

DE LEESTAFEL

JANUARI 2018

*Een Maandelijks Selectie van Wetenschappelijke GE-
nieuws*

Coloproctologie

Nieuwe score voor chirurgische moeilijkheidsgraad bij locally advanced rectumtumoren

MRI-based score to predict surgical difficulty in patients with rectal cancer; Escal et al; BJS 2018; 105 (1); 140-146.

Pubmed ID: 29088504

BACKGROUND

Rectal cancer surgery is technically challenging and depends on many factors. This study evaluated the ability of clinical and anatomical factors to predict surgical difficulty in total mesorectal excision.

METHOD

Consecutive patients who underwent total mesorectal excision for locally advanced rectal cancer in a laparoscopic, robotic or open procedure after neoadjuvant treatment, between 2005 and 2014, were included in this retrospective study. Preoperative clinical and MRI data were studied to develop a surgical difficulty grade.

RESULTS

In total, 164 patients with a median age of 61 (range 26–86) years were considered to be at low risk (143, 87.2 per cent) or high risk (21, 12.8 per cent) of surgical difficulty. In multivariable analysis, BMI at least 30 kg/m² (P = 0.021), coloanal anastomosis (versus colorectal) (P = 0.034), intertuberos distance less than 10.1 cm (P = 0.041) and mesorectal fat area exceeding 20.7 cm² (P = 0.051) were associated with greater surgical difficulty. A four-item score (ranging from 0 to 4), with each item (BMI, type of surgery, intertuberos distance and mesorectal fat area) scored 0 (absence) or 1 (presence), is proposed. Patients can be considered at high risk of a difficult or challenging operation if they have a score of 3 or more.

CONCLUSION

This simple morphometric score may assist surgical decision-making and comparative study by defining operative difficulty before surgery.

Akt activatie speelt zeer belangrijke rol bij respons op neoadjuvante chemoradiotherapie bij rectumtumoren

Effect of Akt activation and experimental pharmacological inhibition on responses to neoadjuvant chemoradiotherapy in rectal cancer; Koyama et al; BJS 2018; 105 (2); 192-203.

Pubmed ID: 29341150

BACKGROUND

Neoadjuvant chemoradiotherapy (CRT) is one of the preferred initial treatment strategies for locally advanced rectal cancer. Responses are variable, and most patients still require surgery. The aim of this study was to identify molecular mechanisms determining poor response to CRT.

METHOD

Global gene expression and pathway enrichment were assessed in pretreatment biopsies from patients with non-metastatic cT2–4 N0–2 rectal cancer within 7 cm of the anal verge. Downstream Akt activation was assessed in an independent set of pretreatment biopsies and in colorectal cancer cell lines using immunohistochemistry and western blot respectively. The radiosensitizing effects of the Akt inhibitor MK2206 were assessed using clonogenic assays and xenografts in immunodeficient mice.

RESULTS

A total of 350 differentially expressed genes were identified, of which 123 were upregulated and 199 downregulated in tumours from poor responders. Mitochondrial oxidative phosphorylation ($P < 0.001$) and phosphatidylinositol signalling pathways ($P < 0.050$) were identified as significantly enriched pathways among the set of differentially expressed genes. Deregulation of both pathways is known to result in Akt activation, and high immunoexpression of phosphorylated Akt S473 was observed among patients with a poor histological response (tumour regression grade 0–2) to CRT (75 per cent versus 48 per cent in those with a good or complete response; $P = 0.016$). Akt activation was also confirmed in the radioresistant cell line SW480, and a 50 per cent improvement in sensitivity to CRT was observed in vitro and in vivo when SW480 cells were exposed to the Akt inhibitor MK2206 in combination with radiation and 5-fluorouracil.

CONCLUSION

Akt activation is a key event in the response to CRT. Pharmacological inhibition of Akt activation may enhance the effects of CRT.

Organ preservation is an attractive alternative in rectal cancer management following neoadjuvant chemoradiotherapy (CRT) to avoid the morbidity of radical surgery. Molecular steps associated with tumour response to CRT may provide a useful tool for the identification of patients who are candidates for no immediate surgery.

