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Anesthesia

Anesthesiology of Emergency Caesarean Section at Gabriel Toure CHU

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Abstract **Original Research Article**

Introduction: The aim of this study was to evaluate the anesthesiological management of emergency caesareans at the CHU Gabriel TOURE. ***Methodology:*** This was a prospective study that took place at the CHU Gabriel TOURE in the Anesthesia Resuscitation department and in the operating theater of the Gyneco-Obstetrics department from August 01 to October 31, 2021. It concerned all caesarean sections performed in the Gyneco-Obstetrics department of the CHU Gabriel TOURE during a period of three months. All patients who came urgently to the Gyneco-Obstetrics department during the study period with an indication for emergency caesarean section Patients operated for emergency caesarean in another center were not included: caesareans performed outside our study period, planned caesareans, ruptured GEU (ectopic pregnancy), haemostasis hysterectomy. The information obtained from the patients and in the prenatal consultation book is compiled on an individual data collection sheet on which the variables to be studied appear. Statistical analysis was performed using SPSS version 25 software. Microsoft Word software was used for word processing. ***Results:*** During the study period, we performed 168 emergency cesarean sections out of 389 cases of cesarean section, i.e. a frequency of 43.18%. ***Conclusion:*** The practice of emergency obstetric anesthesia poses organizational difficulties, linked to the absence of a post-operative monitoring room, information from the anesthesia team and availability of products. PRH was the most frequent surgical indication; for this reason, GA has been the most practiced technique. Many patients were transferred to intensive care, i.e. 38.69% of cases and we recorded 38.69% of complications.

Keywords: Anesthesiology, Cesarean Section, Emergency.

INTRODUCTION

Obstetric emergencies are clinical situations involving the vital or functional maternal and/or fetal or neonatal prognosis. They require multidisciplinary care involving a gynecologist-obstetrician, a pediatrician and an anesthesiologist at this final stage. Faced with a severe maternal or fetal pathology [3], the anesthesiologist plays an important role in the management, which most often requires surgery to extract the child through the abdominal route [1]. Obstetric emergencies are characterized by high foeto-maternal mortality. Indeed, every year, worldwide, a minimum of 529,000 women die as a result of pregnancy, childbirth and various ailments; which represents 1449 deaths / day or one death per minute. These emergencies are more common in underdeveloped countries. In Africa, obstetric emergencies are responsible for 30 to 98% of overall maternal mortality. In Mali, this rate is estimated at 464 maternal deaths per 10,000 live births [3]. The majority of maternal deaths secondary to anesthesia occur under general anesthesia.

MATERIALS AND METHOD

1.1. Type of Study: This was a prospective study.

1.2. Framework and Period of Study

The study took place at the CHU Gabriel TOURE in the Anesthesia Resuscitation department and in the operating theater of the Gyneco-Obstetrics department from August 01 to October 31, 2021.

1.3. Study Site

Our study took place on the operating site of the Gyneco-Obstetrics department of the anesthesia and intensive care units of the CHU Gabriel TOURE. The anesthesia department covers anesthesia activities on all CHU GT anesthesia sites. The staff is made up of ten (10) intensive care anesthetists, and seventeen (17) state-certified nurse anesthetists (IADE). There is the

scheduled surgery block with five (5) rooms and two (2) emergency blocks, including one for Gyneco-Obstetrics and one for surgical emergencies.

1.4. Study Population

It concerned all caesarean sections performed in the Gyneco-Obstetrics department of the CHU Gabriel TOURE during a period of three months (01 August to 31 October).

A. Inclusion Criteria

All patients who came urgently to the Gyneco-Obstetrics department during the study period with an indication for emergency caesarean section.

B. Non-Inclusion Criteria

Patients operated for emergency caesarean in another center, Caesarean sections performed outside of our study period, Planned caesareans, Ruptured GEU (extra uterine pregnancy), Hemostasis hysterectomy.

