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

M Khdidja

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 to 2004 totaling 72 major incidents

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

This study indicated some shortages in monitoring devices like pulse oximeters ECG 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 preanesthesia patient's evaluation to prepare the patient. Using local analgesia technique in gynecological surgery would reduce the higher risk in general anesthesia. Facilities of the post operative observation should be well equipped with instruments which monitor blood pressure, ECG and oxygen saturation (pulse oximeters) would improve the outcome.

INTRODUCTION

This report evaluates the anesthesia risk for patients operated upon in gynecological services. It was designed as 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 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.

PATIENTS AND METHOD

The population studied was the women subjected to surgical interventions in Gynecology 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 included the following items:

- 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. Outcome

Retrieving the required information was from patients files. Collected factors involved 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 Desmonts in 1984 -1986.

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

STATISTICAL ANALYSIS

The department of epidimiology 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-compression of variable was conducted.

RESULTS

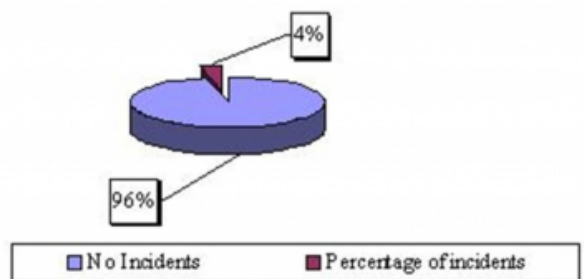
Total of 1989 gynecological patients files were studied yielding 72 (4%) incidents of grave nature of anesthetized and operated upon during the period 2001January 1st - Dec. 31st 2004. The incidence were mainly during elective cases (94.4%) the emergency cases percentage was (5.6%) [Fig.1]. These 72 patients' age ranged between 23-77 years Median 50 years. [Fig.2]

The preoperative ASA classification obtained before anesthesia and surgery indicated that the majority of patients were of ASA 1. [Fig. 3]

Figure 1

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

Frequency of incidents reported in total of (1989) gynecological interventions



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

Figure 2

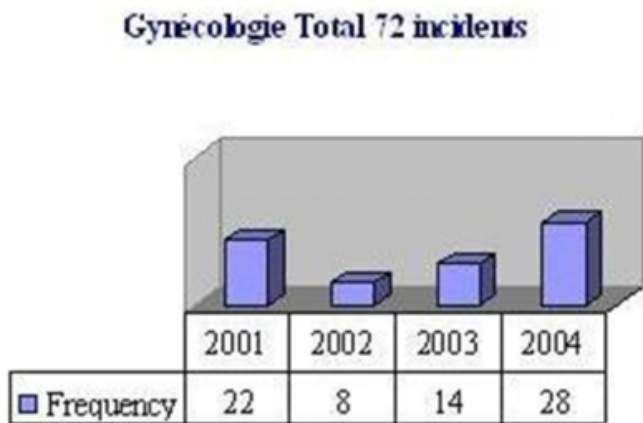
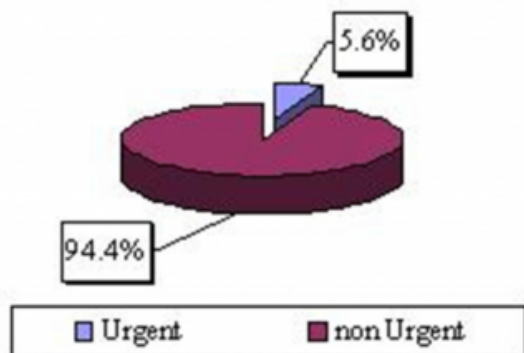


Figure 3

Percentage of urgent cases among 72 incidents in gynecology



From let to right Incidents were 4% of anesthetized and operated upon during the period 2001 January 1st - Dec. 31st 2004

Figure 4

Figure 2: Frequency distribution of 72 incidents in gynecological services at Oran University medical centre where the age group affected (45- 66 years) were to the older side if compared to obstetrical incidents monitored during the same period

Frequency distribution of 72 Gynecological surgery according to the age groups

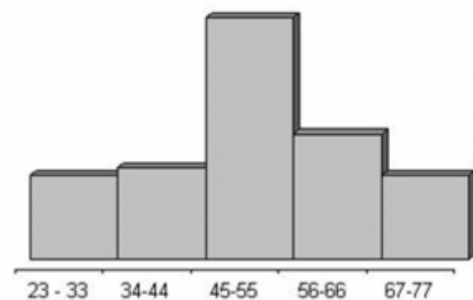


Figure 5

Figure 3: ASA classification status of the patients from left to right 1- Total patients ASA expressed in percentage then 2- percentage of incidents among ASA 1 Class in patient so had incident then 3- ASA 2 Class then 4- ASA 3 incident increases as the classification elevated.