UPPER GI

Na centralisatie verbeterde uitkomsten van spoed UGI ziektebeelden

Influence of national centralization of oesophagogastric cancer on management and clinical outcome from emergency upper gastrointestinal conditions; Markar et al; BJS 2018; 105 (1); 113-120.

Pubmed ID: 29155448

BACKGROUND

In England in 2001 oesophagogastric cancer surgery was centralized. The aim of this study was to evaluate whether centralization of oesophagogastric cancer to high-volume centres has had an effect on mortality from different emergency upper gastrointestinal conditions.

METHOD

The Hospital Episode Statistics database was used to identify patients admitted to hospitals in England (1997–2012). The influence of oesophagogastric high-volume cancer centre status (20 or more resections per year) on 30- and 90-day mortality from oesophageal perforation, paraoesophageal hernia and perforated peptic ulcer was analysed.

RESULTS

Over the study interval, 3707, 12 441 and 56 822 patients with oesophageal perforation, paraoesophageal hernia and perforated peptic ulcer respectively were included. There was a passive centralization to high-volume cancer centres for oesophageal perforation (26.9 per cent increase), paraoesophageal hernia (19.5 per cent increase) and perforated peptic ulcer (23.0 per cent increase). Management of oesophageal perforation in high-volume centres was associated with a reduction in

30-day (HR 0.58, 95 per cent c.i. 0.45 to 0.74) and 90-day (HR 0.62, 0.49 to 0.77) mortality. High-volume cancer centre status did not affect mortality from paraoesophageal hernia or perforated peptic ulcer. Annual emergency admission volume thresholds at which mortality improved were observed for oesophageal perforation (5 patients) and paraoesophageal hernia (11). Following centralization, the proportion of patients managed in high-volume cancer centres that reached this volume threshold was 88.0 per cent for oesophageal perforation, but only 30.3 per cent for paraoesophageal hernia.

CONCLUSION

Centralization of low incidence conditions such as oesophageal perforation to high-volume cancer centres provides a greater level of expertise and ultimately reduces mortality.

Uitkomsten na profylactische gastrectomie voor erfelijke diffuse maagkanker

Outcomes after prophylactic gastrectomy for hereditary diffuse gastric cancer; van der Kaaij et al.; BJS 2018; 105 (2); e176-e182.

Pubmed ID: 29341148

BACKGROUND

Patients with hereditary diffuse gastric cancer and a CDH1 mutation have a 60–80 per cent lifetime risk of developing diffuse gastric cancer. Total prophylactic gastrectomy eliminates this risk, but is associated with considerable morbidity. The effectiveness (removal of all gastric mucosa) and outcomes of this procedure were evaluated retrospectively.

METHOD

All consecutive individuals undergoing a prophylactic gastrectomy for a CDH1 mutation or gastric signet ring cell foci at the authors' institute between 2005 and 2017 were included.

RESULTS

In 25 of 26 patients, intraoperative frozen-section examination (proximal resection margin) was used to verify complete removal of gastric mucosa. All definitive resection margins were free of gastric mucosa, but only after the proximal margin had been reresected in nine patients. In the first year after surgery, five of the 26 patients underwent a relaparotomy for adhesiolysis (2 patients) or jejunostomy-related complications (3 patients). Six patients were readmitted to the hospital within 1 year for nutritional and/or psychosocial support (4 patients) or surgical reintervention (2 patients). Mean weight loss after 1 year was 15 (95 per cent c.i. 12 to 18) per cent. For the 25 patients with a follow-up at 1 year or more, functional complaints were reported more frequently at 1 year than at 3 months after the operation: bile reflux (15 versus 11 patients respectively) and dumping (11 versus 7 patients). The majority of patients who worked or studied before surgery (15 of 19) had returned fully to these activities within 1 year.

