Invited Commentary

An invited commentary on "Comparison of the learning curves for robotic left and right hemihepatectomy: A retrospective cohort study" (International Journal of Surgery 2020; Epub adhead of print)

Dear Editor,

Robotic hepatectomy is a complex surgery. As yet, there is no significant advantage reported in operative outcomes compared to laparoscopic hepatectomy [1]. The skill is a combination of hepatectomy, laparoscopic surgery, and competency at working with the robotic surgery system. All these expertise should be presumably acquired before one starts to perform robotic hepatectomy. In the study by Qu Liua and colleagues [2]; the surgeons in this study consisted of two groups, three skilled principal surgeons and two less skilled assistant surgeons. The principal surgeons performed more than 150 cases of laparoscopic liver surgeries before starting robotic hepatectomy. The assistant surgeons had no experience in laparoscopic hepatectomy and started robotic hepatectomy de novo; but only after simulator training and assisting principal surgeons who were in their learning curves. According to their laparoscopic liver surgery skill and experience, and number of robotic hepatectomy, these two groups were not homogeneous. The learning curves were based on 85 cases of robotic right hepatectomy and 85 cases of left hepatectomy by the skilled group, plus 15 cases each by the less skilled group performed under guidance of the principal surgeons who were in their learning curves. However, all the five surgeons were regarded to be in a single team and the differences in their skills and expertise were not taken into consideration. The master in the da Vinci Si Surgical System is a single surgeon, so the surgeries were performed by one surgeon, and actually it was not team work. Therefore, pooling data of all five surgeons together may be considered as a breach in homogeneity of the study group.

Demographic data of the patients were homogeneous throughout the study, thus patients with shorter operating time in the later part of study were not different from patients in the early part of study, i.e. they were not technically less complex. However, four patients who underwent robotic right hepatectomy were converted to open surgery. It is not known whether they were excluded or whether they were operated by the principal or the less skilled surgeons.

The authors showed that with increasing number of surgeries the operating time decreased for the whole team in a two-phase learning curve pattern. One remarkable finding in this study is that, in the second phase of study when the operating time was declining, two assistant surgeons with no experience in laparoscopic hepatectomy started robotic hepatectomy and showed to demonstrate to be at the same levels of the learning curves as the experienced surgeons. This leap in the learning curve through working with simulator and assisting experienced surgeons can be regarded as a significant yield, which should be implemented in a training curriculum.

Although the subject of this article [2] is about the learning curves of surgeons; there is no data regarding the details of operations by each surgeon, e.g. frequency, operating time, and blood loss. Presumably, data from a number of individual surgeons, at the same level of background experience and skill, going through learning curves on an adequate sample size of robotic hepatectomy should be collected and compared. Then pooled and analyzed to generate a learning curve that represents a mean value.

Provenance and peer review

Invited Commentary, internally reviewed.

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Declaration of competing interest

None.

References

[1] M.C. Halls, A. Alseidi, G. Berardi, F. Cipriani, M. Van der Poel, D. Davila, et al., A comparison of the learning curves of laparoscopic liver surgeons in differing stages of the IDEAL paradigm of surgical innovation: standing on the shoulders of pioneers, Ann. Surg. 269 (2) (2019) 221–228.

[2] Liua Qu, Tao Zhang, Minggen Hu, Zhiming Zhao, Guodong Zhao, Chenggang Li, Xuan Zhang, Wan Yee Lau, Rong Liu, Comparison of the learning curves for robotic left and right hemihepatectomy: a retrospective cohort study, Int. J. Surg. 81 (2020 September) 19–25, https://doi.org/10.1016/j.ijsu.2020.07.022, available online 30 July.

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