Women with early-stage cervical cancer are usually treated surgically with radical hysterectomy. Conventionally, only the abdominal hysterectomy (open surgery) has been performed, but the last 10-15 years more and more hospitals are using laparoscopic and robot-assisted surgery in radical hysterectomy of women with cervical cancer. However, recently released data from the Laparoscopic Approach to Cervical Cancer (LACC) trial indicated a higher recurrence rate and lower overall survival (OS) in patients with cervical cancer who were surgically treated laparoscopic compared to women treated via the abdominal approach. These unexpected results have led to a change in practice patterns at many institutions, which now have completely terminated or significantly reduced the application of microinvasive surgery (MIS) for cervical cancer.

Eoh et al. have compared the surgical and survival outcomes between abdominal radical hysterectomy (ARH) and robotic radical hysterectomy (RRH) in 310 women undergoing radical hysterectomy for cervical cancer from 2006 to 2018 at Yonsei Cancer Center, Severance Hospital, Seul, Korea. There were 142 women who underwent ARH and 168 women underwent RRH. Women who underwent RRH between 2006 and 2012 were classified as RRH1, and women who underwent RRH between 2013 and 2018 were classified as RRH2. RRH1 and RRH2 consisted of 77 and 91 women, respectively.

Progression-free survival (PFS) was significantly higher in the ARH group than in the overall RRH group (P = 0.002), but there was no difference between the ARH group and RRH2 (P = 0.629). Overall survival (OS) did not differ significantly between ARH and RRH, and there was no significant difference among ARH, RRH1, and RRH2. In conclusion, the institutional learning curve, represented by the operation year, is one of the most significant factors associated with outcomes of RRH for early-stage cervical cancer. We should not discard all the benefits of robot-assisted laparoscopy by doing away with the minimally invasive approach for cervical cancer. The mode of surgery should be determined according to each surgeon's proficiency. Surgeons are recommended to counsel their patients and decide on the mode of surgery based on the oncologic outcomes of the previous institutional patients.

The claims are properly placed in the context of the previous literature. The experimental data support the claims. The manuscript is written clearly enough that most of it is understandable to non-specialists. The authors have provided adequate proof for their claims, without overselling them. The authors have treated the previous literature fairly. The paper offers enough details of methodology so that the experiments could be reproduced.

Comments:

There has been a rapid and widespread adoption of the robotic surgical system with a lag in the development of a comprehensive training and credentialing framework. A structured training
curriculum is suggested incorporating evidence-based training techniques and benchmarks for progress. This usually involves sequential progression from observation, case assisting, acquisition of basic robotic skills in the dry and wet lab setting along with achievement of individual and team-based non-technical skills, modular console training under supervision, and finally independent practice.

Gynecologic oncologists performing robotic radical hysterectomy (RRH) need training and a high volume of surgeries to become highly skilled. In 2006-2012 there were 77 women in RRH1, corresponding to 11 women each year or one surgery every month. If there surgeries are performed by different gynecologic oncologists, the volume of each surgeon is very low. It is recommended that every surgeon perform at least 50 robot procedures every year to maintain a high level. If a surgeon has performed less than 20 procedures in the previous 12 months, the surgeon should perform simulator training.

In page 5, line 84-86, it is written «All the radical hysterectomies were performed by board-certified gynecologic oncologists at a single tertiary referral hospital and assisted by gynecologic oncology fellows».

How many different gynecologic oncologists were involved in the surgeries of the 310 women. Did the same board-certified gynecologist oncologists perform both abdominal radical hysterectomy (ARH) and robotic radical hysterectomy (RRH)? How many robot procedures every year did each gynecologic oncologists perform? Did the same gynecologic oncologists perform the surgeries in the two periods (2006-2012 and 2013-2018)?

Different surgeons have different skills, and «the institutional learning curve» may be reflecting the learning curve of each surgeon performing robot procedures. Usually high-volume hospitals have better surgical outcomes. Maybe complex cancer surgery should be centralized to large hospitals to sustain quality?

Are the methods appropriate and well described?
If not, please specify what is required in your comments to the authors.

Yes

Does the work include the necessary controls?
If not, please specify which controls are required in your comments to the authors.

Yes

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