

VIDEO LARYNGOSCOPIC INTUBATION FOR PATIENTS WITH SUSPECTED CERVICAL SPINE INJURY: A RANDOMIZED CONTROLLED TRIAL

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INTRODUCTION

Airway management of polytrauma patients with suspected cervical spine injury is the starting point of resuscitation. Spinal cord injury (SCI) can lead to deleterious neurological and functional deficits. A high index of suspicion for C-spine injury should be present in all trauma patients. Direct laryngoscopy (DL) is considered the most studied technique. Video laryngoscopy (VL) utilizes video camera technology to visualize airway structures and facilitate endotracheal intubation. The C-MAC D-Blade video laryngoscope represents an important update to the current C-MAC system, its unique half-moon shape leads to an overall higher angulation when compared with the traditional C-MAC blade.

AIM OF THE WORK

The primary aim of the present study is to compare DL versus VL regarding success rate of first attempt of intubation in trauma patients with suspected cervical spine injury. The Secondary aim is to compare the incidence of post intubation complications in both techniques.

SUBJECTS AND METHODS

All patients were subjected to airway assessment following the ATLS guidelines including complete history taking from the relatives, detection of objective signs of airway obstruction and possible compromised ventilation, brief chest examination and cervical spine assessment according to the nexus criteria. Patients were randomly categorized by closed envelope method. **Group 1:** Intubated with DL while another member of the emergency team performed manual in line stabilization of the cervical spine. Ketamine in a dose of 0.75mg/kg and midazolam in a dose of 0.05mg/kg was administered intravenously for facilitation of intubation. **Group 2:** Intubated with VL while another member of the emergency team performed manual in line stabilization of the cervical spine. ketamine and midazolam was administered as in Group1.

RESULTS

Ninety-two percent of patients in the VL group were successfully intubated at first attempt relative to 88% in DL group ($p=0.505$). Time to successful intubation at first attempt in DL group ranged from 11 to 20 seconds with a mean of 15.82 ± 3 seconds. In VL group, it ranged from 10 to 23 seconds with a mean of 16.83 ± 3.49 seconds ($p=0.146$). Total time to achieve successful intubation in VL group ranged from 10 to 115 seconds with a mean of 24.26 ± 25.71 seconds. In DL group, Total time to achieve successful intubation ranged from 11 to 126 seconds with a mean of 27.52 ± 32.25 seconds ($p=0.383$).

Table 1: Comparison between the two studied groups according to demographics

	Mode of intubation					
	Direct (n = 50)		Video (n = 50)		Test of Sig.	p
	No.	%	No.	%		
Sex						
Male	36	72.0	40	80.0	$\chi^2=$ 0.877	0.349
Female	14	28.0	10	20.0		
Age (years)						
Min. – Max.	26.0 – 72.0		18.0 – 68.0		t= 1.729	0.087
Mean ± SD.	45.28 ± 13.95		41.0 ± 10.57			
Median (IQR)	45.0 (34.0 – 54.0)		42.0 (35.0 – 47.0)			

Table 2: Comparison between the two studied groups according to mechanism of trauma

	Mode of intubation					
	Direct (n = 50)		Video (n = 50)		χ^2	p
	No.	%	No.	%		
Mechanism of trauma					0.208	0.648
RTA	38	76.0	36	72.0		
FFH	12	24.0	14	28.0		

Table 3: Comparison between the two studied groups according to successful first attempt, time to successful intubation at first attempt and total time to achieve successful intubation

	Mode of intubation					
	Direct (n = 50)		Video (n = 50)		Test of Sig.	p
	No.	%	No.	%		
Successful first attempt					$\chi^2=$ 0.444	0.505
No	6	12.0	4	8.0		
Yes	44	88.0	46	92.0		
Time to successful intubation at first attempt (seconds)	(n = 44)		(n = 46)		t= 1.468	0.146
Min. – Max.	11.0 – 20.0		10.0 – 23.0			
Mean ± SD.	15.82 ± 3.0		16.83 ± 3.49			
Median (IQR)	17.0(13.0 – 18.0)		17.0 (14.0 – 0.0)			
Total time to achieve successful intubation (seconds)	(n = 50)		(n = 50)		U= 1112.50	0.341
Min. – Max.	11.0 – 126.0		10.0 – 115.0			
Mean ± SD.	27.52 ± 32.25		24.26 ± 25.71			
Median (IQR)	17.0 (13.0 – 19.0)		18.0 (14.0 – 20.0)			

Success rate of intubation trial	(n = 50)		(n = 50)			
	No.		%			
1 st trial						
Failed	6	12.0	4	8.0	0.444	0.505
Success	44	88.0	46	92.0		
2 nd trial						
Failed	0	0.0	0	0.0	—	—
Success	50	100.0	50	100.0		

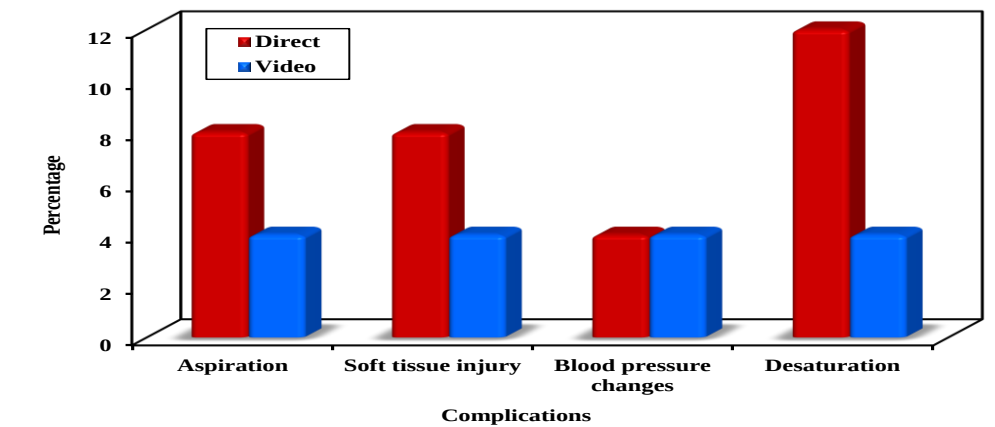


Figure: Comparison between the two studied groups according to complications

CONCLUSION

- 1.Video laryngoscopy achieves comparable results to Direct laryngoscopy among emergency residents during intubation of polytrauma victims with cervical spine stabilization regarding success rate of first intubation attempt and total duration to successful intubation.
- 2.VL appears to have similar safety profile as Direct laryngoscopy during intubation of trauma victims with cervical spine stabilization.