

Watch out for the weight and watch in with the video. Videolaryngoscopy as clinical risk mitigator in obese patient

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BACKGROUND AND GOAL OF THE STUDY Videolaryngoscopy is considered the main technique to facilitate tracheal intubation and reduce its complications, among which inhalation pneumonias. Its use is strongly recommended in airway management of obese patient.

In the operating block of Profili Hospital in Fabriano videolaryngoscopy has been the routine practice since November 2021.

The goals of the study were:

- 1) Evaluate the routine use of videolaryngoscopy in reducing clinical risk during tracheal intubation in adult obese surgical setting;
- 2) Evaluate the correlation between videolaryngoscopic intubation efficacy and lower risk of inhalation pneumonias in obese patients.

MATERIALS AND METHODS

Retrospective observational study of 114 adult obese patients (47 female and 67 male) out of a total of 531 adult patients (210 female and 321 male) undergoing surgery, stratified by BMI and assessed through El Ganzouri Risk Score, Fremantle Score and use of additional devices.

RESULTS No intubation was failed, regardless of BMI, difficulties predicted by El Ganzouri and videolaryngoscopic view obtained. In 91,23% of obese patient group, intubation was performed at first attempt, in the remaining 8,77% at second attempt. This ease of intubation added to direct visualization of tube placement almost eliminated risk of inhalation pneumonias.

Our case history showed that in 18,42% of cases the clinician used blade 3D (special blade for difficult intubation), in 8,77% of intubations the patient was put in the ramped position and only 1 patient required Frova Intubating Introducer.

No relation seemed to be between BMI and neck circumference (large measurements in the lower BMI ranges).

CONCLUSIONS Based on our data we can conclude that routinary use of videolaryngoscopy has reduced use of additional devices for managing difficult airways in obese group patient; it has completely decreased clinical risk of difficult intubations, eliminating the impossible ones and it has strongly reduced the risk of inhalation pneumonias.

VARIABLE	EVALUATION	N° (%)			
		30<BMI<35	35≤BMI<40	BMI≥40	
Gender	Male	51 (44,74)	15 (13,16)	1 (0,88)	
	Female	33 (28,95)	10 (8,77)	4 (3,51)	
Neck circumference	35<Neck circumference<40	7 (6,14)	0 (0)	1 (0,88)	
	40≤Neck circumference<50	64 (56,14)	13 (11,40)	4 (3,51)	
	Neck circumference≥50	13 (11,40)	12 (10,53)	0 (0)	
El Ganzouri Score	<4	61 (53,51)	10 (8,77)	2 (1,75)	
	≥4	23 (20,18)	15 (13,16)	3 (2,63)	
Fremantle Score	View of vocal cords with videolaryngoscopy	Full	61 (53,51)	19 (16,67)	4 (3,51)
		Partial	21 (18,42)	5 (4,39)	1 (0,88)
		None	2 (1,75)	1 (0,88)	0 (0)
	Intubation difficulty	Easy (OTI at first attempt)	77 (67,54)	23 (20,18)	4 (3,51)
Difficult (OTI on the second attempt or additional devices required)		7 (6,14)	2 (1,75)	1 (0,88)	
Failed		0 (0)	0 (0)	0 (0)	
Videolaryngoscope and blade size	1	0 (0)	0 (0)	0 (0)	
	2	0 (0)	0 (0)	0 (0)	
	3	6 (5,26)	1 (0,88)	0 (0)	
	3D	11 (9,65)	8 (7,02)	2 (1,75)	
	4	67 (58,77)	16 (14,04)	3 (2,63)	
Extra	Ramp position	6 (5,26)	3 (2,63)	1 (0,88)	
	Frova Introducer	0 (0)	1 (0,88)	0 (0)	
	Fiberoptic bronchoscope	0 (0)	0 (0)	0 (0)	

REFERENCES Commissione tecnica sul rischio clinico, Ministero della salute, Dipartimento della Qualità. Risk Management in Sanità, il problema degli errori. Marzo 2004. Roma. - Cook TM et al. Major complications of airway management in the UK: results of the Fourth National Audit Project of the Royal College of Anaesthetists and the Difficult Airway Society. Part 1: anaesthesia. Br J Anaesth. 2011;106(5):617-31. - Corso RM, Bucciolini M, Agnoletti V et al. Un sistema informatizzato per la gestione peri-operatoria delle vie aeree: il progetto Vie Aeree Difficili. Evidence 2013;5(1): e1000031. - Linee di indirizzo per la gestione delle vie aeree nell'adulto, Regione Emilia-Romagna, Novembre 2018. - Auroy Y, Benhamou D, Péquignot F, Bovet M, Jouglia E, Lienhart A. Mortality related to anaesthesia in France: analysis of deaths related to airway complications. Anaesthesia 2009;64:366-70. - Law, J.A., Duggan, L.V., Asselin, M. et al. Canadian Airway Focus Group updated consensus-based recommendations for management of the difficult airway: part 2. Planning and implementing safe management of the patient with an anticipated difficult airway. Can J Anesth/J Can Anesth 68, 1405-1436 (2021). - Heinrich S, Irouschek A, Prottegeier J, Ackermann A, Schmidt J. Adverse airway events in parturient compared with non-parturient patients. Is there a difference? Results from a quality management project. J Obstet Gynaecol Res 2015; 41: 1032-9. - Engelhardt T, Virag K, Veyckemans F, Habre W; APRICOT Group of the European Society of Anaesthesiology Clinical Trial Network. Airway management in paediatric anaesthesia in Europe-insights from APRICOT (Anaesthesia Practice In Children Observational Trial): a prospective multicentre observational study in 261 hospitals in Europe. Br J Anaesth 2018; 121: 66-75. - Zakalkins, Antons & Kazune, Sigita. (2018). Prediction of Difficult Tracheal Videolaryngoscopic Intubation Using El-Ganzouri Risk Index. Acta Chirurgica Latviensis. 17. 18-22. 10.1515/chilat-2017-0012. - O'Loughlin, E.J., Swann, A.D., English, J.D. and Ramadas, R. (2017). Accuracy, intra- and inter-rater reliability of three scoring systems for the glottic view at videolaryngoscopy. Anaesthesia, 72: 835- 839 - Lane G. Intubation techniques. Oper Tech Otolaryngol Head Neck Surg 2005; 16: 166- 70