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Supraglottic airway devices as conduits for unassisted tracheal intubation: a network meta-analysis

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Abstract

We aimed to compare the effectiveness of supraglottic airway devices as a conduit for unassisted tracheal intubation. We searched OVID-MEDLINE, EMBASE, the Cochrane Central Register of Controlled Trials, KoreaMed, and Google Scholar databases to identify all relevant randomized controlled trials (RCTs) of supraglottic airway devices as a conduit of tracheal intubation published until May 2017. The primary outcome was the overall success rate of intubation by the intention to treat (ITT) strategy. Secondary outcomes of the study were the overall success rate of tracheal intubation by the per protocol (PP) strategy, and the success rate of tracheal intubation at first attempt by ITT and PP. We conducted a network meta-analysis with a mixed-treatment comparison method to combine direct and indirect comparisons among supraglottic airway devices. Of 1396 identified references, 16 RCTs (2014 patients) evaluated unassisted intubation with supraglottic airway devices. Patients were allocated to LMA-CTrach, LMA-Fastrach, Air-Q, i-gel, CobraPLA, Aura-I or single-use LMA devices. Based on the surface under the cumulative ranking curve, the three best supraglottic airway devices for use as a conduit of unassisted tracheal intubation are LMA-CTrach(which includes video assisted tracheal tube guidance), single-use LMA-Fastrach, and LMA-Fastrach. LMA-Fastrach showed higher success rate of intubation compared with i-gel, CobraPLA, Air-Q and Ambu-Aura (RR 0.23, 95% CI 0.07 to 0.73; RR 0.18, 95% CI 0.048 to 0.67; RR 0.33, 95% CI 0.13 to 0.84; RR 0.075, 95% CI 0.011 to 0.50, respectively). However, the number of eligible RCTs was small which is a limitation of our study. Therefore, well-designed randomized trials performed in large patient populations are required in order to increase the confidence of the results

Troubleshooting