

Complications Associated with Anesthesia for Obstetric Services: A Prospective Survey in Oran Algeria

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Citation

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Abstract

Background:

The main objective of this study is firstly; to evaluate the frequency and cause of the morbidity and mortality during operative and postoperative period (first 24 hours) in anesthesia department of University Hospital of Oran-Algeria. Secondly to find out the actual state of anesthesia safety in various services and compares it to the established reported norm.

Method:

A survey form was designed; to evaluate the morbidity and mortality which happened during the study period 2001-2004. The survey covered the pre operative, operative and the first 24 hours postoperative periods.

Results:

There were major incidents from 2001-2004 totaling 95 major incidents

They were related to preoperative preparation like medication, airway evaluation and not examining the patients, some major incident linked to failed intubation, complication of general anesthesia, complication of pregnancy and lack of monitoring which extended to post operative period

There were six deaths, one due to impossible intubation of the trachea and five occurring postoperatively due to cardiovascular reason and hypertension of pregnancy

This study indicated some shortages in monitoring devices like pulse oximeters and some other monitoring devices which might help in prevention of some incidents

Human factors are present and better education and supervision may help as well in reducing incidents

More attention should be paid to antenatal patient's evaluation to prepare the patient. Using local analgesia technique in obstetric would reduce the higher risk in general anesthesia. Facilities of the post operative observation should be well equipped with instruments which monitor blood pressure and oxygen saturation (pulse oximeters) would improve the outcome.

INTRODUCTION

Maternal mortality in Africa continues to be a serious public health problem. Any success in this domain requires an adequate political will, appropriate multidisciplinary programmes of prevention and early management of cases in obstetrical resuscitation units.^[1]

A woman's death is more than a personal tragedy--it represents an enormous cost to her nation, her community, and her family. Any social and economic investment that has been made in her life is lost. Her family loses her love, her nurturing, and her productivity inside and outside the home. As women continue to die, it is a failure of their societies,

their health systems and their families and communities. ^[2]

Women need access to medical and social services.

Interventional medicine is essential in order to provide rapid access to emergency obstetrical care, including treatment of hemorrhages, infections, hypertension, and obstructed labor.

It is also important to ensure that skillful health care providers e.g. a midwife or doctor is attending every delivery. They should be supported by life-saving interventions, facilities like anesthesia and surgery and transportation to medical centers. ^[3]

This report evaluates the anesthesia risk for patients operated upon in obstetric services. Through a prospective study of

the peri-anesthesia period namely: the pre-anesthesia evaluation's parameters, including consultation and pre-operative preparation of the patient, the anesthesia technique, its complications and the methods of monitoring; during the period extending from the anesthesia and first postoperative 24 hours.

The main objective of this study is firstly; to evaluates the frequency and cause of the morbidity and mortality during operative and postoperative period (first 24 hours) in anesthesia department of University Hospital of Oran-Algeria. Secondly to find out the actual state of anesthesia safety in various services and compares it to the established reported norm.

PATIENTS AND METHOD

The population studied was the women subjected to surgical interventions in obstetric services at the University hospital of Oran. It includes emergency operated in urgent manner.

A survey form was designed; to evaluate the morbidity and mortality which happened during the study period 2001-2004 The survey covered the pre operative, operative and the first 24 hours postoperative periods.

It covered the following subjects in details:

- Age of the patient
- Health condition as detailed in American Society of Anesthesia Classification (ASA)
- Diagnosis leading to surgical intervention
- Elective surgery
- Emergency Surgery
- Incident which was recorded
- Nature of the incident:
- Neurological
- Cardiovascular
- General anesthesia
- Local anesthesia
- Peoperative evaluation
- Health
- Airway

- Medication
- Operative
- Intubation.
- Anesthetic drugs.
- Ventilation
- Circulation
- Analgesia
- Monitoring

1. Postoperative
3. Ventilation
4. Circulation
5. Analgesia
6. Monitoring
1. Outcome

The required information was retrieved from patients files. Collected were the factors involved in the peri-operative periods. The survey form was put to allow analyzing the results. The variables of this survey form were inspired from the investigation of anesthesia accidents at the department of anesthesia and reanimation of Bichat University hospital, designed by Desmots in 1984 -1986.[4]

Other points were inspired by the investigation in anesthesia mortality and morbidity designed by Inserm (France) in 2004.

STATISTICAL ANALYSIS

The department of epidemiology of Oran University Hospital conducted the analysis of collected data using EPI Info.

Controlling the validity of variables coherence using univariate analysis and for qualitative variables X-squared, in certain situation cross-comparisson of variable was conducted.

RESULTS

Total of 2001 of obstetric patients files were studied yielding 95 incidents of grave nature. [Fig.-1]

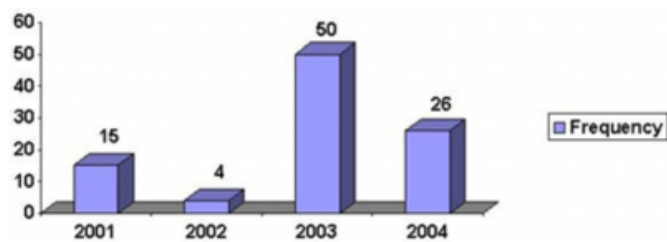
Pre- and post operative period

The poor evaluation of cardiovascular in hypertensive patients and toxemia of pregnancy with or without neurological complications were almost not or badly followed up

The Cesarean sections done in emergency were predominant.