CONCLUSION

The considerable morbidity and functional consequences of gastrectomy should be considered when counselling individuals with an inherited predisposition to diffuse gastric cancer. Intraoperative frozen-section examination is recommended to remove all risk-bearing gastric mucosa.

HPB

Invaginatie pancreaticojejunostomie beter bij zacht pancreas dan duct-to-mucosa pancreaticojejunostomie

Randomized clinical trial of duct-to-mucosa versus invagination pancreaticojejunostomy after pancreatoduodenectomy; Senda et al.; BJS 2018; 105 (1): 48-57.

Pubmed ID: 29265404

BACKGROUND

The postoperative pancreatic fistula (POPF) rate for duct-to-mucosa and invagination anastomosis after pancreatoduodenectomy is still debated. The aim of this RCT was to investigate the POPF rate for duct-to-mucosa versus invagination pancreaticojejunostomy.

METHOD

Patients were stratified by pancreatic texture and diameter of the main pancreatic duct and randomized to the duct-to-mucosa or invagination group. The primary endpoint was the rate of clinically relevant POPF (defined as grade B or C). Secondary endpoints were suture material cost for pancreaticojejunostomy, drain insertion duration and duration of postoperative hospital stay.

RESULTS

Some 120 patients undergoing pancreatoduodenectomy were included following consent. Clinically relevant POPF developed in six of 59 patients (10 per cent) in the invagination group and in 14 of 61 patients (23 per cent) in the duct-to-mucosa group ($P = 0.077$). Duration of drain insertion (6 versus 7 days respectively; $P = 0.027$) and postoperative hospital stay (19 versus 24 days; $P = 0.015$) were shorter in the invagination group. Subgroup analysis for 61 patients with a soft pancreas revealed a lower rate of clinically relevant POPF in the invagination group (10 per cent versus 42 per cent in the duct-to-mucosa group; $P = 0.010$). Among 20 patients with a clinically relevant POPF, the six patients in the invagination group had a shorter duration of drain insertion (38.5 days versus 49 days for 14 patients in the duct-to-mucosa group; $P = 0.028$) and postoperative hospital stay (42 versus 54.5 days respectively; $P = 0.028$).

CONCLUSIONS

This study did not demonstrate a superiority of invagination over duct-to-mucosa pancreaticojejunostomy in the risk of POPF. However, in high-risk patients with a soft pancreas, invagination may reduce the risk of clinically relevant POPF compared with duct-to-mucosa.

Registration number: UMIN000005890 (<http://www.umin.ac.jp>).

Uitbreiden criteria voor debulking van levermetastasen van neuroendocriene pancreastumoren?

Expanded criteria for debulking of liver metastasis also apply to pancreatic neuroendocrine tumors; Morgan et al; Surgery 2018; 163(1); 218-225.

Pubmed ID: 29103583

BACKGROUND AND OBJECTIVE

Recently, there has been a move toward decreasing the threshold for liver debulking for metastatic carcinoid tumors from 90% to 70%. The debulking threshold and factors that predict outcomes of liver debulking operations specifically among pancreatic neuroendocrine tumors are not well defined.

METHODS

Records of patients with pancreatic neuroendocrine tumors undergoing liver debulking with a threshold of 70% from 2006 to 2016 were reviewed. Extrahepatic metastases and positive margins by enucleation were allowed. Liver progression-free survival and overall survival were calculated by the Kaplan-Meier method for various factors and compared by log-rank. Factors also were correlated with liver progression-free survival and overall survival by multivariate regression analyses.

RESULTS

Forty-two patients underwent 44 operations, of which 24 resulted in 100% debulking, 12 resulted in $\geq 90\%$ debulking, and 8 resulted in $\geq 70\%$ debulking. Median liver progression-free survival was 11 months. The 5-year overall survival rate was 81%. There were no significant differences in outcome

based on percent debulked. Only liver metastasis ≥ 5 cm correlated with liver progression-free survival and overall survival.