Percentage of ASA classes in total gynecology

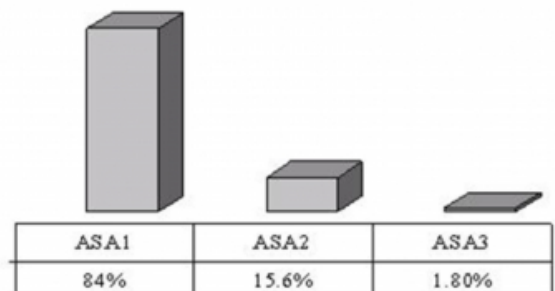


Figure 6

Incidents reported in class ASA1 total 1640 cases

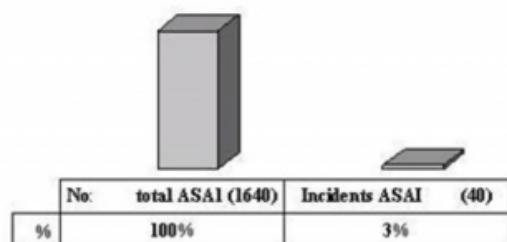


Figure 7

Percentage of incidents in ASA 2 class in 312 gynecology

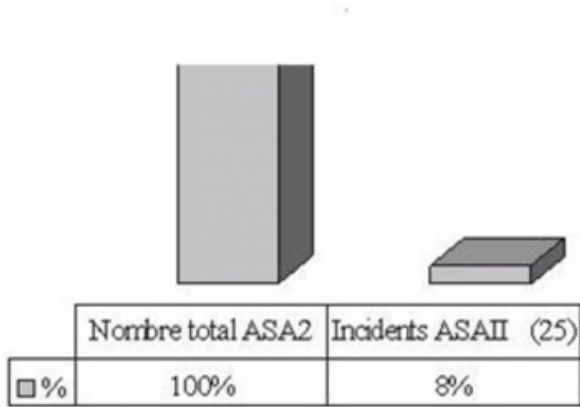
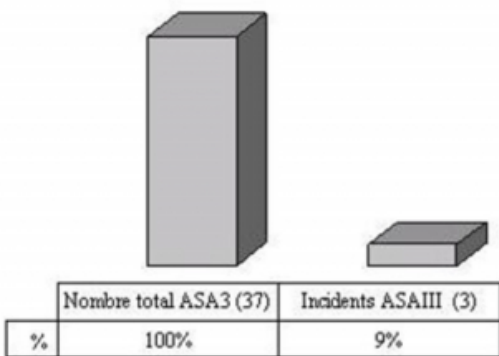


Figure 8

Percentage of ASA 3 class in total 37 cases gynecology



The relevant findings indicated that incidents were Anesthesia related, Surgery related and patient's preoperative health condition of the patients. Anesthesia when given as general anesthesia had higher rate of incidents related to anesthesia like cardiovascular instability, respiratory depression either drug induced or surgically induced. While regional block carried less incidents percentage. [Fig.4,5&6]

Figure 9

Figure 4: The monitored causative factors expressed in percentage in Gynecological surgery incident and interaction between surgery, anesthesia and patient preoperative health.

Global evaluation of incidents in 72 gynecological patients related to the cause, Anesthesia, Surgery and patient condition

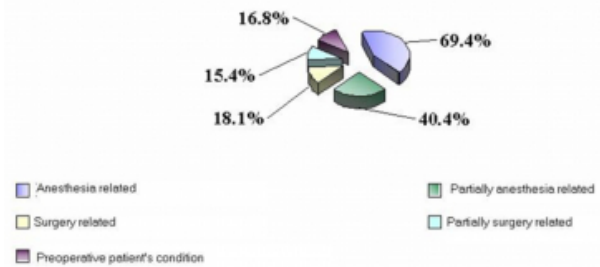


Figure 10

Figure 5: Types of incidents during anesthesia and the monitored type of incident expressed in percentage among 72 cases. On the right the epidural and spinal anesthesia remarkably showed very small percentage of incidents attributed to it.