1. METHOD

7.1 Measured Variables

On admission to the operating room, the identity of the patients was recorded on the anesthesia form. We list on our data collection sheet:

- **Quantitative Variables:** Age, gestation, ASA class, duration of preparation, duration of the intervention, duration of anesthesia Apgar score, aldrete score, bromage score.
- **Qualitative Variables:** Profession, residence, marital status, history, indications for surgery, prenatal consultations, clinical status, anesthetic techniques, intraoperative complications, anesthesia products.

Data Analysis and Processing

The information obtained from the patients and in the prenatal consultation book is compiled on an individual data collection sheet on which the variables to be studied appear. Statistical analysis was performed using SPSS version 25 software. Microsoft Word software was used for word processing.

RESULTS

During the study period, we performed 168 emergency cesarean sections out of 389 cases of cesarean section, i.e. a frequency of 43.18%. The predominant age group is that which goes from 27 to 32 years, that is to say 28% of the cases; the mean age was 26.16 ±6.55 years. Eleven point three percent (11.3%) of our patients were overweight. Patients with a history of cesarean represented 18.5%. Multigestures accounted for 63.7% of cases. Multiparas represented 25.6% of cases. The most predominant indication was HRP, i.e. 19.6%. Pallor was observed in 17 patients or 10.1% of cases. Blood pressure was normal in 61.9% of cases. Twenty-eight point six percent (28.6%) of patients had tachypnea. Saturation was normal in 98.2 cases. The GCS score was normal in 77.3% of cases. The initial Mallampati score was I in 73.8% of cases. Anemia was observed in 24 patients or 14.3%. The most represented blood group was group O, i.e. 42.3% of cases. Almost all of our patients were rhesus positive. Hyperglycemia was the most represented in 14.3% of cases. Serum creatinine was normal in 56.5% of cases. The majority of patients were classified as ASA III u, i.e. 48.22%. GA was used in 96 patients, i.e. 57.1% of cases. A pharmacological preparation was carried out in all in 15.46% of cases. Bupivacaine was used in 42.2%; followed by ketamine 33.9%. Ephedrine was the main emergency product most used at 54.8%. Arterial hypotension was observed in 65.48% of cases. Bleeding was observed in 1.19% of patients. Hypotension occurred in 55.36% of patients. Newborns with a normal Apgar at the first minute were the majority, 68.5% of cases. The Apgar score 0-3 was found in 34 patients operated under general anesthesia. More than half of the patients were referred postoperatively to the Obstetrics Gynecology department, i.e. 61.31%. Complications were 11.30% hemorrhagic shock and 1.2% suture release. Complications related to anesthesia take precedence, i.e. 38.1%. More than half of the patients are transferred to the obstetrics and gynecology department, ie 87.69%.

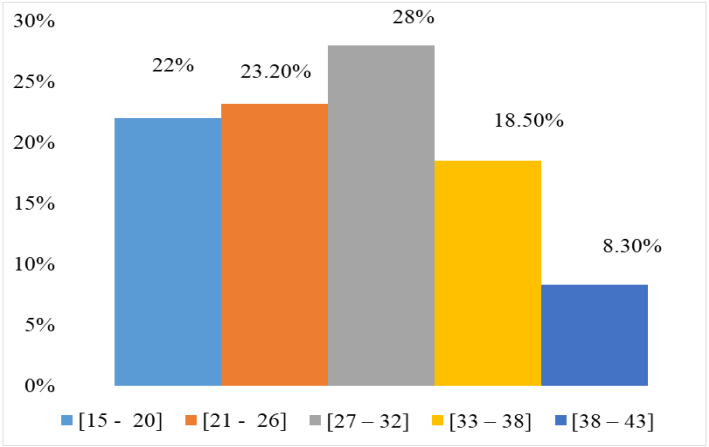

Table I: According to body mass index

BMI	Frequency	Percentage
Regular	146	86,9
Overweight	19	11,3
Obese	3	1,8
Total	**168**	**100,0**

