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Knowledge & Practices of Anesthetists towards Obstetric Anesthesia

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Abstract

Background: Neuraxial labor analgesia & anesthesia for caesarean delivery have improved patient management. Also, multimodal strategies are enhanced to minimize maternal and fetal side effects.

Material & Methods: The present study was conducted on 100 Anaesthetists in the department of Anaesthesia, Punjab Rao Deshmukh Memorial Medical College, Amravati, M.S. India to evaluate their knowledge & practices in Obstetric anaesthesia.

Results: In the present study, out of 100 study subjects, 100 (100%) study subjects advised 6 hours of fasting (to avoid solid food) before elective surgery while 63 (63%) study subjects correctly said that they allow clear liquids 2 hours before elective surgery.

100 (100%) of study subjects prefer spinal an aesthesia for low-risk caesarean section, 60 (60%) of study subjects still prefer spinal an aesthesia for urgent caesarean section while 40 (40%) of study subjects correctly prefer general an aesthesia for urgent caesarean section. When tracheal intubation fails, 69% of study subjects correctly said, they will try all options like ventilation with a face mask, laryngeal mask, or combi tube.

The majority i.e., 82 (82%) of study subjects correctly give epidural analgesia at <5 cm cervical dilatation. 90 (90%) of study subjects correctly gave antibiotic prophylaxis before skin incision.

58 (58%) correctly said that they give Phenylephrine to treat maternal hypotension during neuraxial an aesthesia in the absence of maternal bradycardia. 74 (74%) study subjects correctly said that they use a multimodal approach to treat IONV & PONV like the use of neuraxial an aesthesia, anti-emetic & antacid administration, dexamethasone, etc., avoiding hypotension & minimizing exteriorization of the uterus.

Conclusion: In our study, Spinal Anesthesia was the preferred technique for Caesarean deliveries. General Anesthesia was reserved only for emergency cases. Fluid co-loading and phenylephrine were preferred in the prevention and management of SA-related hypotension. A multimodal approach was used for the prevention &

management of IONV & PONV. Except for the strategy to prevent or minimize IONV and PONV, a significant difference was observed in responses for other practices among <50 years and >50 years anesthetists.

Keywords: Caesarean section, Spinal Anaesthesia, Hypotension, pre-loading

Introduction

Obstetric an aesthesia is referred to as a peripartum anesthetic and analgesic activity performed during labor and vaginal delivery, caesarean delivery, removal of retained placenta, and postpartum tubal ligation.[1]

Combined spinal-epidural analgesia is often used for the initiation of analgesia in advanced labour. It has rapid onset & gives effective analgesia.[1]

When a neuraxial aesthetic is planned, examine the patient's back.[1]

Use pencil-point spinal needles instead of cutting-bevel spinal needles to minimize the risk of post-Dural puncture headache.[1]

To avoid aspiration of gastric contents & maternal mortality, the following practices became the cornerstone of modern obstetric anaesthesia- 1) widespread use of neuraxial anaesthesia; 2) oral intake restrictions during labour; 3) pre-aesthetic antacid administration; 4) rapid-sequence induction for general anaesthesia; 5) improvements in anaesthesia training; and 6) improvements in advanced airway devices.[1]

The uncomplicated patient undergoing elective surgery may have clear liquids up to 2 hours before induction of anesthesia.[1]

Solid foods should be avoided in labouring patients. The patient undergoing elective caesarean delivery or postpartum tubal ligation) should undergo a fasting period for solids of 6 to 8 hours.[1]Patients in early labour (*i.e.*, less than 5 cm dilation) should be provided with the option of neuraxial analgesia when it is available.[1]

Labor neuraxial analgesia is usually initiated by epidural or combined spinal-epidural analgesia.[2]

Combined spinal-epidural analgesia has a faster onset of 2 – 5 minutes than epidural analgesia which is 15 – 20 minutes. It provides greater uniformity in the sensory blockade and improved coverage of the sacral dermatome.[3]

Regional an aesthesia (RA) is established as the technique of choice for caesarean deliveries (CD) in normal as well as complicated pregnancies.[4]

Now, RA is often administered even where general an aesthesia (GA) was traditionally preferred like in preeclampsia and anticipated hemorrhage.[5]

Single-shot spinal an aesthesia is the most common technique for caesarean delivery. It is simple with good quality of sensory blockade and is reliable. In contrast to epidural an aesthesia, the total local anesthetic dose is lower; there is no risk for local an aesthetic systemic toxicity and minimal fetal drug transfer.[6]

