Comparison of cricothyroidotomy on manikin vs. simulator: a randomised cross-over study

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Summary

We compared the time taken to perform cricothyroidotomy on a manikin to that on a medium fidelity simulator, to assess the effect of psychological stress and time pressure on performance. Seventy anaesthetists participated in this randomised cross-over study. Fifty-four (77%) anaesthetists took longer on the simulator, with the mean (SD) time taken to perform the procedure on the manikin and simulator 34 (16) and 48 (11) s, respectively (p < 0.001). Anaesthetists with more experience performed the procedure more quickly on both manikin and simulator. We conclude that psychological stress and time pressure in real-life scenarios can affect the performance of cricothyroidotomy.

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Cricothyroidotomy is a life-saving emergency airway procedure in a ‘can’t intubate can’t ventilate’ situation. It is the final step in the difficult airway algorithm of the American Society of Anesthesiologists [1] and the Difficult Airway Society [2]. However, most anaesthetists have only limited experience in the technique as it is infrequently required during normal practice in a routine operative scenario.

Methods

The subcommittee of our local Research Ethics Committee reviewed and approved this study.