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Use of C-MAC® Videolaryngoscope for Endotracheal Intubation in Patients with Out-of-hospital Cardiac Arrest

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Introduction:

Airway management in out-of-hospital cardiac arrest (OHCA) is essential, but endotracheal intubation (ETI) is controversy discussed. Patients in cardiac arrest do need immediate successful airway management in that position they are found in. This study´s aim was to observe the effect of using C-MAC® video laryngoscope (STORZ, Tuttlingen) in this scenario.

Methods:

In a retrospective secondary analysis of prospective collected data from the helicopter emergency medical service (HEMS) Christoph 22 based at Ulm, Germany and staffed with board certified anaesthesiologists from Armed Forces Hospital, Ulm. 1006 out-of-hospital intubations using C-MAC video laryngoscope were enrolled and divided into 2 groups: patients in OHCA (CPR group) and patients that were in need of airway management due to any other medical reason (non-CPR group).

Results:

223 patients in the CPR-group were compared to 783 cases in the non-CPR group. Overall success rate of airway management was 100 %. Intubation was successful in 1002 patients; in each of the groups one supraglottic airway device and one cricothyroidotomy was necessary (intubation success rate CPR 99.1 % vs. non-CPR 99.7 %). Patients with OHCA were significantly more often intubated in impaired positions (20.3 % vs. 3.8 %) and had a twofold risk not be intubated successfully on the first attempt (OR 2.04, P=0.02). Further results are presented in the following table:

n_{total} = 1006	non-CPR (n=783)	CPR (n=223)	p < 0.05
Impaired patient position during ETI	3.8 %	20.3 %	*
Impaired direct laryngoscopy (DL)	32.4 %	44.8 %	n.s.
Impaired video laryngoscopy (VL)	9.6 %	21.7 %	*
Impaired endotracheal inrubation (ETI)	12.1 %	22.8 %	*
C/L 3+4 (VL)	3.5 %	9.2 %	*
Use of suction	10.1. %	18.8. %	*
First pass success	91.4 %	84.8 %	*

Conclusion:

Airway management in anaesthesiologist-staffed HEMS is frequently performend with a high first pass intubation success. Due to impaired positioning during ETI and a higher ratio of blurred laryngeal view due to secretion requiring suction, first pass intubation success remains more difficult in cardiac arrest patients even when using a video laryngoscope.

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