Table II: According to the antecedents

History	Frequency	Percentage
caesarean section	31	18,45
Diabetes	4	2,38
Herniated disc	1	0,6
Heart disease	8	4,76
hypertension	4	2,38
No history	120	71,43
Total	**168**	**100,0**

Table III: According to gesture

Gesture	Frequency	Percentage
Primigest	38	22,62
multi gesture	107	63,69
large multi gesture	23	13,69
Total	**168**	**100,0**

Table IV: According to parity

Parity.	Frequency	Percentage
Nulliparous	37	22
Primiparous	35	20,8
Pauciparous	33	19,6
Multipare	43	25,6
Grand multipara	20	12
Total	**168**	**100**

Table V: As indicated

Indications	Frequency	Percentage
BGR	9	5,36
Scarred uterus in labor	26	15,48
Dystocia	14	8,33
Pre eclampsia	20	11,90
Eclampsia	20	11,90
PRH	33	19,64
Placenta previa	7	4,17
Pre rupture syndrome	6	3,57
AFS	24	14,29
Heart disease in labor	9	5,36
Total	**168**	**100,0**

Table VI: According to the coloration of the palpebral conjunctivae.

Palpebral conjunctiva	Frequency	Percentage
Colored	151	89,9
Pale	17	10,1
Total	**168**	**100,0**

Table VII: According to blood pressure

BP (mmHg)	Frequency	Percentage
Normal	104	61,9
PA lower. at 90/50	61	36,3
PA greater than or equal to 140/90	3	1,8
Total	**168**	**100,0**

Table VIII: According to respiratory

FR	Frequency	Percentage
Eupnea	120	71,4
Bradypnea	0	0
Tachypnea	48	28,6
Total	**168**	**100**

Table IX: According to saturation

Spo2	Frequency	Percentage
SPO2 normal	165	98,2
SPO2 lower. at 92%	3	1 ,8
Total	**168**	**100**

Table X: According to neurological assessment

Neurological assessment	Frequency	Percentage
SCG Normal	130	77,3
Lower GCS at 14	30	17,9
ROT	3	1,8
Seizure	5	3
Total	**168**	**100,0**

Table XI: According to the Mallampati score

Mallampati Score	Frequency	Percentage
Mallampati I	124	73,8
Mallampati II	42	25
Mallampati III	2	1,2
Total	**168**	**100,0**

Table XII: According to blood count

CBC	Frequency	Percentage
Normal	107	63,7
Anemia	24	14,3
Not done	37	22
Total	**168**	**100,0**

Table XIII: According to blood group

CBC	Frequency	Percentage
O	71	42,3
A	52	31
B	39	23,2
AB	5	3
Total	**168**	**100,0**

Table XIV: According to rhesus

Rhesus	Percentage	Pourcentage
Positive	143	85,1
Negative	25	14,9
Total	**168**	**100,0**

Table XV: According to glycaemia.

Glucose	Frequency	Percentage
Normal	77	45 ,8
Hyperglycaemia	24	14,3
Hypoglycaemia	0	0
Not done	67	39,9
Total	**168**	**100,0**

Table XVI: According to serum creatinine (micromol/l).

Creatinemia (micromol/l)	Frequency	Percentage
Normal	95	56,5
Hypercreatinaemia	5	3
Not done	68	40,5
Total	**168**	**100,0**

Table XVII: According to the ASA classification.

ASA	Frequency	Percentage
ASA I u	66	39,28
ASA II u	21	12,5
ASA III u	81	48,22
Total	**168**	**100,0**

Table XVIII: According to the anesthesia technique

Technique	Frequency	Percentage
GM	96	57,14
Spinal anesthesia	72	42,86
Total	168	100,0

Table XIX: According to the preoperative preparation.

Means of preoperative preparation	Frequency	Percentage
Vascular filling	14	8,33
Blood transfusion	5	2,97
Noradrenaline	7	4,16
Left lateral decubitus	142	84,54
Total	**168**	**100**

Table XX: According to induction products.