CONCLUSION

Consideration should be given to expanding the criteria for liver debulking in pancreatic neuroendocrine tumors to include a new threshold of $>70\%$ debulking, intermediate grade tumors, positive margins, and extrahepatic metastases; these criteria yield results indistinguishable from complete resection. Using these expanded criteria will increase the number of patients eligible for an operation and maintain high survival rates.

LEVERCHIRURGIE

Nieuwe risicoscore voor gallekkage na leverchirurgie

Risk score to predict biliary leakage after elective liver resection; Mokham et al; BJS 2018; 105 (1); 128-139.

Pubmed ID: 29131313

BACKGROUND

Biliary leakage remains a major cause of morbidity after liver resection. Previous prognostic studies of posthepatectomy biliary leakage (PHBL) lacked power, population homogeneity, and model validation. The present study aimed to develop a risk score for predicting severe PHBL.

METHOD

In this multicentre observational study, patients who underwent liver resection without hepaticojejunostomy in one of nine tertiary centres between 2012 and 2015 were randomly assigned to a development or validation cohort in a 2 : 1 ratio. A model predicting severe PHBL (International Study Group of Liver Surgery grade B/C) was developed and further validated.

RESULTS

A total of 2218 procedures were included. PHBL of any severity and severe PHBL occurred in 141 (6.4 per cent) and 92 (4.1 per cent) patients respectively. In the development cohort (1475 patients), multivariable analysis identified blood loss of at least 500 ml, liver remnant ischaemia time 45 min or more, anatomical resection including segment VIII, transection along the right aspect of the left intersectional plane, and associating liver partition and portal vein ligation for staged hepatectomy as predictors of severe PHBL. A risk score (ranging from 0 to 5) was built using the development cohort (area under the receiver operating characteristic curve (AUROC) 0.79, 95 per cent c.i. 0.74 to 0.85) and tested successfully in the validation cohort (AUROC 0.70, 0.60 to 0.80). A score of at least 3 predicted an increase in severe PHBL (19.4 versus 2.6 per cent in the development cohort, $P < 0.001$; 15 versus 3.1 per cent in the validation cohort, $P < 0.001$).

CONCLUSION

The present risk score reliably predicts severe PHBL. It represents a multi-institutionally validated prognostic tool that can be used to identify a subset of patients at high risk of severe PHBL after elective hepatectomy.

Twee dagen antibiotica profylaxe na leverschirurgie met extrahepatische galweg resectie is voldoende

Duration of Antimicrobial Prophylaxis in Patients Undergoing Major Hepatectomy With Extrahepatic Bile Duct Resection: A Randomized Controlled Trial; Sugawara et al; Ann Surg 2018; 267 (1); 142-148.

Pubmed ID: 27759623

OBJECTIVE

To evaluate the optimal duration of antimicrobial prophylaxis in patients undergoing “complicated” major hepatectomy with extrahepatic bile duct resection.

BACKGROUND

To date, 4 randomized controlled trials (RCTs) have assessed the duration of antimicrobial prophylaxis after hepatectomy. However, all of these previous studies involved only “simple” hepatectomy without extrahepatic bile duct resection.

METHOD

Patients with suspected hilar obstruction scheduled to undergo complicated hepatectomy after biliary drainage were randomized to 2-day (antibiotic treatment on days 1 and 2) or 4-day (on days 1 to 4) groups. Antibiotics were selected based on preoperative bile culture. The primary endpoint was the incidence of postoperative infectious complications.

RESULTS

In total, 86 patients were included (43 patients in each arm) without between-group differences in baseline characteristics. Bile culture positivity was similar between the 2 groups. No significant between-group differences were observed in surgical variables. The incidence of any infectious complications was similar between the 2 groups (30.2% in the 2-day group and 32.6% in the 4-day group). The positive rate of systemic inflammatory response syndrome and the incidence of additional antibiotic use were almost identical between the 2 groups. According to Clavien-Dindo classification, grade 3a or higher complications occurred in 23 patients (53.5%) in the 2-day group and 29 patients (67.4%) in the 4-day group ($P = 0.186$). Postoperative hospital stay was not different between the 2 groups.