The WHO advises no restriction on eating and drinking during low-risk labor.[7]

Aims & Objectives

- To know the knowledge & practices of Anesthetists in Obstetric an aesthesia

Material & Methods

The present study was conducted on 100 Anesthetists in the department of Anesthesia, Punjab Rao Deshmukh Memorial Medical College, Amravati, M.S. India to evaluate their knowledge & practices in Obstetric Anaesthesia. A pre-tested and validated questionnaire was prepared & sent through Google link to 110 practicing anesthetists in the city. Of the 108 who consented to participate in this survey, Complete responses were collected from 100 anesthetists and were included in the analysis. Statistical analysis was done using statistical software, STATA version 10.1, 2011.

The percentage of anesthetists having correct knowledge was estimated along with a 95% confidence interval. The association between age and practices of anesthetists was evaluated with Pearson's Chi-square test and P value <0.05 was considered statistically significant.

Inclusion criteria

Anesthetists who were willing and consented to participate in the study.

Exclusion criteria-

Anesthetists who were not willing to participate in the study.

A pre-validated questionnaire was prepared & sent through Google link. Responses were collected.

Table 1: Questionnaire

Age
Working experience in Obstetrics
Before elective surgery in low-risk patients, for how many hours patient should not take clear liquids?
Before induction of Anaesthesia, for how many hours patient should not take solids in an uncomplicated patient undergoing elective CS
Which is the most preferred Anaesthesia by you for a caesarean section?
How much IV fluids do you give routinely for low-risk caesarean section to prevent maternal hypotension & PONV?
At what cervical dilatation, you give Epidural analgesia?
Which technique of Anaesthesia, do you prefer in urgent caesarean delivery?
Which is your most preferred drug for treating maternal hypotension in SA during CS?
How do you treat maternal hypotension during neuraxial Anaesthesia in absence of maternal bradycardia?
What is your strategy to prevent or minimize IONV & PONV?
When tracheal intubation fails, what method do you use?
When do you give antibiotic prophylaxis?

Results

Table 2: Age distribution & Working experience in Obstetric Anaesthesia of study subjects n=100

Age of study subjects	No. Of study subjects n=100	Percentage
<30 years	13	13%
31-40 years	17	17%
41-50 years	30	30%
>50 years	40	40%
Working experience in Obstetric Anaesthesia	No. Of study subjects n=100	Percentage
<5 years	18	18%
5-10 years	13	13%
11-15 years	13	13%
>15 years	56	56%

In the present study, out of 100 study subjects, the majority i.e.,40 (40%) study subjects were of more than 50 years of age, 30 (30%%) study subjects were between 41-50 years, 17 (17%) study subjects were between 31-40 years, while 13 (13%) study subjects were less than 30 years.

As seen in Table 2, out of 100 study subjects, the majority i.e.,56 (56%) of study subjects had working experience in Obstetric Anaesthesia of more than 15 years, 18 (18%) of study subjects had working experience in Obstetric Anaesthesia of fewer than 5 years, while 13 (13%) of the study subjects each had working experience in Obstetric Anaesthesia of 5-10 years & 11-15 years respectively. (Table 2)

Responses offered by the anesthetists regarding their knowledge & practices in obstetric Anaesthesia have been presented in the following tables.

Table 3: Pre-operative Practices of Study Subjects

Pre-operative Practices of Study Subjects	Practices of Study subjects N=100 & %	95%CI
Before elective surgery in low-risk patients, for how many hours patient should not take solid food?	100 for 6 hours	100%
Before elective surgery in low-risk patients, for how many hours before, the patient can take clear liquids?	63(63%) for 2 hours	52.8 - 72.4%
Before elective surgery in which patients do you advise platelet count?	15 (15%) Pre-eclampsia	8.6 - 23.5%

In the present study, out of 100 study subjects, all i.e.,100 (100%) study subjects advise 6 hours of fasting (to avoid solid food) before elective surgery while 63 (63%, 95% CI 52.8 -72.4%) study subjects correctly said that they allow clear liquids 2 hours before elective surgery. Only 15 (15%, 95%CI 8.6 -23.5%) correctly said that they will do a platelet count in pre-eclampsia before elective surgery (Table 3)

