Original Research Article

Cervical cerclage and anaesthesia - Regional or General: Which is better?

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Abstract

Background: Cervical incompetence is the most common cause of second trimester spontaneous abortions and preterm labour4. Cervical cerclage is usually performed in such patients to prevent this sequelae. In our study, the cervical cerclage procedure was done under general and regional anaesthesia3 in order to find out the most suitable anaesthetic technique for this procedure. **Methods:** In our study 70 patients were studied. They were randomly divided into 2 groups of 35 patients each. The efficacy of general anaesthesia and regional anaesthesia were studied. **Results:** All the patients receiving general anaesthesia required sedation essentially and more post-operative analgesia(42.86%) compared to the regional anaesthesia group(5.71%). 25.71% of patients had postoperative nausea in the G group compared to 2.86% of the patients in R group. The surgical time was approximately the same in all the patients. Even though the anaesthesia time and the recovery room stay was more in the R group, this statistically significant difference was not of much clinical importance. The hospital stay was the same in both the groups and was statistically insignificant(p 0.22). **Conclusion:** Both general and regional anaesthesia can be safely used for the performance of cervical encirclage procedure without any significant complication.

Keywords: Cervical cerclage, General anaesthesia, Regional anaesthesia.

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INTRODUCTION

Preterm birth continues to be the most problematic obstetrical issues with an increasing incidence. The underlying pathophysiology remains elusive and difficult to study. Cervical insufficiency remains to be an important cause of preterm labour. Although prior evidence suggested that cervical competence is a continuous rather than categoric variable and is indicated indirectly by measurement of the length of the cervix[3], most of the women with incompetent cervical os have an abnormal cervical anatomy, albeit with varying size or length. A poor reproductive history with a dominant cervical etiology may result in the process of premature cervical ripening and includes underlying factors like subclinical infection in the decidua or amniotic cavity, local inflammation from noninfectious sources, hormonal effect or genetic predisposal. Thus the integrity of the cervix becomes compromised and additional processes get stimulated leading to preterm labour. The specific timing of events leading to preterm birth cannot be determined. Hence the prevention and treatment strategies are largely empirical and cervical os tightening remains to be one of them. Cervical incompetence can be treated by cervical cerclage which is performed under general or regional anaesthesia.[3]

MATERIALS AND METHODS

The study was conducted at Yashwantrao Chavan Memorial Hospital after getting approval from the appropriate authorities of the hospital. The study was

conducted in the year 2010. Written informed consent was taken from all the patients. The study was conducted in 70 registered antenatal patients. They were randomly divided into 2 groups viz. 35 patients in each group. Group 'R' patients were given regional anaesthesia in the form of 'Saddle block' and Group 'G' patients were given balanced 'General Anaesthesia'. 1 ampule of Inj. Glycopyrolate was given intramuscularly to all the patients, half hour prior to surgery. On arrival to the operation theatre, an IV line was secured in all the patients with a 20 gauge intracath. Antacid prophylaxis with Inj. Ondensetron and Inj. Ranitidine was given intravenously to all the patients before the induction of anaesthesia. Standard monitors were attached to all the patients which included ECG, HR, BP, SPO_2, RR. In the R group, saddle block was given in the sitting position with No 26 gauge spinal needle following strict aseptic precautions. 1 cc of Inj. Bupivacaine(heavy) was injected into the subarachnoid space after confirming free flow of cerebrospinal fluid. Patients were kept in sitting position for 8 minutes and lithotomy position was given thereafter. Patients in the G group were given general anaesthesia. IV sedation was given in the form of Inj. Pentazocine 0.4 mg/kg and Inj. Promethazine 0.5 mg/kg. Inj. Midazolam 0.05 mg/kg IV was given additionally to maintain adequate plane of surgical anaesthesia in an attempt to reduce the fetal exposure to systemic anaesthetic drugs. Induction of anaesthesia was done with Inj. Propofol 2 mg/kg IV. Patients were maintained on Bain's circuit with O_2, N_2O and sevoflurane on spontaneous respiration throughout the procedure. The demographic baseline parameters, duration of surgery, anaesthesia timing, and the patients' stay in the OT as well as the recovery room were compared. The opioid requirement, postoperative analgesia, and the incidence of postoperative nausea, vomiting and the hospital stay was also compared in both groups. Postoperative analgesia was given with Inj. Tramadol 2mg/kg IM in patients who demanded pain relief.

RESULTS

Total 70 patients were allotted in 2 groups i.e. 35 patients in each group. General anaesthesia was compared with regional anaesthesia in both the groups. We used the SPSS software, version 17 to analyze our data and the tests used were Z test and Proportion test. Table 1 shows the comparison of demographic characteristics in both the groups which is not statistically significant. Table 2 shows the comparison of surgical and anaesthetic parameters between the 2 groups. The average surgical time in the G group was 10.181 mins (SD 1.181) and 10.663 mins (SD 1.134) in the R group(p value 0.084) which was not statistically significant. The anaesthesia time required in the G group was 10.611 mins (SD 1.0900) and 25.777 mins (SD 1.2723) in the R group(p value < 0.0001). This was a statistically significant difference, since the waiting period after the saddle block was also included. Patients in the R group were made to sit for 8 minutes after injecting the drug into the subarachnoid space.

