Improving the completeness of anaesthesia record charts for obstetric subarachnoid block among third year anaesthesia students in University of Gondar

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Introduction:
Documentation during obstetrics spinal anaesthesia will demand accuracy and completeness for maternal and neonatal safety. Third year anaesthesia students are the pioneer participants in documentation of perioperative information. This audit aimed to improve the documentation trends of third year anaesthesia students after subarachnoid obstetric anaesthesia.

Methods:
It was conducted from April to May 13, 2019 in University of Gondar Referral Hospital at maternity wards. Data were analyzed with SPSS version 20. Categorical variables were analyzed with chi-square test.

Results:
Documentation completion was 58.2% before interventions and 81.13% after interventions. Documentation completion of hospital number, name of the surgeon and urine output significantly improved after interventions

Conclusions:
This audit identified significant improvements of post intervention documentation of patient's data such as patient height, preoperative blood pressure and baseline saturation. So, we recommend having regular lecturing and re-auditing of documentation trends of our third year anaesthesia students.

Key points: documentation; obstetrics anaesthesia; spinal anaesthesia; record keeping

Introduction

Anaesthetic record charting in obstetrics subarachnoid block is a piece of information that is useful in monitoring maternal and neonatal safety. Spinal anaesthesia is widely practiced as the anaesthetic technique for obstetric patients.

Record keeping during obstetric spinal anaesthesia will demand accuracy and completeness for maternal and neonatal safety. The record sheet should be concise and complete of relevant information such as preoperative history, peri-operative medications, vital signs, newborn parameters and immediate postoperative care instructions. Moreover, it is important for the purpose of legal requirement and to reduce maternal complications which are more common in obstetric anaesthesia than other specialties.[1-3]

Documenting and keeping readily accessible records are responsibilities of anaesthesia practitioners and anaesthetists.[4-6] The anaesthetic record has become a key element of good anaesthetic practices, which is helpful for other staff who will be involved in the management of the patients. It will safeguard against medico legal

issues, facilitate effective monitoring of patients and is an important tool for research and audit and quality improvement in anaesthesia. It allows for appropriate management of perioperative anaesthesia, is useful to improve patient's recall of risks and benefits and to get briefed information during hand over of operated patients and to request written rather than verbal communication.[4,7,8]

Poor habit of documentation will lead to legal implications, high mortality and morbidity rate, poor patient management and safety and poor coherence of patient's approach. All of these functions depend on the completeness of the record and on the relevance and comprehensiveness of the data recorded.[9-11]

Justification

The level of anaesthetic record completeness is substandard in our hospital when compared with the recommendations of AABGI. Appropriate education of personnel involved in charting anaesthetic record has been found to improve its completeness and correctness. The components and the quality of anaesthetic record chart in obstetric regional anaesthesia have reported incompleteness as their major findings.[2, 3, 12] Third year anaesthesia students are the pioneer participants in documentation of perioperative information of the patients. However, they got their documentation experiences with their informal learning from their seniors.

Lecturing on record keeping of perioperative anaesthesia events as well as rounding of students by clarifying a sample filled documentation form is so vital to improve the completeness of our record keeping.[1] So we aimed to conduct this audit to improve the documentation trends of third year anaesthesia students and to assess the impact of regular gap lecturing and training on anaesthesia record keeping after subarachnoid obstetric anaesthesia.

Methods

Study design and period

Comparative study was conducted from April 1 to May 13, 2019 in University of Gondar Referral Hospital at maternity wards.

Source population/ study population

Anaesthetic record sheet after subarachnoid block of obstetric patients which was documented by third year anaesthesia students

Inclusion criteria

All anaesthetic record sheets for subarachnoid block of obstetric patients which were documented by third year anaesthesia students during the study period.

Exclusion criteria

Documentation that was converted to general anaesthesia, documentation done by other than third year anaesthesia students.

Sample size and sampling technique

Consecutive sampling technique was used for documentations which were done by all third year anaesthesia students during the study period.

Data collection procedures

Structured questionnaires were prepared from the anaesthetic record sheet of University of Gondar Referral Hospital after reviewing the contents against the minimum data set for an anaesthetic record by the Royal College of Anaesthetists and Association of Anaesthetists of Great Britain and Ireland (AAGBI). We reviewed a total of 100 anaesthetic record sheets after the transfer of the patient to the recovery room of obstetrics ward. Socio-demographic information that reviewed on the chart were patient's name, patient's age, hospital number, date of surgery, name of the anaesthetists, name of the surgeon, ASA classification, height, weight, date of surgery.

Perioperative information that were reviewed on the chart were preoperative pulse, baseline saturation, preoperative blood pressure, intraoperative pulse rate, intraoperative saturation, intraoperative blood pressure, time of spinal block, vertebral space, level of the nerve block, delivery time, time of skin incision, fluid intake, recovery condition, preoperative summary, urgency of surgery, urine output and APGAR score.

