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Incidents and Accidents during Anesthesia in Scheduled and Emergency Surgery at the Gabriel Toure Hospital

Amadou Deh[1*], Broulaye Kamissoko[1], Minkoro Traore[1], Ousmane Dembele[2], Mamadou K Toure[3], Kokoroba Sidibe[1], Mahamadou Sangare[1], Issiaka Bamba[1], Drissa Bamba[1], Moussa Kante[1], Ramata Samake[1]

[1]Anesthesia-Resuscitation Service Hospital-Sikasso, Mali
[2]Urology Department, Hospital-Sikasso, Mali
[3]Dermatological Center (CNAM), Bamako, Mali

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***Corresponding author:** Amadou Deh
Anesthesia-Resuscitation Service Hospital-Sikasso, Mali

Abstract **Original Research Article**

Introduction: The aim of this study was to evaluate the incidents and accidents during anesthesia in surgery at the Gabriel TOURE hospital. ***Methodology:*** This was a descriptive prospective study of anesthetic incidents and accidents that took place in the anesthesia department of the Gabriel TOURE hospital on the operating sites of programs and surgical and gyneco-obstetric emergencies ranging from the 1st January to March 31, 2021. Our study focused on all patients who underwent emergency and scheduled anesthesia during the period. Included were all patients with at least one accident or incident, All patients who did not present accidents and incidents or who refused to participate in the study were not included. The data was collected on the survey sheets and analyzed using the EPI INFO 7 software. Data entry was made using Windows XP software. ***Results:*** Over a period of 03 months, we collected 741 patients operated on in the operating theaters of the Gabriel TOURE hospital, of which 100 patients presented accidents/incidents in scheduled and emergency surgery, i.e. a rate of 13.49%. Urgent surgery represents 15.23% of incidents or accidents. ***Conclusion:*** We were able to take stock of several elements related to our practice of anesthesia. One of the essential interests of this work was the comparison of a population of subjects having "been victims of an anesthesia accident to the whole population anesthetized in the same structures, by the same practitioners, over the same period of study".

Keywords: Incidents, accidents, anesthesia, surgery.

INTRODUCTION

The medical act has therapeutic benefits and side effects, the balance of which must be for the benefit of the patient. Of all the medical disciplines, anesthesia is one of the best known, as a provider of complications, especially its practice in an emergency which increases the risk due to ignorance of the patient's history. Sometimes unjustifiably, a certain number of incidents and/or accidents are attributed to anesthesia. In Europe and the USA, progress has been made in the anesthetic management of increasingly fragile patients with more severe lesions, with a significant reduction in deaths [1]. The only reliable figures for France are those of the survey of the National Institute of Health and Medical Research (INSERM). The anesthesia-related death rate was 1/12,000; in Australia 1/20000; in Great Britain 3/35000 [2]. Mali, a developing country in West Africa, B SAMAKE and COLL found 13.40% of incidents and accidents in scheduled surgery against 28.53% for DIOP T in unscheduled surgery. The objective of this study was to evaluate the incidents and accidents during anesthesia in surgery at the Gabriel TOURE hospital.

MATERIALS AND METHOD

1. Framework of the Study

Our study was initiated by the Anesthesia Department of the Gabriel TOURE Hospital and took place respectively on the operating sites of the programs and surgical and gyneco-obstetric emergencies.

2. Type of Study

This was a descriptive prospective study of anesthetic incidents and accidents.

3. Study Period

Our study was spread over three (3) months from January to March 2021.

4. Study Population

Our study focused on all patients who underwent emergency and scheduled anesthesia during our study period and who met the following criteria:

Inclusion Criteria were included in our study:

All patients who presented at least one accident or incident.

5. Criteria for Non-Inclusion

All patients who have not presented accidents and incidents.

METHOD

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, weight, height, number of anesthesiologists, anesthetic products used.

Qualitative Variables

Gender, ethnicity, qualification of the person in charge of anesthesia, type of surgery and qualification of the surgeon, existing means of monitoring, nature, identity, history (medical, surgical, anesthetic and transfusion), variables paraclinical, if the information was known also the type of anesthesia and its duration, the management of accidents and incidents and their evolution (see investigation sheet).

Collection of Accidents and/or Incidents

It was done according to the following principle: the anesthesia manager, declared either voluntarily or on request, the accident or incident that occurred during the anesthesia. Some events were directly collected from the anesthesia form, while others were directly noted by the student in charge of the thesis. In addition, questioning the medical staff in charge of monitoring patients post-operatively sometimes enlightened us on possible accidents and incidents that occurred within 24 hours post-operatively.