Table 4: Preferred Technique of Anaesthesia by study subjects

Preferred Technique of Anaesthesia by Study Subjects	Practices of Anesthetists & % N=100	95% CI
Which is the most preferred Anaesthesia for a caesarean section?	100 (100%) Spinal Anaesthesia	100%
Which technique of anesthesia, do you prefer in urgent caesarean delivery?	40 (40%) General anesthesia	30.3 - 50.3%
When tracheal intubation fails, what method do you use?	69 (69%) All options	59.0 - 77.9%

In the present study, out of 100 study subjects, 100 (100%) of study subjects prefer spinal anesthesia for low-risk caesarean section, 60 (60%) of study subjects still prefer spinal anesthesia for urgent caesarean section while 40 (40%, 95% CI 30.3 -50.3%) of study subjects correctly prefer general anesthesia for urgent caesarean section. When tracheal intubation fails, 69 (69%, 95% CI 59.0 -77.9%) of study subjects correctly said, they will try all options like ventilation with a face mask, laryngeal mask, or combi tube. (Table 4).

Table 5: Practices of Epidural Analgesia by study subjects

Practices of Epidural Analgesia by Study Subjects	Practices of Anesthetists & % N=100	95% CI
At what cervical dilatation, you give Epidural analgesia?	82 (82%)	73.1 - 89.0%
When do you give antibiotic prophylaxis?	90 (90%) before skin incision	82.4 - 95.1%

In the present study, out of 100 study subjects, the majority i.e., 82 (82%, 95% CI 73.1 -89.0%) of study subjects correctly give epidural analgesia at <5 cm cervical dilatation. 90 (90%, 95% CI 82.4 -95.1%) of study subjects correctly give antibiotic prophylaxis before skin incision. (Table 5)

Table 6: Practices of maternal hypotension & PONV by study subjects

Practices of maternal hypotension & PONV by study subjects	Practices of Anesthetists N=100 & %	95% CI
How much IV fluids do you give during low-risk caesarean sections routinely	72 (72%) 3 Liter	62.1 - 80.5%
How do you treat maternal hypotension during neuraxial anaesthesia in absence of maternal bradycardia?	58 (58%) Phenylephrine 42 Ephedrine	47.7 - 67.8%
What is your strategy to prevent or minimize IONV & PONV?	74 (74%) Multimodal	64.3 - 82.3%

In the present study, out of 100 study subjects, the majority i.e.,72 (72%, 95% CI 62.1 -80.5%) correctly said that they give the maximum of 3 litres of IV fluids during low-risk caesarean section routinely, 58 (58%, 95% CI 47.7 -67.8%) correctly said that they give Phenylephrine to treat maternal hypotension during neuraxial anaesthesia in absence of maternal bradycardia. 74 (74%, 95% CI 64.3 -82.3%) study subjects correctly said that they use a multimodal approach to treat IONV & PONV like the use of neuraxial anaesthesia, anti-emetic & antacid administration, dexamethasone, etc, avoiding hypotension & minimizing exteriorization of the uterus. (Table 6)

Table 7: Association between practices and age-groups of study subjects

Practices of study subjects	Age groups	Practices of Study subjects No. (%)	P value
Before elective surgery in low-risk patients, for how many hours before, the patient can take clear liquids?	<50 years n=60 >50 years n=40	30 (50%) 33 (82.5%)	52.8 - 72.4%
Before elective surgery in which patients do you advise platelet count?	<50 years n=60 >50 years n=40	5 (8.33%) 10 (25%)	8.6 - 23.5%
Which technique of anaesthesia, do you prefer in urgent caesarean delivery?	<50 years n=60 >50 years n=40	15 (25%) 25 (62.5%)	30.3 - 50.3%
When tracheal intubation fails, what method do you use?	<50 years n=60 >50 years n=40	29 (48.3%) 40 (100%)	59.0 - 77.9%
How much IV fluids do you give during low-risk caesarean sections routinely?	<50 years n=60 >50 years n=40	52 (86.6%) 20 (50%)	0.0001
How do you	<50	For Ephedrine	0.0001

treat maternal hypotension during neuraxial anaesthesia in absence of maternal bradycardia?	years n=60 >50 years n=40	12 (20%) 30 (75%) For Phenylephrine 48 (80%) 10 (25%)	0.0001
What is your strategy to prevent or minimize IONV & PONV?	<50 years n=60 >50 years n=40	Multimodal 42 (70%) 32 (80%)	0.2640

Table 7 presents the association between anesthetists' practices and their age groups. Except the strategy to prevent or minimize IONV and PONV, a significant difference was observed in responses for other practices among younger (<50 years) and older (>50 years) study anesthetists.

