Commentary

Laparoscopic *vs*. robotic colorectal resections: new insights from the American College of Surgeons National Surgical Quality Improvement Program

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We read with interest the article by Feinberg *et al*. (1) reporting the short-term results for colorectal resections performed by laparoscopy or Da Vinci System®. Data from of 8,864 colorectal resections performed in 2013 in hospitals participating at the American College of Surgeons National Surgical Quality Improvement Program (ACS-NSQIP) were retrieved concerning preoperative, intraoperative, and 30-day outcome data. For each robotic colorectal procedure there were about 18 laparoscopic resections, 472 robotic (5.6%) *vs*. 8,392 laparoscopic overall. Rectal resections were 1,449, 79 robotic (5.4%). These preliminary findings show that the use of the Da Vinci System® was not dependent to rectal *vs*. colonic localizations and maybe is more related to the habits of each institution, where in some hospitals robotic surgery is employed both for colon and rectal resections and the same is true for laparoscopy.

Although there are not solid data from randomized trials, surgeons performing robotic rectal surgery are aware that it is easier than laparoscopy which is characterized by steep learning curve. It was recently calculated that the mean number of cases required for the surgeon to be classed as an expert in robotic rectal surgery was 39 patients (2). The study showed two main findings. The first one was that the robotic cohort had a lower incidence of unplanned intraoperative conversion (9.5% *vs*. 13.7%, P=0.008). The second was that in the subgroup of rectal resections the employment of the robot resulted in a lower incidence of postoperative ileus than laparoscopy (3.8% *vs*. 11.18%, P=0.039). The only randomized control trial that was implemented [robotic versus laparoscopic resection for rectal cancer (ROLARR)] (3) had as primary end-point the conversion rate and after the completion of the enrolment failed to show a significant reduction rate of unplanned conversion in the robotic group overall. The subgroup analysis supported a benefit with the robotic approach for male patients, obese patients and those with lower tumors. The third interesting result is that there was no difference in duration of surgery between laparoscopic and robotic procedures. This is relatively new in the literature where robotic surgeries are reported to be more time consuming. There are two possible explanations. In the paper by Feinberg *et al*. a great amount of data were reported in a short time interval and in a recent year [2013], so that many institutions dealing with robotic surgery since early 2000s' have reached their plateau in the learning curve. Moreover, the same reason bringing a similar rate of robotic surgeries in colon and rectal cancer may account for a similar duration of surgery for laparoscopic and robotic procedures where institutions employing robotic surgery are committed to perform as many robotic procedures as possible, shortening the length of surgery. Focusing on colonic resections interesting data are coming out regarding the possible advantage of the Da Vinci system in performing right colectomies with a modified complete mesocolic excision technique (mCME). In a recent study (4), the authors confirmed the feasibility and safety of mCME for the treatment of right-sided colon cancer. This technique provided satisfying short-term outcomes with promising 4-year oncologic results.

The problem of increased costs with robotic surgery

is well known, however it was not a topic of the study by Feinberg *et al.* However the difference in costs per episode of care penalizing robotic surgery versus other conventional approaches widely ranges among studies (5). Moreover, an accurate analysis based on direct non-medical costs as well as indirect and social costs has never been conducted, and should be the aim for future studies.

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References

1. Feinberg AE, Elnahas A, Bashir S, et al. Comparison of robotic and laparoscopic colorectal resections with respect to 30-day perioperative morbidity. Can J Surg 2016;59:262-7.
2. Jiménez-Rodríguez RM, Rubio-Dorado-Manzanares M, Díaz-Pavón JM, et al. Learning curve in robotic rectal cancer surgery: current state of affairs. Int J Colorectal Dis 2016;31:1807-15.
3. American Society of Colon and Rectal Surgeons (ASCRS). Available online: www.fascrs.org/video/results-robotic-vs-laparoscopic-resection-rectal-cancer-rolarr-study-2015. Accessed Oct 6, 2015.
4. Spinoglio G, Marano A, Bianchi PP, et al. Robotic Right Colectomy with Modified Complete Mesocolic Excision: Long-Term Oncologic Outcomes. Ann Surg Oncol 2016;23:684-91.
5. Ramji KM, Cleghorn MC, Josse JM, et al. Comparison of clinical and economic outcomes between robotic, laparoscopic, and open rectal cancer surgery: early experience at a tertiary care center. Surg Endosc 2016;30:1337-43.

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