Data processing and analysis

Data were coded, entered and analyzed using Statistical Package for Social Science (SPSS) version 20 software. Categorical variables were analyzed with chi-square test and these descriptive

statics were presented with frequency and percentage value<0.05 was considered as statistically significant.

Results

Pre intervention results

Table 1: Pre-intervention documentation completeness of socio-demographic and perioperative information

Data		Pre-intervention(n=50)	Data		Pre-intervention(n=50)
Name of the patient	Yes No	43(86) 7(14)	Intraoperative pulse rate	Yes No	39(78) 11(22)
Age of the patient	Yes No	44(88) 6(12)	Time of spinal block	Yes No	9(18) 41(82)
Hospital number	Yes No	24(48) 26(52)	Dose of local anesthetic agents	Yes No	42(84) 8(16)
Date of surgery	Yes No	39(78) 11(22)	Vertebral space	Yes No	43(86) 7(14)
Name of anesthetist	Yes No	39(78) 11(22)	Block height	Yes No	11(22) 39(78)
Name of surgeon	Yes No	37(74) 13(26)	Skin incision time	Yes No	38(76) 12(24)
Patient height	Yes No	6(12) 44(88)	Uterine incision time	Yes No	6(12) 44(88)
Patient weight	Yes No	43(86) 7(14)	Delivery time	Yes No	5(10) 45(90)
ASA classification	Yes No	42(84) 8(16)	APGAR score	Yes No	7(14) 43(86)
Preoperative pulse rate	Yes No	37(74) 13(26)	End of surgery	Yes No	28(56) 22(44)
Preoperative review	Yes No	43(86) 7(14)	Fluid intake	Yes No	41(82) 9(18)
Preoperative BP	Yes No	21(42) 29(58)	Urine output	Yes No	15(30) 35(70)
Baseline saturation	Yes No	8(16) 42(84)	Recovery condition	Yes No	41(82) 9(18)
Intraoperative saturation	Yes No	43(86) 7(14)	Urgency of surgery	Yes No	35(70) 15(30)
Intraoperative BP	Yes No	44(88) 6(12)	Intraoperative BP	Yes No	44(88) 6(12)
Intraoperative pulse rate	Yes No	39(78) 11(22)	Average percentage completion	Yes	58.2%

Data were expressed with frequency (percent)
Identified problems for the proposed actions
This study mainly identified that patient data such as patient height, preoperative blood pressure, baseline saturation, time of spinal block, block height, uterine incision, delivery time, APGAR score, urine output and urgency of surgery were not recorded in pre intervention documentation. The average completion rate of our record sheet was low (58.2%).

Implemented actions
Lecturing was done on emphasizing of the benefits of anaesthetic record keeping for subarachnoid block of obstetrics surgery and its components. Rounding of a sample of filled anaesthetic record sheets for five groups of students, 10 students per group was done by principal investigators. Immediately after lecturing and rounding of filled charts, reviewing of documentation completeness in their duty rotation were done on 50 anaesthetic record sheets after patient transfer to the recovery room of the maternity wards.

Post intervention results
A total of 100 anaesthetic record sheets, 50 documentation sheets before intervention and 50 post interventions were done of percentage completion. The assessments included both emergency and elective patients. The average percentages of documentation completion were 58.2% before intervention and 81.13% after interventions. Documentation completion of hospital number, name of the surgeon, patient height, baseline saturation and preoperative blood pressure, time of spinal block, block height, skin incision time, delivery time, APGAR score and urine output significantly improved after interventions. (**Table 2) (Table 3**)

Table 2: Documentation of socio-demographic information

Variables for documentation		Pre-intervention (n=50)	Post intervention(n=50)	P- value
Name of the patient	Yes No	43(86) 7(14)	45(90) 5(10)	0.538
Age of the patient	Yes No	44(88) 6(12)	45(90) 5(10)	0.749
Hospital number	Yes No	24(48) 26(52)	45(90) 5(10)	<0.001*
Date of surgery	Yes No	39(78) 11(22)	46(92) 4(8)	0.050
Name of anesthetist	Yes No	39(78) 11(22)	43(86) 7(14)	0.298
Name of surgeon	Yes No	37(74) 13(26)	45(90) 5(10)	0.037*
Patient height	Yes No	6(12) 44(88)	40(80) 10(20)	<0.001*
Patient weight	Yes No	43(86) 7(14)	44(88) 6(12)	0.766
ASA classification	Yes No	42(84) 8(16)	45(90) 5(10)	0.372

P-value ≤0.05 is considered as statistically significant. Data is expressed with frequency (%).

