SX9: COMPARISON OF SKILL ACQUISITIONS FOR ROBOTIC AND LAPAROSCOPIC WITH THE PLS

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Background Laparoscopic training box is widely used to augment operative skills in minimally invasive surgery. The widespread use of the robotic plateform will probably modify the current way of learning for surgeons, including paediatric surgeons. The PLS has been validated for this particular cursus. Our aim was to compare the skill acquisition in limited workspace between robotic (RS) and laparoscopic surgery (LS) among naïve learners.

Materials and methods A total of 12 subjects without laparoscopic or robotic experience were randomized to perform a crossover study. Two of the specific tasks of the FLS (transfer plot (TP) and thread the rings (TR)) were both repeated 5 times by each subject alternatively with RS and LS. The learning curve was calculated with the time to perform each trial and data analysis was performed using student test.

Results The tasks were achieved faster with the RS than with CT ($p < 0.001$), respectively 63 vs. 264 seconds and 36 vs. 222 seconds for TP and TR. Percentage improvement with increasing trials was similar for RS and LS: final improvement averaged 36% and 50% (TP and TR, respectively) for RS and 37% and 57% for LS (p non significant). Within the TP task, RS times averaged 59 seconds without previous LS experience vs. 67 seconds with previous LS experience ($p=0.9$); LS times averaged 214 seconds with previous RS experience and 315 seconds without previous experience ($p < 0.01$). Comparable times for the TR task were 31 seconds vs. 39 seconds ($p < 0.05$) and 202 seconds vs. 237 seconds ($p=0.2$).

Conclusions As in large workspaces, speeds were faster overall with RS in the PLS. The percentage of speed improvement with trial was similar suggesting comparable learning curves for RS and LS. Paradoxical negative transfer effect from LS to RS was observed for both tasks.

Key words laparoscopy training, robotic, medical education, paediatric

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