Induction products	Frequency	Percentage
Bupivacaine	72	42,2
Ketamine+Celocurine	57	33,9
Thiopental+Celocurine	39	23,9
Total	**168**	**100,0**

Table XXI: According to intraoperative emergency products.

Emergency commodities	Frequency	Percentage
Ephedrine	92	54,76
Noradrenaline	29	17, 26
Adrenaline	4	2,38
None	43	25,6
Total	**168**	**100,0**

Table XXII: According to intraoperative adverse events.

E I	Frequency	Percentage
HTA	7	4,17
Hypotension	110	65,48
Seizure	1	0,59
None	50	29,76
Total	**168**	**100,0**

Table XXIII: According to surgical incidents

Surgical Incidents	Frequency	Percentage
Hemorrhage	**2**	**1,19**
Ureteral rupture	1	0,6
None	165	98,21%
Total	**168**	**100,0**

Table XXIV: According to intraoperative incidents

Intraoperative incidents	Frequency	Percentage
Desaturation	1	0,59
Seizures	1	0,59
HTA	7	4,17
Hypotension	93	55,36
None	66	39,29
Total	**168**	**100,0**

Table XXV: According to the Apgar score

Apgar Score	Frequency	Percentage
Regular	115	68,5
Abnormal	19	11,3
Stillborn	34	20,2
Total	**168**	**100,0**

Table XXVI: According to Apgar score and anesthesia technique.

Apgar score	Anesthesia technique		Total
	AG	Spinal anesthesia	
7-10	21	68	89
3- 6	41	4	45
0-3	34	0	34
Total	**96**	**72**	**168**

Table XXVII: According to postoperative orientation

Postoperative orientation	Frequency	Percentage
Resuscitation	65	38,69
Obstetrics Gynecology	103	61,31
Total	**168**	**100,0**

Table XXVIII: According to surgical complications 24 hours after surgery

Surgical Complications	Frequency	Percentage
Hemorrhagic shock	19	11,30
Suture release	2	1,2
None	147	87,50
Total	**168**	**100,0**

Table XXIX: According to anesthetic complications 24 hours postoperative

Anesthetic Complications	Frequency	Percentage
Arterial hypotension	36	21,42
Wake-up delay	19	11,30
Cardiac arrest	3	1,78
Mendelson syndrome	2	1,2
2 Acute renal failure	4	2,4
None	104	61,90
Total	**168**	**100,0**

Table XXX: According to mode of release from intensive care

Output Mode	Frequency	Percentage
Transferred	57	87,69
Deceased	8	12,31
Total	**168**	**100,0**

DISCUSSION

We recorded 389 cases in total with 168 cases of obstetric emergency in the obstetric gynecology department during a period of 3 months (August to October), i.e. a frequency of 43.18%. In the study by Teguete, I [7] over three years (1991 to 1993), the caesarean section rate at the G-point university hospital center was estimated at 24.05% (772 caesarean sections out of 3209 deliveries). The rise in the caesarean section rate in our study compared to that of Teguete, I [7] could be explained by the fact that the act of caesarean section has been granted free of charge by the public authorities for some time (in June 2005). Our results are superior to that of Bréhima Diallo who had found 25.64% during a study carried out in Ségou. The average age was 26.16 years with extremes ranging from 15 to 43 years. The most represented age group was 22 to 32 years, i.e. a frequency of 50%. The average age of our patients was higher than that of Bamba, D [5] who found an average age of 24.62 years. This could be explained by the fact that Sikasso is a rural area where marriages are earlier. The mean age of the patients was 20.30 ± 3.34 years (range 14 and 39 years).

