Video vs direct laryngoscopy for pre-hospital tracheal intubation: a 5-year retrospective analysis.

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BACKGROUND & OBJECTIVE

- It is recognised that multiple attempts at endotracheal intubation are associated with harm.
- In a hospital setting, studies strongly favour video (VL) over direct laryngoscopy (DL).
- However, some pre-hospital studies suggest VL may worsen outcomes[2], potentially due to unique environmental factors.
- **We aimed to compare the first pass success of VL and DL for pre-hospital endotracheal intubation in our service.**

METHODS

Design: Single centre retrospective cohort study.

Setting: Physician-paramedic HEMS team in UK.

Inclusion Criteria: Critically unwell adults & children requiring pre-hospital endotracheal intubation.

Time Period: 1st November 2018 to 22nd April 2024, during which VL was introduced with the option to use.

Primary Outcome: First pass success.

Statistical Methods: Chi squared test.

RESULTS

1,281 patients
median age 56 years
69% male

27% major trauma
27% OHCA with CPR ongoing
22% OHCA post ROSC

478 (37%) received VL
803 (63%) received DL
Overall first pass success 87%

- **First pass success higher for VL than DL (93% vs 83%, absolute risk difference 9.2%, p < 0.001).**
- Grade 1 view more common for VL than DL (86% vs 70%, p < 0.001).
- Overall success higher for VL than DL (99% vs 95%, absolute risk difference 4.2%, p < 0.001).
- **No difference in first pass success between physicians and paramedics (p = 0.514).**
- After the introduction of VL to our service in June 2022, we observed increases each year in both the proportion of VL intubations and first pass success rate.

DISCUSSION

Our findings support the routine use of VL for pre-hospital endotracheal intubation. The main limitations of this study include the before/after nature of data collection (routine practice changed across the study period, including the introduction of VL in 2022) and various confounders (e.g., perceived airway difficulty).

1 - Hansel J, Rogers AM, Lewis SR, et al. Videolaryngoscopy versus direct laryngoscopy for adults undergoing tracheal intubation. Cochrane Database of Systematic Reviews 2022, Issue 4. Art. No.: CD011136.

2 - Jiang J, Ma D, Li B, Yue Y, Xue F. Video laryngoscopy does not improve the intubation outcomes in emergency and critical patients - a systematic review and meta-analysis of randomized controlled trials. Crit Care. 2017;21(1):288.

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