Table 3: Documentation of perioperative information

Variables for documentation		Pre-intervention (n=50)	Post intervention(n=50)	P- value
Preoperative pulse rate	Yes	37(74)	44(88)	0.074
	No	13(26)	6(12)	
Preoperative review	Yes	43(86)	45(90)	0.538
	No	7(14)	5(10)	
Preoperative BP	Yes	21(42)	40(80)	<0.001*
	No	29(58)	10(20)	
Baseline saturation	Yes	8(16)	41(82)	<0.001*
	No	42(84)	9(18)	
Intraoperative saturation	Yes	43(86)	44(88)	0.766
	No	7(14)	6(12)	
Intraoperative BP	Yes	44(88)	45(90)	0.749
	No	6(12)	5(10)	
Intraoperative pulse rate	Yes	39(78)	45(90)	0.102
	No	11(22)	5(10)	
Time of spinal block	Yes	9(18)	39(78)	<0.001*
	No	41(82)	11(22)	
Dose of local anesthetic agents	Yes	42(84)	45(90)	0.372
	No	8(16)	5(10)	
Vertebral space	Yes	43(86)	45(90)	0.538
	No	7(14)	5(10)	
Block height	Yes	11(22)	43(86)	<0.001*
	No	39(78)	7(14)	
Skin incision time	Yes	38(76)	47(94)	0.012*
	No	12(24)	3(6)	
Uterine incision time	Yes	6(12)	35(70)	<0.001*
	No	44(88)	15(30)	
Delivery time	Yes	5(10)	25(50)	<0.001*
	No	45(90)	25(50)	
APGAR score	Yes	7(14)	20(40)	0.003*
	No	43(86)	30(60)	
End of surgery	Yes	28(56)	46(92)	<0.001*
	No	22(44)	4(8)	
Fluid intake	Yes	41(82)	43(86)	0.585
	No	9(18)	7(14)	
Urine output	Yes	15(30)	39(78)	<0.001*
	No	35(70)	11(22)	
Recovery condition	Yes	41(82)	44(88)	0.401
	No	9(18)	6(12)	
Urgency of surgery	Yes	35(70)	44(88)	0.027*
	No	15(30)	6(12)	
Average percentage completion		58.2%	81.13%	

P-value ≤0.05 is considered as statistically significant. Data is expressed with frequency (percent)

Discussion

This audit assessed the improvements in documentation completion of third year anaesthesia students in the perioperative period of subarachnoid block for obstetric patients. The average percentages of completion were 58.2% before intervention and 81.13% after interventions. There was significant improvement of post intervention documentation of hospital number, name of the surgeon, patient height, baseline saturation, preoperative blood pressure, time of spinal block, block height, skin incision time, delivery time, APGAR score and urine output.

In this study the socio-demographic data such as patient name, patient age, date of surgery, name of the anaesthetists, ASA classification, weight and date of surgery documentation were not significantly different before and after interventions. The adequacy of these documentations was good both before and after lecturing. However, there were significant improvements in documentation of patient height, surgeon name and hospital number after interventions.

Similarly, Simon et al supported these data, even though patient's weight and height were poorly documented at pre-intervention phase of their study.[1]

Desalu et al and Simon et al reported that there were significant improvements in documentation post-intervention in ASA classification, preoperative blood pressure, dose of bupivacaine, vertebral space used, end of surgery time and time of skin incision.[1,9,13] Our results on skin incision time and end of surgery were consistent with their results.

According to this study, preoperative review, intraoperative saturation, intraoperative blood pressure, intraoperative pulse rate, recovery condition, fluid intake, vertebral space and dose of bupivacaine were documented in a good manner both at pre-intervention and post intervention phases.

As Simon et al reported the documentation completion of baseline saturation, uterine incision time and urine output after interventions were 33%, 61% and 70% respectively.[1] In this study it was 82%, 70% and 78% respectively. This is a good indicator of the importance of regular teaching for students who will be involved in record keeping of perioperative events.

Incomplete documentation about perioperative information may be taken as negligence in case

there are any perioperative complications. Earlier literature reported that there were overall improvements in the filling of anaesthetic record sheets after teaching interventions[1,9,14,15] This study also supported their conclusions.

Spinal anaesthesia is the commonly applied anaesthetic techniques for obstetrics anaesthesia. Subarachnoid blocks are mainly done for cesarean sections, but secondary complications will happen related with documentation problems. So, we should emphasize for complete documentation. However if there is lack of adequate perioperative documentation, it will hinder the quality and safety of patient management, lead to legal implications and difficulty in getting briefed information during handover period.[4,5,15,16] Also adequate documentation of perioperative anaesthetic events will be valuable to subsequent anaesthetists who required to provide anaesthetic services to a patient for the future.[15,17,18]

Conclusions

This audit identified that there were significant improvements of post intervention documentation. We recommend having a regular lecturing method and re auditing of documentation trends of our third year anaesthesia students.

Declaration

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