Figure 1

Figure 1: Frequency of incidents which occurred during four years of study.



The Cesarean sections done in emergency were predominant. [Fig. 2]

Figure 2

Figure 2: The incidents happened in 54% of operation were urgent in nature Cesarean section

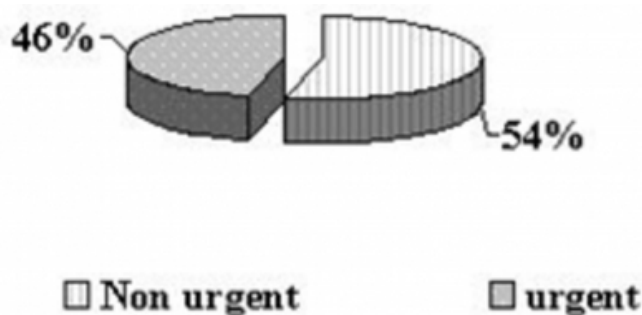


Figure 3

Figure 3: The incidents in obstetric patients per age

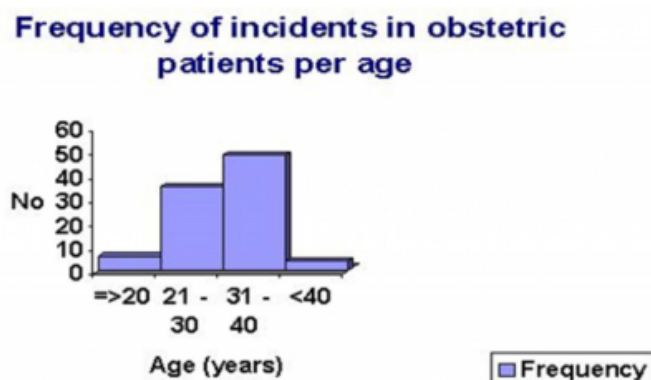


Figure 4

Figure 4: The incidents according to the type of anesthesia

- Morbidity incidents according to the type of anesthesia

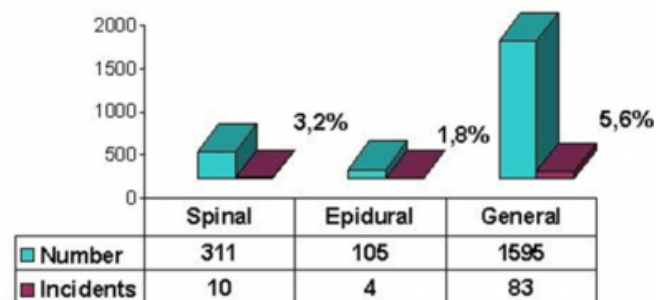
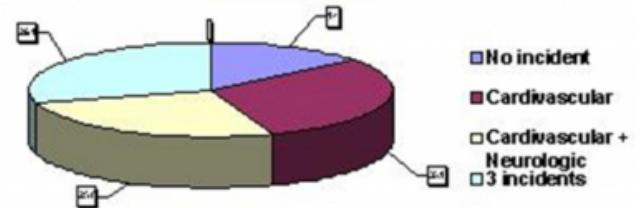


Figure 5

Figure 5: Incidents according to time of procedure pre- and post operative period

Incidents per-operatively due to bad pre-operative evaluation of patient's condition



Pre- and post operative period

Poor assessment of cardiovascular in hypertensive patients and toxemia of pregnancy with or without neurological complications were almost not or badly followed up.

Figure 6

Figure 6: Percentage of incidents in the preoperative period among the total of incidents in obstetric incidents mainly error in preoperative airway assessment and treatment adjustment.



Figure 7

Figure 7: Incidents according to health status of the patients (ASA status)

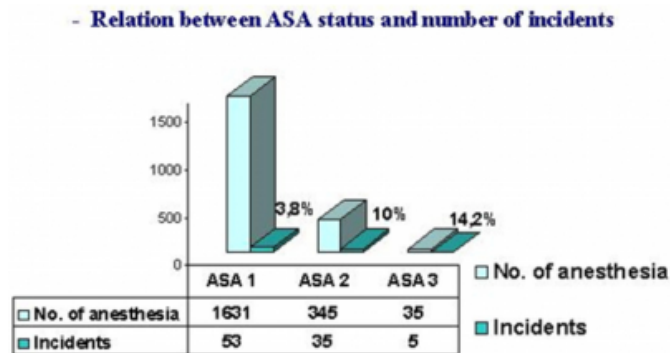


Figure 8

Figure 8: Incidents due to regional anesthesia for obstetric.