Discussion

The present study was conducted on 100 Anesthetists and their knowledge & practices in Obstetric Anaesthesia were evaluated through a pre-tested validated questionnaire.

The majority i.e.,40 (40%) study subjects were of more than 50 years of age, 30 (30%%) study subjects were between 41-50 years, 17 (17%) study subjects were between 31-40 years, while 13 (13%) study subjects were less than 30 years.

In the present study, out of 100 study subjects, the majority i.e.,56 (56%) of study subjects had working experience in Obstetric Anaesthesia of more than 15 years, 18 (18%) of study subjects had working experience in Obstetric Anaesthesia of fewer than 5 years, while 13 (13%) of the study subjects each had working experience in Obstetric Anaesthesia of 5-10 years & 11-15 years respectively.

Our findings are consistent with Staikou C et al who found that most study participants (N.=139, 40.8%) had more than 10 years of experience in obstetrics.[8]

In the present study, out of 100 study subjects, all i.e.,100 (100%) study subjects advised 6 hours of fasting (to avoid solid food) before elective surgery while 63 (63%) study subjects correctly said that they allow clear liquids 2 hours before elective surgery. 15 (15%) correctly said that they would do a platelet count in pre-eclampsia before elective surgery (Table 3)

Breen TW et al found that 94.5% of anesthetists allowed some oral intake in the latent phase of labour. During active labor, anesthesiologists restrict the type and amount of oral intake.[9]

Breen TW et al found that 50% of anesthesiologists advise a CBC, PT, and aptt in preeclampsia. The minimum platelet count asked by most anesthesiologists for placement of an epidural catheter was 80,000 ± 18,000. 15% of anesthesiologists insert epidural catheters if the platelet count is as low as 50,000.[9] However in our study only 15% of respondents said they would advise elective platelet counts in pre-eclampsia patients before surgery.

In the present study, out of 100 study subjects, 100 (100%) of study subjects prefer spinal Anaesthesia for low-risk caesarean section, 60 (60%) of study subjects still prefer spinal Anaesthesia for urgent caesarean section while 40 (40%) of study subjects correctly prefer general Anaesthesia for urgent caesarean section. When tracheal intubation fails, 69% of study subjects correctly said, they will try all options like ventilation with a face mask, laryngeal mask, or combi tube. (Table 4).

Traynor et al found that neuraxial (regional) labor analgesia was always preferred in 86.3% (95%

confidence interval [CI] = 82.7%–90%) of providers for obstetrics.[10]

In the present study, out of 100 study subjects, the majority i.e., 82 (82%) of study subjects correctly give epidural analgesia at <5 cm cervical dilatation. 90 (90%) of study subjects correctly give antibiotic prophylaxis before skin incision. (Table 5)

Traynor et al found that the use of patient-controlled epidural analgesia in stratum I hospitals was reported to be 35% in 2001 and 77.6% (95% CI = 73.2%–82.1%) in 2012.[10]

In the present study, out of 100 study subjects, the majority i.e.,72 (72%) correctly said that they give a maximum of 3 liters of IV fluids during low-risk caesarean section routinely, 58 (58%) correctly said that they give Phenylephrine to treat maternal hypotension during neuraxial Anaesthesia in absence of maternal bradycardia. 74 (74%) study subjects correctly said that they use a multimodal approach to treat IONV like the use of neuraxial Anaesthesia, anti-emetic & antacid administration, dexamethasone, etc., avoiding hypotension & minimizing exteriorization of the uterus. (Table 6)

Table 7 presents the association between anesthetists' practices and their age groups. Except the strategy to prevent or minimize IONV and PONV, a significant difference was observed in responses for other practices among younger (<50 years) and older (>50 years) study anesthetists.

Conclusion

In our study, Spinal Anaesthesia was the preferred technique for Caesarean deliveries. General Anaesthesia was reserved only for emergency cases. Fluid co-loading and phenylephrine were preferred in the prevention and management of SA-related hypotension. A multimodal approach was used for the prevention & management of IONV & PONV. Except for the strategy to prevent or minimize IONV and PONV, a significant difference was observed in responses for other practices among younger (<50 years) and older (>50 years) study anesthetists.

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