Incidents due to anesthesia

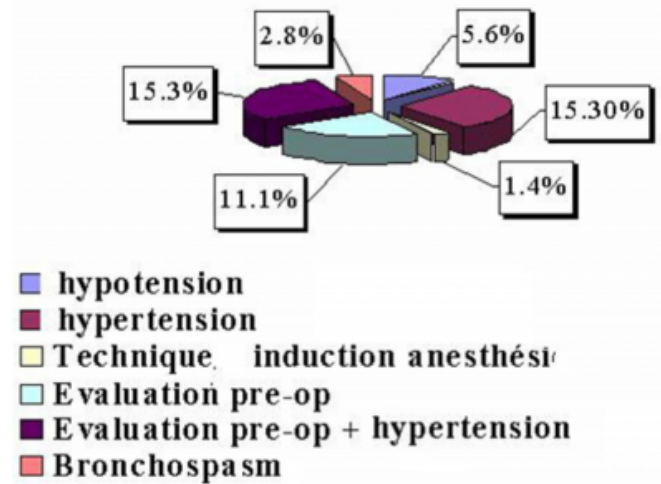


Figure 11

-Incidents encountered with type of anesthesia

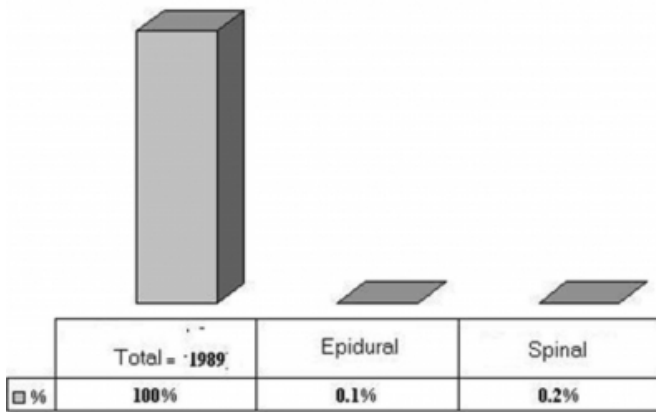


Figure 12

Figure 6: Causes of incidents solely attributed (left) and partially (right) to surgery expressed in percentage among 72 cases.

Incidents related to surgical intervention

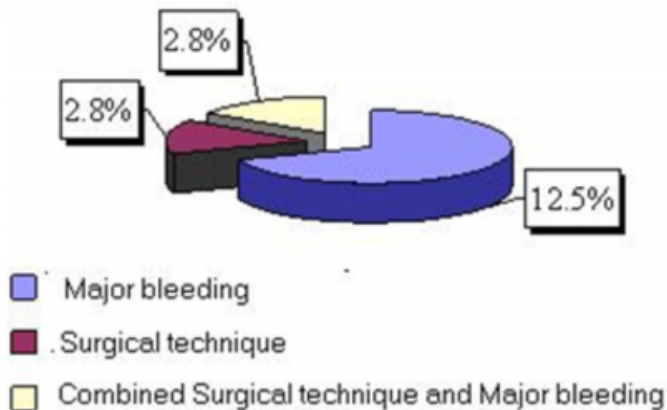
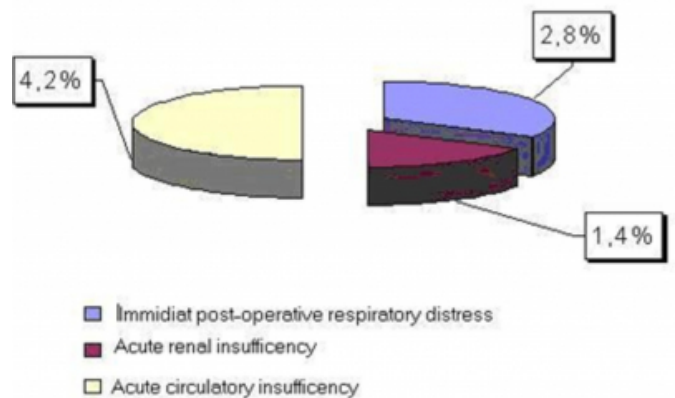


Figure 13

Incidents partially caused by surgical intervention



There were some causes of incidents which are not related to the above categories of factors and reasons. These causes are related to human operator's factor like human errors which is displayed as inefficiency or lack of anesthesia plan for management like choice of technique or degree of preparedness for intubation of difficult airway of emerging cardiovascular of surgical emergency.