CONCLUSIONS

Two-day administration of antimicrobial prophylaxis is sufficient for patients undergoing hepatectomy with extrahepatic bile duct resection [Registration number: ID 000009800 (University Hospital Medical Information Network, <http://www.umin.ac.jp>)].

BARIATRISCHE CHIRURGIE

Cholecystectomie moet vòòr gastric bypass

Morbidity of cholecystectomy and gastric bypass in a national database; Wanjura et al.; BJS 2018; 105 (1); 121-127.

Pubmed ID: 29044465

BACKGROUND

There is a strong association between obesity and gallstones. However, there is no clear evidence regarding the optimal order of Roux-en-Y gastric bypass (RYGB) and cholecystectomy when both procedures are clinically indicated.

METHOD

Based on cross-matched data from the Swedish Register for Cholecystectomy and Endoscopic Retrograde Cholangiopancreatography (GallRiks; 79 386 patients) and the Scandinavian Obesity Surgery Registry (SOReg; 36 098 patients) from 2007 to 2013, complication rates, reoperation rates and operation times related to the timing of RYGB and cholecystectomy were explored.

RESULTS

There was a higher aggregate complication risk when cholecystectomy was performed after RYGB rather than before (odds ratio (OR) 1.35, 95 per cent c.i. 1.09 to 1.68; $P = 0.006$). A complication after the first procedure independently increased the complication risk of the following procedure (OR 2.02, 1.44 to 2.85; $P < 0.001$). Furthermore, there was an increased complication risk when cholecystectomy was performed at the same time as RYGB (OR 1.72, 1.14 to 2.60; $P = 0.010$). Simultaneous cholecystectomy added 61.7 (95 per cent c.i. 56.1 to 67.4) min ($P < 0.001$) to the duration of surgery.

CONCLUSION

Cholecystectomy should be performed before, not during or after, RYGB.

Risicofactoren voor heropname na bariatrische chirurgie

Prevalence and Risk Factors for Bariatric Surgery Readmissions: Findings From 130,007 Admissions in the Metabolic and Bariatric Surgery Accreditation and Quality Improvement Program; Berger et al.; Ann Surg 2018; 267 (1); 122-131.

Pubmed ID: 27849660

OBJECTIVE

To evaluate readmissions following laparoscopic adjustable gastric banding (LAGB), laparoscopic sleeve gastrectomy (LSG), and laparoscopic Roux-en-Y gastric bypass (LRYGB).

Background

Few studies have evaluated national readmission rates for primary bariatric surgery with national, bariatric-specific data.

METHODS

Patients undergoing primary LAGB, LSG, or LRYGB from January 1, 2014 to December 31, 2014, at 698 centers were identified based upon Current Procedural Terminology codes. The primary outcome was 30-day readmission from date of initial operation.

RESULTS

A total of 130,007 patients who underwent primary bariatric surgery were identified: 7378 LAGB (5.7%), 80,646 LSG (62.0%), and 41,983 LRYGB (32.3%). A total of 5663 (4.4%) patients were readmitted within 30 days for all causes. Patients undergoing LAGB had the lowest related readmission rate of 1.4%, followed by LSG (2.8%), and LRYGB (4.9%). Of patients who had a complication, 17.9% (n = 785) were readmitted, whereas those without readmission had a complication 1.9% of the time (P < 0.001). The most common cause of a related readmission was nausea, vomiting, fluid, electrolyte, and nutritional depletion (35.4%), followed by abdominal pain (13.5%), anastomotic leak (6.4%), and bleeding (5.8%), accounting for more than 61% of readmissions. When compared with LAGB, LSG, and LRYGB had significantly higher rates of readmission (LSG: odds ratio 1.89; 95% confidence interval 1.52–2.33; LRYGB: odds ratio 3.06; 95% confidence interval 2.46–3.81).

CONCLUSIONS

National bariatric readmissions after primary procedures were closely associated with complications, varied based on the type of procedure, and were most commonly due to nausea, vomiting, electrolyte, and nutritional depletion.