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CLINTEC, enheten för kirurgi

Aspects of Treatment of Common Bile Duct stones

AKADEMISK AVHANDLING

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Abstract

Background: Gallstone disease is a major cause of morbidity and at least 10 000 cholecystectomies are performed annually in Sweden. At the time of surgery about 5-15% of the patients also have common bile duct stones (CBDS). Introduction of new techniques as Endoscopic Retrograde CholangioPancreatography (ERCP) and laparoscopy have changed the treatment for these patients.

Aims: To analyze how CBDS have been treated in Sweden 1965-2009 and calculate mortality connected to the different procedures, to assess the risk of malignancy after ERCP in benign disease and identify risk factors for death within 90 days. To evaluate the short term clinical outcome and identify risk-factors for failure in laparoscopic transcystic common bile duct exploration (LTCE).

Methods: Data on all patients with an in-patient procedure code of common bile duct exploration or ERCP 1965-2009 were collected from the Swedish Hospital Discharge Register and those with a diagnosis of malignancy in the bile ducts, liver or pancreas were excluded. The outcome death was identified by cross-linkage to the Registry of Causes of Death and readmission in the Swedish Hospital Discharge Register. For assessment of cancer risk a cohort study of all patients in Sweden having had an ERCP before the end of 2003 without a diagnosis of malignancy at the time of the procedure or within two years after it was performed. To calculate mortality and analyze risk-factors for death after ERCP a case-control study based on the population of Stockholm 1990-2003 was done. Cases were defined as patients having died within 90 days of the procedure and controls were randomly chosen among those who did not die. Data were collected prospectively on patients having a cholecystectomy at S:t Görän's Hospital 1994-2002, in 155 patients a LTCE were attempted and the outcome analyzed.

Results: The Swedish Hospital Discharge Registry contained records of 126 885 procedures for treatment of common bile duct stones in 110 119 individuals, without a diagnosis of malignancy at the time of the procedure, during 1965-2009. The 90-day mortality was 0.24 % after open surgery, 0.90% after ERCP, 0.67% after combined procedures and 0% after laparoscopic surgery. After adjustment for confounding factors, mainly age and comorbidity, in the multivariate analyses there was no significant difference in mortality between open surgery and ERCP. The risk of malignancy in the bile ducts alone and in the bile ducts, liver and pancreas together was significantly elevated in the cohort of individuals having had an ERCP before 2003 irrespective of if an ES was performed or not. The risk of malignancy diminished with increasing follow-up time. Patients ever having had a cholecystectomy had a significantly lower risk of the studied malignancies. In Stockholm County during 1990-2003 the 90-day mortality after ERCP was 1.6%. Advanced age, severe comorbidity, high complexity of the procedure and the occurrence of a complication were associated to death within 90 days whereas a previous cholecystectomy or the simultaneous performance of an endoscopic sphincterotomy reduced the risk. An attempt of transcystic CBD exploration in the 155 patients at S:t Görän's Hospital could be fulfilled in 85 %. The median operating time was 184 minutes (range 89-384 minutes) and the median postoperative hospital stay was one day. There was a significant 3-fold increase in risk of failure of clearance of the bile ducts among patients with stones of >5 mm compared to patients with stones ≤5 mm.

Conclusions: Common bile duct stones were mainly treated endoscopically. ERCP and open surgery were associated with a similar mortality after adjustment for confounding factors. Laparoscopic treatment was chosen in younger and healthier patients, probably with a less severe disease, and no 90-day mortality was recorded. The risk of malignancy in the bile ducts, liver or pancreas was elevated after ERCP in benign disease. However, ES did not seem to affect this risk. Old age and comorbidity were the main risk factors for death after ERCP but a complex procedure or the occurrence of a complication also seemed to increase short term mortality. The performance of a sphincterotomy may decrease the risk of death, possibly by facilitating adequate drainage. Previous cholecystectomy may also decrease the risk of dying after ERCP. Laparoscopic transcystic exploration of the CBD had a high frequency of stone clearance and low morbidity in the present study. Moreover, large stones were a risk factor for failure in stone clearance.

