Rectal cancer. Is the surgeon the variable in the outcome?

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Four factors influence the outcome of rectal surgery: tumour biology, stage of lesion, type of surgery performed and the performing surgeon himself. Tumour biology and tumour stage depend on each other and are not influenced by the surgeon, while he seems to have a great influence on the latter two factors. This influence mainly consists of the following: training, volume, individual skill and experience.

Key words: rectal surgery, tumour, biology

Training

Colo-rectal surgeons (CRS) performed more low anterior resections when compared to general surgeons (GS) (61.25.3%; p). GS performed abdomino-perineal resections (APR) more often than the CRS (49.27.5%; p=0.001). Recurrence rates were significantly higher in patients operated by GS (Hazard ratio (HR) = 2.5; p=0.001)².

Mortality rates for patients with moderately severe health problems are lower when operated by CRS (CRS:1.4%; GS: 7.3%). Length of hospitalisation is longer in patients operated by GS (12.3 vs. 16.1 days; p<0.001)³. Surgeons that had TME training had recurrence rates of 6%, as compared to 12.9% in the group without training. Risk of local recurrence increased by a factor of 2.7 (HR, 2.7; 95% CI, 1.7-4.2) in the non-TME trained group. Survival rate was 73% in the TME and 60% for the non-TME group (HR, 1.4; 95% CI, 1.1-1.8)⁴. Anterior resection (AR) compared with APR increased from 54% in the GS group to 77% in the CRS group. Mortality was lower in the CRS group (8%;1%, p=0.002), as were the complications (57%;24%, p=0.001), re-operation rates (17%;7%, p=0.008) and length of hospital stay (9;13, p=0.001)⁵. Significantly better survival and disease control is shown in patients that underwent proctectomy by CRS than by non-CRS (p=0.00004). In addition, sphincter preserving surgery was more common in CRS patients than in those of non-CRS (p=0.00004)⁶.

Volume

Hospitals that had 200 or more operations a year had death rates 25-41% lower than hospitals that did not. Surgeons that included less than 15 operations had an increased risk of local recurrence, the minimal volume offering optimal recurrence rates being 1 to 2 resections per month⁷. Surgeons who performed 21 procedures had better results. Local recurrence hazard ratio was 1.8 (p=0.001) and disease specific survival hazard ratio was 1.4 (p<0.005) if operated by a low volume surgeon⁸. However, a consistent relationship between survival and volume of individual surgeons or institutions as well as the use of APR cannot always be demonstrated⁹. Similarly, a decline was shown in the 30-day mortality rates from 4.3% (low volume surgeons) to 1.7% (high volume surgeons), and APR rates varied from 44% to 49%, but the association had no statistical significance. However, surgeon - procedure volume was associated with 2-year mortality (p<0.001) and overall survival (p=0.004)¹⁰. The review of a surgical practice in which surgeons operated less than 15 procedures per year, and where data collection was prospective gave results that were comparable to those of surgeons with a higher volume¹¹. Local recurrence rates were lower and disease specific survival increased for surgeons performing 21. They were significantly better when compared to those who had 21 procedures (HR = 1.8; p<0.001 and HR = 1.5; p=0.3, respectively)¹². Also, high-volume surgeons performed more TME resections (p=0.001), but no significant differences were seen in postoperative mortality, anastomotic leak or re-operation rates. Local recurrence rates were significantly higher in patients operated by low-volume surgeons (10 vs 4%)¹³. 30-day postoperative mortality rates and overall mortality were significantly (p<0.001) lower in the high-volume hospitals. The risk of death increased
as volume decreased (HR=1.28) as did the risk of undergoing a permanent colostomy (33.1% patients). The high volume group harvested a median of 2 lymph nodes more than the low volume group.

**INDIVIDUAL SKILL.**

A wide range of local recurrence between individual, high-volume, consultant surgeons (30 or more procedures) was noticed. Local recurrence were: less than 5%-3 consultants, 5-10% - 7 consultants, 10-15% - 6 consultants and more than 20% - 1 consultant surgeon (p<0.05, d.f.=19). Differences between individual high volume surgeons were confirmed in other trials, one surgeon had an odds ratio of 4.81, compared to the others who had an odds ratio of 1.71 for local recurrence. Statistically significant differences between individual surgeons were also noticed in the proportion of APR (39-83%), postoperative death or surgical complications (10-40%), local recurrence (0-41%) and death rates (16-57%).

**EXPERIENCE.**

Patients operated on by surgeons with more than 10 years specialist experience had a lower recurrence rate (relative risk 0.8, 95% CI, 0.6-10), as well as the risk of death (relative risk 0.8, 95% CI, 0.7-0.9). However, the mean annual number of operations performed by the operating surgeons did not significantly influence the risk of local recurrence or death from rectal cancer.

**CONCLUSIONS.**

There seems to be some evidence to suggest that surgical training, volume, individual skill and experience have an impact on patient outcome after surgery for rectum cancer. However, the potential of the above-mentioned studies to guide quality improvement is limited, this being due to methodological limitations of the data.

**BIBLIOGRAPHY.**


