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PRELIMINARY COMPARISON OF THREE SINGLE ACCESS TROCARS DURING CUT MANOEUVRES ON SIMULATOR.

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Background

Minimally invasive surgery has experienced great evolution in the last decades, and new alternatives are being largely encouraged nowadays by multiple research and clinical centres. Laparoendoscopic Single Site surgery (LESS) constitutes one of the most cherished approaches by surgeons around the world. Nevertheless, LESS entails a series of challenges for the operating team, which require training and time to adapt to the different available technological resources. In this study we present a preliminary comparison of three commercially available single access trocars, with regards to a series of cut tasks performed hands-on physical simulator.

Methods

A random schedule was determined for 24 surgeons, divided in three groups according to previous experience in minimally invasive approaches: novices, intermediates (with experience in laparoscopy), and experts (experienced both in laparoscopy and LESS). Three distinct single access devices were chosen (SILS^{TM} Port, GelPOINT® and XCone®) and used according to determined schedule. Each subject completed cut tasks hands-on physical simulator. Obtained data was analyzed with total completion time (minutes) and specific OSATS (Objective Structured Assessment of Technical Skills with a maximum score of 20) as the considered variables for each group.

Results

Average completion time with SILS^{TM} Port was of 3,46±1,06 minutes for novices, 2,48±0,63 minutes for intermediates, and 3,57±1,11 minutes for the experts. To perform the cut task with GelPOINT® and XCone® novices took 2,21±0,41, and 3,64±0,71, intermediates took 2,51±0,65 and 3,47±0,78, and experts took 3,15±0,84 and 3,46±0,89 minutes respectively. As for OSATS evaluation, the highest average score was obtained with GelPOINT® (15,65±2,06), followed by XCone® and SILS^{TM} Port. The experts group performed with higher quality with every single access trocar, obtaining the best results with XCone® (16,8±81,96; GelPOINT®: 16,75±2,49 ; SILS^{TM} Port: 16,00±2,00).

Conclusions

Cut manoeuvres are completed with higher quality when performed with a displaceable cannulae and flexible structure access device (GelPOINT®). Experts complete cut tasks with higher average OSATS score, but require more time. Previous experience and single access trocar features can thus be considered as influencing factors on overall performance and total completion time, during single access hands-on simulator cut tasks.