Data Analysis and Processing

The data was collected on the survey sheets and analyzed using the EPI INFO 7 software. Data entry was made using Windows XP software.

RESULTS

Over a period of 03 months, we collected 741 patients operated on in the operating theaters of the Gabriel TOURE hospital, of which 100 patients presented accidents/incidents in scheduled and emergency surgery, i.e. a rate of 13.49%. Urgent surgery represents 15.23% of incidents or accidents with a ratio of 55% in favor of men. The most represented age group is 21-40 years old, i.e. a rate of 46% of the extremes of 2-81 years old. General surgery is the most represented with 41%. ASA1+U patients were 72.72% and 77.78% of ASA1 patients. The checklist was not carried out in 9.09% of cases, i.e. 5/55 cases. Scheduled surgery was provided by an anesthesiologist and a medical assistant while urgent surgery was performed by medical assistants, general anesthesia with orotracheal intubation (GA+IOT) in emergency was the most represented with 85.45% and 66.66% on the program. Anesthesia was performed by two anesthetists with different combinations of medical assistants and anesthetist physicians, D.E.S and IADE in training in 47% of cases and the most common incident encountered in scheduled surgery was tachycardia with 44.44% followed by hypotension in urgent surgery or 34.55%. The type of surgery that presented the most incidents in scheduled surgery was gynecology with 33.33%. The general surgery department presented more incidence (hypotension) in urgent surgery with 34.54% against 32.72% for the gynecology department. Tachycardia represents 44.44% of incidents according to the type of anesthesia in scheduled surgery followed by hypotension (30.90%) in emergency surgery.

Table 1: Distribution of patients having experienced incidents or accidents according to the type of surgery

Types	Number	Incidents/Accidents	Frequency
Scheduled surgery	380	45	11,84%
Urgent surgery	361	55	15,23%
Total	**741**	**100**	

Table 2: Distribution of patients by gender

Sex	Number	Percentage
Male	55	**55%**
Female	45	45%
Total	**100**	**100%**

Table 3: Distribution of patients according to age groups

Age group	Number	Percentage
0-20 years	17	17%
21-40 years	46	46%
41-60 years	21	21%
61-80 years	13	13%
81-100 years	3	3%
Total	**100**	**100%**

Table 4: Distribution of patients by surgical department

Type of surgery	Ch. Gene	Traumatology	Urology	Neuro.Ch	Gyneco	Ch. Pedia	ORL	Total	%
Scheduled	20	10	4	5	3	0	3	45	45%
Urgent	21	5	1	6	20	1	1	55	55%
Total	**41**	**15**	**5**	**11**	**23**	**1**	**4**	**100**	**100%**

Table 5: Distribution of patients according to the ASA classification in emergency surgery

ASA	Workforce	Frequency %
ASA1+U	40	72,72%
ASA2+U	10	18,19%
ASA3+U	5	9,09%
Total	**55**	**100%**

Table 6: Distribution of patients according to the ASA classification in scheduled surgery

ASA	Work force	Frequency %
ASA1	35	77,78%
ASA2	8	17,78%
ASA3	2	4,44%
Total	**45**	**100%**

Table 7: Distribution of patients according to the checklist

Checklist	Done	Not done	Frequency	Percentage
Programmée	45	0	45	100%
Urgente	50 (90,90%)	5(9,09%)	55	100%
Total	**95**	**5**	**100**	**100%**

Table 8: Distribution of patients according to anesthesia technique

Type of surgery	Anesthesia technique		Total	Frequency
	Rashi	AG + IOT		
Scheduled	15	30	45	66,66%
Urgent	8	47	55	85,45%
Total	**23**	**77**	**100**	

Table 9: Distribution of patients according to the qualification of the anesthesiologist

Type of surgery	Quality of anesthesiologist			Total
	Doctor + Medical assistant	Medical assistant + D.E.S	Medical assistant	
Scheduled	45	0	0	45
Urgent	0	10	45	55
Total	**45**	**10**	**45**	**100**

Table 10: Distribution of patients according to the number of anesthetists present for the procedure

Number of anesthetists	Staff	Frequency
1 Medical Assistant	33	33%
2 Medical assistant + Doctor	47	47%
3 Medical assistant + Doctor + D.E.S	20	20%
Total	**100**	**100%**

Table 11: Distribution of patients according to type of incident in scheduled and urgent surgery

