Abstract

Objectives: Microsurgical technical skills are essential for arterial and venous anastomosis in free flap reconstructive surgery. It is difficult to teach these skills in an intra-operatively and several models have been developed to provide practice in the simulation environment. The chicken thigh microvascular model is a high fidelity model that has been previously validated to differentiate between skill levels of surgeons. This study aimed to determine if use of this previously validated chicken thigh model for microvascular anastomosis training objectively improves resident microsurgical skills.

Study Design: Validation Study

Methods: Thirteen resident trainees were given a tutorial session on basic microvascular anastomosis techniques and were then allowed to practice performing several microvascular anastomoses with a previously validated chicken thigh model. These anastomoses were video recorded. The time it took trainees to throw a single stitch during their first anastomosis was recorded and compared to the time it took to throw a single stitch during their last anastomosis. Comparison of first and last stitch time was completed using Student T test. All participants were surveyed regarding their experience with the simulator.

Results: There was a statistically significant decrease between times for trainee’s first stitch compared to their last stitch, 235 sec vs. 120 sec (p = .0000072), with an average decrease of 48.7% (1min 55 sec) decrease in time. Junior (PGY2/3) and senior (PGY4/5) residents had similar decreases in time, 49.1% and 48.21%, respectively. There was a non-significant trend of senior residents performing faster first throws than junior residents, 206 sec vs. 260 sec. 100% of residents felt they improved during the session and 92% of residents agreed or strongly agreed their final stitch was better than their last stitch. All residents agreed or strongly agreed the simulation was realistic, was effective in teaching the procedure, and would prove useful when performing a real procedure.

Conclusion: The chicken thigh model for microvascular anastomosis demonstrated objective improvements in resident microvascular surgical skills.

Introduction

Microsurgical technical skills are essential for arterial and venous anastomosis in free flap reconstructive surgery.

Methods

13 Otolaryngology residents (PGY2-PGY5) were given a tutorial session on basic microvascular anastomosis techniques and use of chicken thigh simulator.

Conclusions

The chicken thigh model for microvascular anastomosis significantly improved an objective measurement of resident microvascular surgical skills.

Resident response indicated that the surgical simulator was useful in teaching the procedure and resulted in subjective self-reported improvement in skills.