Evaluation of advanced airway management in absolutely inexperienced hands: a randomized manikin trial.

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AIMS: Endotracheal intubation (ETI) and basic ventilation techniques (i.e. mouth-to-mouth/nose, bag-valve-mask ventilation) require skills and training. As an alternative, supraglottic airway devices (SAD) are efficient and technically easy to insert. We therefore evaluated the time to ventilation, success rate, and skill retention for various airway management approaches by medical laypersons using a manikin model.

METHODS: Fifty medical laypersons with no previous experience whatsoever in airway management or resuscitation were enrolled. All participants received a 1-h-long theoretical lecture and a practical demonstration of mouth-to-mouth ventilation, ETI, and six SAD. Afterwards, the laypersons performed mouth-to-mouth ventilation and used each of the seven airway-management systems on an advanced patient simulator (SimMan) in a random sequence. All participants were re-evaluated 3 months later without any further practical or theoretical demonstration.

RESULTS: The success rates for ETI were 74% during the first evaluation and 64% during the second, whereas the success rate for all six SAD was 100% during all application attempts. The success rate for mouth-to-mouth ventilation was 86% initially and 84% 3 months later. The time to adequate mouth-to-mouth ventilation was 15 ± 13 s initially and 16 ± 7 s subsequently. ETI required 53 ± 21 s during the initial evaluation and 44 ± 16 s 3 months later.

CONCLUSION: A variety of SAD all proved to reliably secure airways quickly, even in the hands of complete novices. The SAD were much more effective than ETI, which often failed, and were even superior to mouth-to-mouth ventilation. SAD may thus be an appropriate first-line approach to field ventilation.