Some other factors are related to lack of facilities for proper intubation or monitoring.

The lack of recovery room surveillance contributed some incidents or respiratory or circulatory insufficiency. [Table 1]

Figure 14

Table 1: Indicate some specific factor to OUHC which was found in both Obstetric and Gynecological services manifested in lack if post operative recovery area lack of alarms ad monitoring in this study on gynecological procedures.

Other causative factors to incidents	Frequency	Comments
Human Errors		Range of human error: from lack of experience to not preparing the anesthesia plan or intubation, or anticipating danger
Pure human error	21	
Inefficiency	1	
Both	1	
Lack of materials		Respiratory alarm and ECG
Lack of medicine	6	
Lack of monitors	2	
Lack of intubation instruments	3	
Lack of recovery room	8	There are mainly to residual paralysis leading to respiratory incidence or cardiovascular instability or both

DISCUSSION

Much concern in the developing world exists for lack of

information on productive medicine and degree of risk of women in reproductive age. [1,2,3,4]. Much emphasis in the developed world is on obstetric mortality and morbidity.

In our setting women health is not restricted to reproductive period. So in reporting on women health problems we find close cohesion between the gynecological and obstetric medicine. In our trial to look closely in women who were treated in Obstetric and gynecology department there were some interplay of factors and approach. Like in our report on obstetric complications [5], the 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 periods. The age group of gynecological cases is older than obstetric group in our early reported study [5] and in accordance with similarly reported study [6]

The poor appreciation of cardio-vascular condition in hypertensive patients were almost not or poorly followed up.

The result of this study confirms the role of poor preoperative evaluation of the cardiovascular system in appearing of 38% of registered incidents. This evaluation is done by physician in training; also some investigations are not done in time or it is too expensive to do. So the patient's information and the conduct of anesthesia is not realistic.

The major factor related to gynecological surgery is hemorrhage which is implicated in 12.5% of recorded incidents. Arterial hypotension participated in 5.6% of cases. The cardiovascular insufficiency was found in 4.2%.

Effect of anesthesia type: conforming to literature and epidemiological etudes which favors regional local anesthesia, it appears that morbidity related to general anesthesia is significant. Incidents during local anesthesia: majority of homodynamic disturbances occur in the absence of vasoconstrictors, which raise the issue of lack or non availability of certain drugs either total unavailability of not prepared.

Human Errors represents 34.7% 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, deficiency of drugs, ECG, pulse oximeters represent alarming feeling of reported incidents.

Operative incidents related to anesthesia were as follow

- Intubation.
- Anesthetic drugs.
- Ventilation
- Circulation
- Analgesia

In this study it was apparent that it is important to improve preoperative cardiovascular status of the patient. To disclose were hypotensive cases due to congestive heart failure.

It is important to have anesthesia preparation and careful anesthesia induction technique. It is important to improve the operative monitoring and measurement of arterial blood pressure. Observing better post operative respiratory and circulatory monitoring and have better facilities since they are the constant factors observed in these patients

High ASA class, and advanced age are the most important indicator for susceptibility for incidents

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

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

EPIDEMIOLOGICAL SIGNIFICANCE

As for peri-operative factor, the most prominent incident is poor evaluation of cardiovascular condition preoperatively X^2 (Yates) = 6.77; $P \leq 0.05$ (Age group 30-39)

CORRESPONDENCE TO

Madame Meddeber Khidja ,
2 passage thierry rue K hemisti
ORAN
ALGERIE

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Author Information

Meddeber Khdidja, M.D.

Département d'anesthésie réanimation, Oran University, Medical Center (C.H.U. Oran.)