Table 1: Comparison of demographic characteristic in group G and group R

Parameter	Group G (n=35)		Group R (n=35)		Z Value	P Value
	Mean	SD	Mean	SD		
Age (Yrs)	25.49	3.868	25.51	3.776	0.03	0.97
Weight (Kg)	56.89	9.333	56.11	8.578	0.36	0.72
Gravidity	2.11	1.157	2.37	1.516	0.80	0.43
Parity	0.57	0.739	0.46	0.657	0.68	0.50
GA (Wks)	18.83	3.005	18.71	2.876	0.16	0.87

Table 2: Comparison of operation and recovery time and treatment in group G and group R

Parameter	Group G (n=35)		Group R (n=35)		Z Value	P Value
	Mean	SD	Mean	SD		
Surgical time (min)	10.18	1.181	10.663	1.134	1.75	0.084
Anaesthesia time (min)	10.611	1.0900	25.777	1.2723	53.55	<0.0001
Time in operation room (min)	20.074	1.8036	35.343	1.71ub40	36.30	<0.0001
Time in recovery room (min)	40.74	4.883	64.06	3.316	23.37	<0.0001
PONV (n, %)	9 (25.71)		1 (2.86)		2.89	0.005
Hosp. stay (days)	2.794	.5520	2.571	.5576	1.68	0.22
Analgesia (n,%)	15 (42.86)		2 (5.71)		4.02	<0.0001

This ensured dense blockade of the perineal region where the surgery was to be performed. Average time spent by the G group in the operating room was 20.074 mins (SD 1.8036) and 35.343 mins(SD 1.7140) by the R group(p value < 0.0001). The average duration of stay in the recovery room for the G group was 40.74 mins (SD 4.883) as opposed to 64.06 mins (SD 3.316) in the R group (p value <0.0001). This was a statistically

significant difference. The postoperative analgesic requirement was higher in the G group (42.86%) than in the R group (5.71%). This difference was statistically significant. 25.71% in the G group had postoperative nausea as compared to 2.86% in the R group. This was taken care of by simple reassurance. There was no statistically significant difference between the 2 groups regarding the length of stay in the hospital. The G group patients were discharged in 2.794 days (SD 0.5520) and R group were discharged in 2.571 days (SD 0.5576).

DISCUSSION

In our study the cervical cerclage was performed by the Mc Donald method to prevent second trimester abortions and safely continue with the pregnancy till full term. An axiom of anaesthetic management is to perform regional anaesthesia wherever possible in order to maintain the maternal airway protective reflexes and to minimize the fetal drug exposure[5,6] in a pregnant patient. However, as cervical encirclage is a minor gynaecological procedure and is performed at the nadir of maternal and fetal risk, this axiom is not universally applied to cervical encirclage. Thus we compared the 2 modalities of anaesthesia i.e. general and regional anaesthesia for this surgical procedure in order to find out the most suitable technique. Golan A *et al*[7] studied the post cerclage term delivery rate, premature delivery rate and late second trimester abortion rate in 216 women undergoing elective cervical cerclage at 12-16 weeks gestation. In addition to the increase in the term delivery rate, they found that the rate of premature deliveries and late second trimester abortion also decreased and the fetal survival rate significantly improved. Based on these experiences, they concluded that cervical os tightening can prolong the duration of the pregnancy and improve the fetal outcome. Ioscovich A *et al*[4] did a retrospective study of anaesthetic management of prophylactic encirclage in two main medical centers. They concluded that both regional and general anaesthesia were safely used for the performance of surgery of encirclage. Beilin, Yaakov MD *et al*[8], performed a study to determine whether a small dose of Bupivacaine is an acceptable alternative to lidocaine for cervical encirclage. They concluded that subarachnoid bupivacaine offers a better and satisfactory alternative to subarachnoid lidocaine for the surgery. In our study we used 1 cc of Inj. bupivacaine(heavy) for giving saddle block in patients of the R group. The gestational age at which the aspiration prophylaxis should be performed ranges from 12 to 20 weeks[9,10]. This becomes relevant when cervical cerclage is performed under general anaesthesia during this period. Hence all the patients subjected to anaesthesia were essentially given antacid prophylaxis in the preoperative period. In this study, we studied 70 pregnant patients. Although the time spent by the patients in the OT and the duration of recovery stay were statistically significantly different in both the groups, these differences were not clinically important. All the women who received general anaesthesia, essentially got systemic sedatives in order to minimize the dose of various anaesthetic drugs and gases. The patients in the G group also demanded more analgesia (42.86%) during the postoperative period in contrast to the women in the regional anaesthesia group (5.71%). Thus patients in the R group did not require sedation and analgesia but they spent a longer time in the operative and the recovery room (Table 2). This study was not designed to assess the aspiration risk in this population, although they were no recorded instances of aspiration when face mask was used in the general anaesthesia group. Post-operative nausea was seen in 9 patients receiving general anaesthesia which was taken care by simple reassurance. Recent years have seen an emerging literature concerning fetal and neonatal neuroapoptosis, synoptogenesis and neurological development following exposure to the general anaesthetic drugs, also including maternal exposure[11,12]. Another disadvantage is that the patients receiving general anaesthesia can go into premature contractions and eventually preterm labour in the lighter planes of anaesthesia. These problems can be taken care with regional anaesthesia which provides dense anaesthetic blockade in the perineal region and exposure of the fetus to the general anaesthetic drugs is also avoided. As this was a retrospective study we were unable to assess and quantify patients satisfaction following the different anaesthetic techniques. Patients receiving general anaesthesia had a shorter stay in the recovery room but demanded more postoperative analgesia. In contrast, patients receiving saddle block had a longer stay in the recovery room but did not demand postoperative analgesia. This study was not performed to prove that regional anaesthesia reduces the risk of pulmonary aspiration, airway complication or teratogenic effects of general anaesthetic drugs. Nevertheless, these concerns may be the logical reasons to prefer the use of regional anaesthesia for this procedure.

CONCLUSION

This study concludes that both general and regional anaesthesia can safely be used for the procedure of cervical cerclage without any significant complications. Patients who have contraindications to general anaesthesia can safely be done under regional anaesthesia. In contrast, general anaesthesia can be used with advantage in anxious patients and known contraindications to regional techniques.

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