeks after the index admission. Data was collected from the Health Information Patient Enquiry (HIPE) system, patient medical records and operating theatre registers. This included details of elective procedures referred from Galway University Hospital (GUH) waiting lists from December 2013 to date. Further information regarding laparoscopic conversion and complications rates was captured from analysis of monthly morbidity and mortality conference records. Statistical analysis was performed using SPSSV20. Ethical approval to conduct all aspects of this study was granted by the hospital research ethics committee.

Results

Volume and conversion rates for laparoscopic cholecystectomy

During the study period, 1937 patients (M-242, F-1695) underwent cholecystectomies with an average age of 46.8 years (16-90 years). 1875 elective laparoscopic procedures (M-217, F-1658) and 62 planned open cholecystectomies (M-25, F-37) were performed (figure 1). The volume of laparoscopic procedures increased throughout the study with the greatest rise...
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Discussion

Clinical networks are an important pillar in the delivery of patient care in the UK. Recent strategic policy documents in Ireland such as Future Health and the national clinical lead programs have demonstrated a commitment to the development and implementation of clinical networks in this country. To date the most successfully implemented networks have concentrated on cancer, stroke and emergent cardiovascular care. These have resulted in significantly improved patient outcomes. Numerous advantages have been outlined such as more effective use of scarce resources, enabling improved access, standardisation of care, a faster spread of innovation, effective employment of proven quality and volume relationships and the combined expertise across the hospital group to be utilized to the fullest. The transferring of patients between facilities within a network ensures that patients are assessed and treated in the most appropriate facility to their needs and in a timely fashion. This may lead to a substantial reduction in elective surgical waiting lists across networks and decrease or even negate the need for certain costly waiting list initiatives. The transfer of selected patients from tertiary facilities with long waiting lists to model 2 and model 3 facilities with availability of theatre time and competent staff may deliver improved patient care across hospital groups. The National Cancer Strategy was established in 2008, which led to the centralisation of cancer care services within eight large tertiary referral units. As a consequence, the nature of the surgical workload performed in our unit has altered to reflect a substantial reduction in surgical activity performed for malignant disease. Within our unit, the shift has mainly been towards the performance of procedures for non-malignant conditions, including laparoscopic cholecystectomy. Numerous studies have been published which demonstrate improved patient outcomes for surgical pathology when procedures are performed in high volume centres. The literature relating to improving outcomes for patients undergoing laparoscopic cholecystectomy in higher volume centres is varied. Several reviews have shown a reduction in morbidity with increasing laparoscopic case numbers. Alternatively, a recent study suggests that there is no association between surgeon volume and complication outcome after laparoscopic cholecystectomy. In our study, rates of conversion were noted to decline inversely with increasing volume. With the continued introduction of clinical networks, any benefits in patient outcomes related to volume/outcome relationships can be fully exploited.

Departmental initiatives aimed at improving efficiency were introduced at MGH during 2011 including the development of a surgical pre-assessment clinic (PAC) and the introduction of a policy of day of surgery admission (DOSA). In addition, a number of technical refinements were introduced. These include the full implementation of a 10 Step Laparoscopic Cholecystectomy Checklist, judicious use of laparoscopic subtotal cholecystectomy and most recently transabdominal laparoscopic assisted regional anaesthesia. These initiatives have streamlined the delivery of benign elective surgical care at our institution. As a consequence of discussions with local hospital management during 2014, additional capacity to perform between 180 and 200 inpatient surgical procedures for benign conditions per year was identified. A business case was prepared and accepted by GUH with selection of suitable procedures to be performed at MGH. Patients are identified who are waiting prolonged periods for elective benign procedures and offered the option of transabdominal laparoscopic assistance with an early date for surgery and assessed by the anesthetic team at the PAC. The transfer of surgical workload within clinical networks is a well-established practice in the United Kingdom. Benefits such as reduced cancellations, more predictable workflow, and enhanced patient safety and experience have been identified. Furthermore the new hospital activity based funding strategy in Ireland whereby the money follows the patient has potential to further incentivise the transfer of care for patients requiring certain procedures within clinical networks to hospitals most efficient in their provision. The process of selecting and transferring patients should be carried out however in a...
Laparoscopic cholecystectomy is considered an excellent training operation for aspiring laparoscopic surgeons. The increased volume of benign surgical activity in our unit for procedures such as laparoscopic cholecystectomy combined with consultant commitment to improving and refining surgical techniques, employing modern surgical training tools and providing direct supervision for trainee-performed procedures has ensured an environment conducive to the development of basic laparoscopic skills. A structured system of rotating surgical trainees through the different facilities within a clinical network has the potential to expose trainees to high volumes of both benign and malignant surgical cases. This will ensure maximization of available training opportunities and is in keeping with policies outlined in various health strategy documents. Laparoscopic cholecystectomy can be performed safely, effectively and in significant volume in the general hospital environment. This and other appropriate benign surgical procedures may be performed outside of tertiary units according to network agreements with numerous potential benefits for patients, hospitals and training of health care professionals.

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