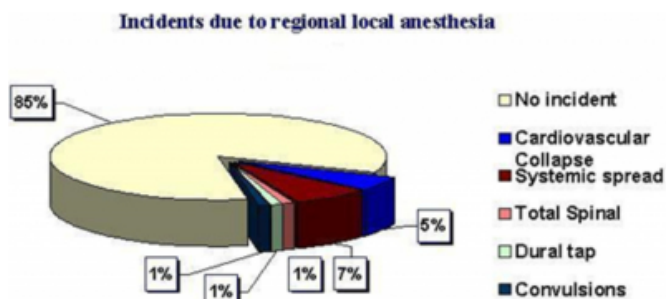


Figure 9

Table 1: Incidents attributed to patient condition in 95 cases.

Preoperative evaluation	14
Arterial Hypertension	10
Technique of anesthesia induction	4
Anaphylaxis to anesthesia drugs a	4
Bronchospasm	2
Aspiration pneumonia	1

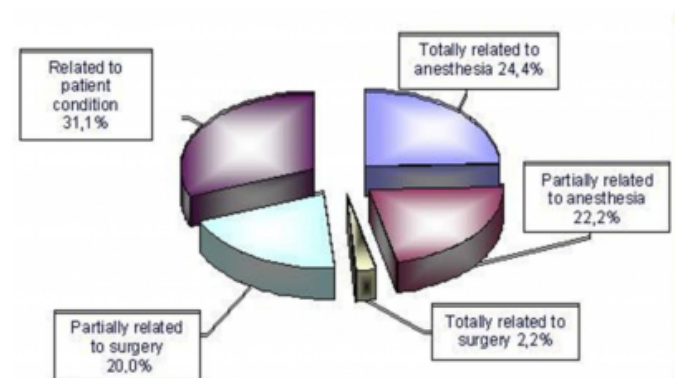
Figure 10

Table 2: Incidents totally attributed to anesthesia from total of 95 incidents in obstetric services.

Toxemia of pregnancy	44
Obstetrical hemorrhage	2
Circulatory failure	3
Thrombo-embolism	2
Diabetes	2
Cardiac failure	3
Respiratory failure	1

Figure 11

Figure 9: Incidents as related to the causing factors (see Epidemiological significance in discussion).



DISCUSSION

Effect of anesthesia type: conforming to literature and epidemiological etudes which favors regional local anesthesia, it appears that morbidity coincide with general anesthesia in significant Way. Pre- and post operative period

The bad appreciation of cardiovascular in hypertensive patients and toxemia of pregnancy with or without neurological complications were almost not or badly followed up.

Preoperative airway assessment: Evaluating the intubations difficulties pause a real problem since it constitutes 38% of incidents. This is a result of physiological changes due to pregnancy. If it is not considered in the pre-anesthesia visit,

or in case of emergency situation, it will limit examination of the airway.

Effect of anesthesia type: conforming to literature and epidemiological studies which favors regional local anesthesia, it appears that morbidity coincide with general anesthesia in a significant way.

Incidents during local anesthesia: majority of hemodynamics disturbances occur in the absence of vasoconstrictors especially parturient sensitive to local block.

Human Errors represents 19% of incidents, which will raise the alarm for education and operation theaters system organization.

In the second position the incidents caused by lack of proper materials 9%; deficiency of drugs 5% pulse oximeters represent 3% of reported incidents.

Operative incidents related to anesthesia were as follow

1. Intubation.M
2. Anesthetic drugs.
3. Ventilation
4. Circulation
5. Analgesia

EPIDEMIOLOGICAL SIGNIFICANCE

The following items showed statistical significance:

- Convulsive state of the patient was most significant patient factor leading to incident
- X^2 (Yates) = 17.78; $P \leq 0.05$. Hypertension of pregnancy was an important factor leading to major incident
- X^2 (Yates) = 65.35; $P \leq 0.05$.
- The arterial hypertension was the significant incident during anesthesia X^2 (Yates) = 8.48; $P \leq 0.05$
- As for peri-operative the most prominent incident is poor evaluation of difficulty of the airway of the patient leading to difficult or failed intubation X^2 (Yates) = 6.77; $P \leq 0.05$ (Age group 30-39)

- Mortality in this study were six cases
- One case was due to impossible intubation.
- Five deaths occurred in the post operative period.
- Three patients of these were not evaluated preoperatively. X^2 (Yates) = 7.16; $P \leq 0.05$.
- Two patients died due to complications of arterial hypertension X^2 (Yates) = 8.48; $P \leq 0.05$.
- One of these cases had Hypertension of pregnancy X^2 (Yates) = 65.35; $P \leq 0.05$
- Postoperative dead patients had ASA class 1 in preoperative evaluation. While another two had ASA 2 and ASA 3 Classification.

CONCLUSION

This study indicated some shortages in monitoring devices like pulse oximeters and some other monitoring devices which might helped in prevention of some incidents

Human factors are presents and better education and supervision may helped as well in reducing incidents

More attention should be paid to antenatal patient's evaluation to prepare the patient. Using local analgesia technique in obstetric would reduce the higher risk in general anesthesia. Facilities of the post operative observation should be well equipped with instruments which monitor blood pressure and oxygen saturation (pulse oximeters) would improve the outcome.

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