According to medical ATCD heart disease represents 4.8%, hypertension 2.4%, diabetes 2.4% of our study population, unlike that of Konaté, F [8] medical ATCD sickle cell anemia represents 0, 3%, hypertension 0.3%, heart disease 0.3% of our study population. Multiparas were the most represented at 25.6%. Our results are in line with those of Traoré, M [6] and Konaté, F [8] in which multiparas represented respectively 34% and 50.1%. The most represented indication was PRH, i.e. 19.6% compared to those of BABA BAH (2011-2012) where dystocia predominated with a rate of 70.3%; followed by haemorrhage, and fetal distress, with 19.8% and 8.7% respectively. General anesthesia was the most predominant at 57.1%. Our results go in the same direction as those of Chobli, M and Col [8] carried out in Benin where GA was the most used technique with a rate of 86.7%. This could be explained by the fact that the type of operative indication for caesarean section was mainly PRH. GA was the most used in all absolute emergency situations (78.2%; 64.2%). The Apgar score 0 was found only in pregnant women who underwent GA, i.e. 20.2%. Ketamine was the most used induction drug because of the hemorrhagic picture of hemodynamic instability linked to HRP in cases of general anesthesia. It was associated with suxamethonium and fentanyl after clamping the umbilical cord, compared to thiopental (98%) with severe eclampsia in the majority of cases in the study by Irié Bi Gohi Serge [12].

Bupivacaine 0.5% at a dose of 10 mg was the predominant local anesthetic product in cases of spinal anesthesia associated as an adjuvant either with morphine at a dose of 100 gamma or with fentanyl at a dose of 10 gamma. 65.5% presented with hypotension. We recorded during our study, 118 cases of IE, in 70.3% of patients. Among these, hypotension was the most frequent with 65.5%. This result was superior to that of Konaté, F [8]. (20.4%) Induction was the period most at risk of IE (43%), followed by maintenance (41%), 68% of patients presented with tachycardia, followed by nausea, vomiting. Our result is also lower than that of Dr Diallo Boubacar who found (85%). We have recorded 65 cases of resuscitation and 8 deaths. Peroperative incidents are dominated by: tachycardia (60%), arterial hypotension (35%) and cardio-respiratory arrest (3%). The modified Aldrete awakening score is between 3 and 5 in 12% of cases. Maternal postoperative complications are dominated by arterial hypotension (21.42%), delayed awakening (11.30%) and cardiac arrest (1.78%). Maternal mortality is 4.76%; represented by 3 cases (2.91%) of hemorrhagic shock, 2 cases (1.19%) of postpartum eclampsia, 2 cases (1.94) of HELLP syndrome, 1 case (1.94%) of insufficiency acute kidney. This result is below those of Pete Yaich D Cesar (2.4%) [10]. The length of stay in intensive care was 72 hours with extremes ranging from 1 day to 58 days.

While the main fetal complications were: respiratory distress (40%), prematurity (30%), fetal hypotrophy (22%). The observed neonatal lethality was 20.2%. It was lower than that reported by Simazoe 26.6% and higher than that reported by Irié Bi Gohi Serge 5% [12]. Most newborns (73.2%) had a score between 7 and 10. However, 20.2% were stillborn. This result is higher than those of Diarra, F. L 14.4% [10] but clearly higher than those of Coulibaly, A. N 2.6% [11]. Most newborns (88.7%) had a score between 8 and 10. However, 9.8% were stillborn. This result is comparable to 14.4% of Diarra, F. L. [2] but higher than 2.6% of Coulibaly, A. N. [4]. The vast majority of Apgar score 0 was found in cases of absolute urgency (12.4% versus 3.0%). Apgar null has mostly been observed in absolute emergency situations. The majority of the deceased was for the absolute emergency 0.9%.

CONCLUSION

The practice of emergency obstetric anesthesia poses organizational difficulties, linked to the absence

of a post-operative monitoring room, information from the anesthesia team and availability of products. PRH was the most frequent surgical indication; for this reason, GA has been the most practiced technique. Many patients were transferred to intensive care, i.e. 38.69% of cases and we recorded 38.69% of complications.

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