Video laryngoscopy in obstetrics: A comparison between the King Vision Video Laryngoscope, the C-MAC Video Laryngoscope and direct laryngoscopy for airway management during C-section

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INTRODUCTION:

Even though the incidence of difficult intubation is similar in pregnant and non-pregnant patients, the severity of complications will be much greater in pregnant women. The first-pass success is therefore even more important as multiple attempts at intubation can lead to severe hypoxia, airway obstruction and a sleeping baby being taken out.

The role of video laryngoscopy in difficult intubation in obstetric has recently been recognized in the OAA/DAS 2015 guidelines. So far, there are only a few reports published of using video laryngoscopy to manage the airway for C-section. The aim of this study is to compare two different video laryngoscopes with direct laryngoscopy using the time to intubation as our primary outcome measure.

METHODS:

Following approval of the University Medical Centre ethics committee, 165 patients undergoing elective or emergency C-section were planned to take part in the study. Patients with predicted difficult airway were excluded. We recorded time to intubation, success rate, time to optimal glottic view, number of attempts, Cormack-Lehane grade, the need for optimisation manoeuvres and Intubation Difficulty Score. Failure of the procedure was declared if intubation was not successful after 60 s and if SaO₂ dropped < 92%. Intubations were video recorded using the C-MAC and King Vision recording facility.

We used SPSS v21 to analyse the data: ANOVA for normally distributed continuous data, Kruskal-Wallis for non-normally distributed continuous and ordinal categorical data and Chi-Squared test for nominal data.

RESULTS:

Preliminary findings from 161 parturients with mean (SD) age (32.4±5.2 years) and BMI (29.3±4.2 kg/m²) are presented in Table 1. We recorded no failures of intubation. In only six patients the second attempt at intubation was needed. There were also no significant differences in time to successful intubation between the three intubating devices.

TABLE 1. Intubating characteristics of the Macintosh laryngoscope, the C-MAC video laryngoscope and the King Vision video laryngoscope

	Macintosh (n=53)	C-MAC (n=58)	King Vision (n=50)	P value
Time to successful intubation (s)	30 ± 15	25 ± 7	29 ± 10	NS
Time to optimal glottic view (s)	8 ± 3	7 ± 3	10 ± 7	0.009
Intubation difficulty score (0-100)	23 ± 18	18 ± 15	30 ± 18	0.003
Cormack-Lehane grade (1/2/3/4)	17/29/6/1	26/27/5/0	39/9/2/0	< 0.0001
Second intubating attempt	3	1	2	
Optimization manoeuvres NO/ YES	43/10	45/13	13/37	< 0.0001

CONCLUSION:

The King Vision video laryngoscopy is associated with many optimization manoeuvres for obtain the optimal laryngeal view in obstetric patients. However, in parturients with suboptimal view, the King Vision VL may improve the glottis view to facilitate intubation.

The C-MAC video laryngoscope could serve as a standard intubation device for airway management for C-section since it combines the benefits of conventional direct laryngoscopy and video laryngoscopy in one device.