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Readmission to Hospital Following Laparoscopic Cholecystectomy; A meta-analysis and possible benchmark?

Background: Laparoscopic cholecystectomy is one of the most commonly performed surgical procedures. Despite this, the pattern of readmission to hospital following laparoscopic cholecystectomy is not well defined.

Aim: The aim of this study was to evaluate the prevalence of readmission and identify possible risk factors predisposing to readmission.

Methods: An ethically approved, PROSPERO-registered (ID: CRD42018104960) meta-analysis of published English articles was undertaken searching PubMed, Scopus, Web of Science and Cochrane Library databases from January 2013-June 2018. This meta-analysis used Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) statement. Published literature was graded using methodological index for non-randomized studies (MINORS) criteria; papers scoring ≥ 16/24 were included. The odds ratio (OR) using random-effects, Mantel-Haenszel method with 95% confidence intervals (CI) were computed for each potential risk factors using RevMan5.

Results: 3,832 articles were reduced to 44 studies qualifying for a final analysis of 1,573,715 laparoscopic cholecystectomies from 25 countries. Overall readmission rate was 3.3% (range: 0.0%-11.7%); 52,628 readmissions out of 1,573,715 laparoscopic cholecystectomies performed. Reasons for readmission were reported in 25 studies. Surgical complications accounted for 76% of reported reasons for readmission, predominantly bile duct complications (33%), wound infection (17%) and nausea and vomiting (9%). Pain (15%) and cardiorespiratory complications (8%) account for the remainder. Analysis of studies investigating the effect of obese vs non-obese patients, single port vs multi-port laparoscopic cholecystectomy and day case vs inpatient laparoscopy revealed no statistically significant increase in rates of readmission.

Discussion: Surgical complications are the most common causes for readmission, however causes are inconsistently reported. No statistically significant risk factors were identified. The mean readmission rate of 3.3% may act as a quality benchmark for interpreting outcomes. Clearer reporting of reasons for readmission may aid in their reduction including a prospective cholecystectomy registry would aid analysis.