subsequent NVF and mortality within 2 years follow-up. In the no-FLS, only standard fracture care procedures were followed. In the FLS all patients that were able and willing to participate had DXA and laboratory testing and, if applicable, treated according to the Dutch guideline. Subsequent NVF risk and mortality were compared between both patient groups. Hazard ratios (HR) were calculated using multivariable Cox regression analyses.

Results: After adjustment for age, gender and baseline fracture location, HR for NVF in FLS (n = 1412) compared to no FLS (n = 1910) was time-dependent: 0·84 (95%CI: 0·64–1·10) at 12 months and 0·44 (95%CI: 0·25–0·79) at 24 months. HR for mortality was 0·65 (95%CI: 0·53–0·79) without effect of time. HRs were significantly lower for subsequent NVF after hip fracture, and for mortality after hip or major fractures.

Conclusion: In patients evaluated at the FLS, the risk of subsequent NVF was 56% lower during the second year and mortality was 35% lower during the total follow-up of two years. These results indicate that a FLS should be considered, especially in patients with a hip or other major fracture.

Incidence and prognosis of presacral abscess and anastomotic leakage after colorectal surgery in patients with locally advanced rectal cancer

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Introduction: In this study incidence and prognosis of anastomotic leakage and the development of presacral abscess was assessed.

Methods and patients: From 1994 until 2011, a total of 665 patients underwent surgery for LARC. A total of 525 patients (323 male, 202 female; mean age 63 years) who underwent a LAR or APR were included.

Results: The overall incidence of presacral abscess formation was 13·7% (n = 72). Forty-one patients developed a presacral abscess after LAR, 19 underwent surgical intervention. In 8 patients sacrifice of the anastomoses was required (3·6%of patients). In the remaining patients conservative treatment (n = 15) or radiological drainage (n = 28) was sufficient.

The overall incidence of anastomotic leakage was 7·8% (n = 41). 26 patients required a surgical intervention, in 8 cases (3·6%) the anastomosis was sacrificed. In the remaining 18 cases a diverting stoma was created or a new anastomoses was made.

The only significant factor for the development of a presacral abscess we found is the timing interval between neo-adjuvant radiation and surgery. When dividing the timing interval into 3 groups (< 6, 6–8 and > 8 weeks) a significant correlation was found (OR = 7·69, p = 0·001). Significance remained after dividing the timing interval into 2 groups (< 8, > 8 weeks, OR = 2·41, p = 0·001). The only prognostic factor for anastomotic leakage we found was the presence of a presacral abces (OR = 19·83, p = 0·001).

Conclusion: Surgery within 8 weeks of neo-adjuvant treatment is associated with an increased risk in the development of a presacral abscess. A presacral abscess should raise suspicion for the presence of an anastomotic leakage, a significant correlation was found.

Locally recurrent rectal cancer after neo-adjuvant radiotherapy for the primary tumour; results of resection and re-irradiation

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Introduction: The application of neoadjuvant radiotherapy became widespread after the Dutch TME trail showed neoadjuvant radiotherapy to lower local recurrence rates. However, the widespread use of neoadjuvant radiotherapy also introduced a new problem: the treatment of local recurrence in a previously irradiated area. This study evaluates the results of re-irradiation, followed by resection of local recurrent rectal cancer in a previously irradiated area.

Patients and Methods: All patients treated for locally recurrent rectal cancer between 1998 and 2011 were retrospectively analysed.

Results: Resection of a local recurrence was performed in 110 patients. Twenty-five patients had received neo-adjuvant radiation therapy for the primary tumour. Nineteen patients had a minimal potential follow-up of one year and were considered eligible for evaluation. Surgery was performed in 12 men and 7 women with a median age of 63 (41–76) years. Re-irradiation dose was 27–30Gy, combined in 9 patients with capecitabine. A R0 resection was achieved in 3 patients, a R1 resection in 12 patients and a R2 resection in 4 patients. In all patients with positive margins, intra-operative radiotherapy was applied. Complications occurred in 10 (52%) patients. Median follow-up was 23 months. Disease free survival after 1 and 3 years was 61% and 33%, respectively. Local control was 66% after 1 and 44% after 3 years. The overall survival was 78% at 1 year and 50% at 3 years.

Conclusion: Re-irradiation followed by resection locally recurrent rectal cancer in previously irradiated patients is feasible. However, positive resection margins are common and intra-operative radiotherapy was indicated in the majority of cases.

Failure-to-rescue after colorectal surgery in the Netherlands

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Introduction: Postoperative mortality is frequently used in hospital comparisons as a marker for quality of care.

Differences may be explained by varying incidence of complications or by failure to treat complications adequately, referred to as *failure-to-rescue (FTR)*.

Aim of this study is to evaluate whether differences in hospital-mortality after colorectal surgery correlate with differences in severe complication rates or FTR. Second objective is to investigate possible differences in FTR after surgical and non-surgical complications.

Patients and methods: 24667 patients operated for colorectal cancer from 2009–2011, registered in the Dutch Surgical Colorectal Audit, were included. Adjusted mortality- complication- and FTR-rates were calculated. Hospitals were grouped into mortality-quintiles. Outcomes were compared between quintiles. Linear correlations were tested. Analysis of type of complications was done in patients operated in 2011.

Results: Severe complications ranged from 11 to 16% between the lowest and highest mortality-quintile (RR = 1,45). Correlation coefficient *r* was 0·304 (p = 0·003). FTR rates increased from 7 to 21% (RR = 3·0). Linear correlation was stronger, with *r* = 0·65 (p < 0,001).

In 2011, 1012 patients had severe complications. FTR rates were 71% following general-, 9% following surgical- and 28% after both complications. Adjusted OR of FTR was 5·8 for general compared to surgical complications.

Conclusion: High-mortality hospitals had slightly higher severe complication than low-mortality hospitals. However, differences in hospital mortality seem to be correlated strongly with differences in failure-to-rescue, suggesting that timely recognition and adequately treating complications may be an important area of improvement for reducing mortality. Attention should be paid to avoiding death after non-surgical complications.

Intraoperative ultrasound significantly improves outcomes in breast-conserving surgery for palpable breast cancer: results of a randomized controlled trial

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