Types	Numbers		Numbers	
	Scheduled	Frequency	Urgent	Frequency
Hypotension	8	17,77%	19	34,55%
Blood pressure rise	4	8,90%	9	16,36%
Bradycardia	2	4,44%	12	21,82%
Tachycardia	25	44,44%	9	16,37%
Vomiting	2	4,44%	3	5,45%
Allergic reaction	4	8,90%	3	5,45%
Total	**45**	**100%**	**55**	**100%**

Table 12: Breakdown of incidents by scheduled surgery department

Incidents	**Types of surgery**							
	Traumato	**Ch. Gene**	**Obstetr**	**ORL**	**Neuro**	**Pedia**	**Uro**	**TOTAL**
Hypotension	3	6	15	2	4	1	3	34
Pressure rise	0	0	0	0	2	0	0	2
Vomiting	0	2	0	2	0	0	1	5
Allergy	1	2	0	0	0	0	0	3
Bradycardia	0	1	0	0	0	0	0	1
Total	**4**	**11**	**15**	**4**	**6**	**1**	**4**	**45**

Table 13: Breakdown of incidents by emergency surgery department

Incidents	**Types of surgery**							
	Traumato	**Ch. Gene**	**Obstetr**	**ORL**	**Neuro**	**Pedia**	**Uro**	**TOTAL**
Hypotension	4	7	7	0	1	0	1	20
Blood pressure surge	1	3	3	0	1	0	0	8
Vomiting	0	2	1	0	0	0	0	3
Allergy	0	2	1	0	0	0	0	3
Tachycardia	2	2	3	0	0	0	0	7
Bradycardia	4	3	3	1	0	2	1	14
Total	**11**	**19**	**18**	**1**	**2**	**2**	**2**	**55**

Table 14: Breakdown of incidents and/or accidents according to the type of anesthesia in scheduled surgery

Type of incident and/or accident	**Type of anesthesia**	
	AG + IOT	**Rashi**
Hypotension	3	5
Blood pressure surge	3	1
Bradycardia	2	0
Tachycardia	25	0
Vomiting	1	1
Allergic reaction	4	0
Total	**38**	**7**

Table 15: Distribution of incidents and/or accidents according to the type of anesthesia in emergency surgery

Type of incident and/or accident	**Type of anesthesia**	
	AG	**Rashi**
Hypotension	17	7
Blood pressure rise	8	1
Bradycardia	11	1
Tachycardia	7	0
Vomiting	2	1
Total	**45**	**10**

DISCUSSIONS

The sex ratio was 55% in favor of men similar to the study by Dicko [5], Gravot. [7] Venet. [9] and Diawara [6] respectively had 58%, 84%, 55% and 52.2% of male patients operated on in their series and unlike Tiogo. [4] who had 56.5% women in her series. The most represented age group is 21-40 years old, i.e. 46%, Dicko. [5] and Gravot. [7] found respectively 92.2% and 80.2% of patients under 65 years old. The

high prevalence of our patients in gynecology would explain this difference. General surgery is the most represented with 41% followed by the gynecology department with 23%, Diawara [6] on the other hand found 29.6% and 26% for general and urological surgeries. ASA1+U patients represent 72.72% and 77.78% of ASA1, the younger nature of our study is the explanation. Scheduled surgery was provided by an anesthetist and a medical assistant (100%) while emergency surgery was performed by medical assistants and D.E.S (90%) and 10% by medical assistants only. Tiogo. [4] had in his study 40% of anesthesia performed by unqualified nurses, 38.7% by state-certified nurse anesthetists and 16% by resuscitator anesthetists, for Gravot. [7] and Venet. [9] anesthesia was performed in 100% of cases by anesthesiologists. The most common incident in scheduled surgery was tachycardia with 44.44% and the most common incident in emergency surgery was hypotension with 34.55%. This result is similar to those of Tiogo [4] and Traore [10] had 19.2% and 42.9% accidents and/or cardiovascular incidents, on the other hand Venet [9] during his study had 38.5% accidents and/or respiratory-type incidents. We did not record any cases of death related to anesthesia or surgery, Venet [9] had a mortality rate of 2.1%.

CONCLUSION

At the end of this study, we were able to take stock of several elements related to our practice of anesthesia. One of the essential interests of this work was the comparison of a population of subjects having "been victims of an anesthesia accident to the whole population anesthetized in the same structures, by the same practitioners, over the same period of study". The remarkable progress observed in anesthesiological practice through the application of the minimum safety standard and the improvement of the technical platform (equipment and personnel) have made it possible to considerably reduce incidents/accidents occurring during anesthetic practices. Much remains to be done to perfect the technicality, hence the continuous training of practitioners.

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