

A Study on Intubation among Pregnant Women Undergoing Cesarean Section

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Abstract

Introduction: The risk of failed intubation in obstetrics has been estimated to be eight folds compared to the general surgical cases (i.e.,) an incidence of 1:250 in obstetric compared to 1:20,000 in general surgical cases. As there is an attempt to lower caesarean section rates and a higher percentage are performed using regional technique individual practitioners have less experience with general anesthesia in obstetrics.

Methodology: 60 female patients were divided into two groups Group I consisted of 30 pregnant women posted for cesarean section under general anaesthesia. Group II consisted of 30 non pregnant women posted for General Surgeries under General anaesthesia.

Results: Cormack and Lehaneslar-yngoscopic view grading in both in group, in group I, 24 out of the 30 patients had Grade A (80%) compared to 28 out of the 30 patients in group II (93.3%).

Conclusion: Statistically significant changes were not seen in the Cormack and Lehanes grading of the laryngoscopic view.

Keywords: Intubation; Pregnancy; LSCS.

Introduction

The airway continues to be a significant management problem in the practice of obstetric anaesthesia. Difficult intubation, aspiration (often related to airway management) and a high incidence of substandard care are consistent finding in deaths directly attributable to anaesthesia [1,2].

It is encouraging that the overall anaesthesia-related maternal death is small and has decreased significantly in recent decades. Much of this decrease has been attributed to the greater use of regional anaesthesia which has a much lower death rate than that for general anaesthesia [3,4]. In fact 50 per cent of anaesthesia related maternal mortality involves general anaesthesia despite the fact that general anaesthesia accounts for only 16 percent of anaesthetics for cesarean delivery. However, death rates for general anaesthesia may actually be increasing [3]. However, this may be to a trend to reserve the use of general anaesthesia for the most emergent cesarean section.

The risk of failed intubation in obstetrics has been estimated to be eight folds compared to the general surgical cases (i.e.,) an incidence of 1:250 in obstetric compared to 1:20,000 in general surgical cases [5-8].

As there is an attempt to lower

caesarean section rates and a higher percentage are performed using regional technique individual practitioners have less experience with general anaesthesia in obstetrics [9,10]. Therefore, it is critically important to be aware of the problems (difficult airway management, aspiration), minimize the incidence of encountering problems, and be capable of instituting alternative management plans should difficulty be encountered. The goal in obstetric anaesthesia is 'Oxygenation Without Aspiration' [11].

Methodology

Source of Data

60 female patients were divided into two groups Group I consisted of 30 pregnant women posted for cesarean section under general anaesthesia. Group II consisted of 30 non pregnant women posted for General Surgeries under General anaesthesia.

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Inclusion Criteria

Group - I: Female patients aged 18-39 years of ASA grade I and II, pregnant at term, posted for LSCS with no obvious airway problem.

Group - II: Female patients aged 18-39 years of ASA grade I and II without any obvious airway problem requiring general anaesthesia.

Exclusion Criteria

Patients of ASA Grade III and IV

Patients with jaw tumours

Patients with obvious difficult airway

Results

In group I patients age ranged from 19 to 38 years with a mean of 25.53 years and standard deviation of 4.79. In group II patients age ranged from 18 to 38 years with a mean of 28.73 years and standard deviation of 5.94.

In group I weight ranged from 40 to 80kgs. With mean of 54.43kgs a standard deviation of 9.21, in group II weight ranged from 40 to 90kgs with a mean of 53.13 kgs and standard deviation of 9.97.

In group I weight ranged from 4 to 80 kgs with mean of 54.43kgs a standard deviation of 9.21, in group II weight ranged from 40 to 90 kgs with a mean of 53.13 kgs and standard deviation of 9.97.

Table 3 shows the Cormack and Lehane laryngoscopic view grading in both in group, in group I, 24 out of the 30 patients had Grade A (80%) compared to 28 out of the 30 patients in group II (93.3%).

In group I, 6 out of the 30 patients had Grade B (20%) compared to 2 out of 30 patients in group II (6.7%).

Using the Fischer's exact probability test there was no statistically significant difference in Cormack and Lehane laryngoscopic view between the groups ($P > 0.05$).

Table 4 shows the Ease or difficulty in intubation in both the groups, in group I, 24 out of the 30 patients belonged to Grade 1 (80%) compared to 29 out of the 30 patients in group II (96.7%).

In group I, 5 out of the 30 patients belonged to Grade 2 (16.7%) compared to 1 out of 30 patients in group II (3.3%).

In group I, 1 patient belonged to Grade 3 (3.3%) no patients in group 2 belonged to grade 3.

A statistically significant difference in the ease or difficult in intubation between the groups was

Table 1: Age distribution in years

Groups	N	Mean	Std. deviation
Group I	30	25.53	±4.79
Group II	30	28.73	±5.94

Table 2: Weight distribution in kgs

Groups	N	Mean	Std. deviation
Group I	30	58.43	±9.21
Group II	30	53.13	±9.97

Table 3: Cormack and Lehane grading of laryngoscopic view

		Group I	Group II	P	Remark
C&L Grade A	No. of patients	24	28	>0.05	NS
	% within group	80.0	93.3		
C&L Grade B	No. of patients	6	2	>0.05	NS
	% within group	6.7	20.0		
Total		30	30		

NS - Non-significant

Table 4: Ease or difficulty of Intubation

		Group I	Group II	P	Remark
Difficulty 1	No. of patients	24	29	< 0.05	S
	% within group	80.0	96.7		
Difficulty 2	No. of patients	5	1	< 0.05	S
	% within group	16.7	3.3		
Difficulty 3	No. of patients	1	-	< 0.05	S
	% within group	3.3	-		
Total		30	30		

S - Significant

observed using Fischer's exact probability test ($P < 0.05$, one sided hypotheses).

A rank correlation co-efficient was used between the following groups.

1. Modified mallampati classification and Cormack and Lehaneslaryngoscopic view grading.
2. Wilsons-risk-sum values and Cormack and Lehaneslaryngoscopic co-relation coefficient $r = 0.054$ which is very highly significant $P > 0.001$.

For mallampati and Cormack and Lehaneslaryngoscopic co-relation coefficient $r = 0.054$ which is very highly significant $P < 0.001$.

For Wilsons-risk-sum value and Cormack and Lehaneslaryngoscopic grading co-relation co-efficient $r = +0.558$ which is very highly significant.

The above observation showed a high positive co-relation between above two classifications.

Discussion

Difficulty with tracheal intubation is a major concern for every anaesthesiologist. In the obstetric population the risk of failed intubation has been reported to be as great as 1 in 250 undergoing cesarean section, which is eight times the rate in the general surgical patient population. Such are the consequences of failed tracheal intubation that a number of attempts have been made to predict those patient in whom tracheal intubation will subsequently prove to be difficult. Risk factor identified at the pre-operative visit have been used to alert the anaesthesiologist to that alternative methods of securing the airway can be used or additional experienced support obtained.

In the present study conducted in our institution we have compared the Airway changes in pregnant women coming for cesarean section under general anesthesia with non-pregnant women coming for cesarean section under general anesthesia with non-pregnant women coming for general surgical procedures requiring general anaesthesia. A total of 60 patients were chosen for the study and divided into two groups. Group I consisted of pregnant women for cesarean section and Group II consisted of non-pregnant women for general surgeries. In both the groups pre-operative assessment of the airway was carried out using Modified Mallampati's classification and Wilson's-risk-sum values. In both the groups Rapid sequence induction and intubation of anaesthesia was carried out and the view at

laryngoscopy was assessed using Cormack and Lehanes grading of laryngoscopic view. The ease of difficulty in tracheal intubation was graded on a subjective scale.

We observed a general increase in the Modified Mallampati's score in pregnant women compared to the non-pregnant women which was statistically significant ($P < 0.01$) No significant changes in the Wilson's-risk-sum values were noted in both the groups. Statistically significant changes were not seen in the Cormack and Lehanes grading of the laryngoscopic view. A statistically significant correlation was found between increase in the Mallampati Grade and Wilsons Score with increase in the Cormack and Lehaneslaryngoscopic grading ($P < 0.01$). We also observed a statistically significant increase in the difficulty of intubation in the pregnant group compared to the non-pregnant group ($P < 0.05$).

Conclusion

Cormack and Lehaneslaryngoscopic grading does not seem to change much in pregnancy, though. This could be due to the Tracheal mucosal oedema seen as a part of physiological change in pregnancy.

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