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Original Research Article

Epidemioclinical and Therapeutic Study of Caesarean Sections at the Markala Reference Health Centre

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Abstract: This was a retrospective study conducted at the Markala referral health centre from 2019 to 2022. The general objective was to study caesarean section at CS Réf in Markala. During our study period from 2019 to 2022, we recorded 1244 caesarean sections, i.e. a frequency of 28.29% of all deliveries. Parturients were evacuated in 51.6% of cases. Only 14.23% of our parturients were well monitored. The most frequent indication for caesarean section was SFA in 30.1%, i.e. 375 cases. The surgical procedure most frequently associated with caesarean section was LRT. Maternal mortality was 0.3%, mainly due to haemorrhage and pregnancy-related maternal pathologies. Maternal morbidity was dominated by infections, severe anaemia and haemorrhage. Fetal mortality was 11.9%, mainly due to severe fetal distress. Resuscitation was required for 23.5% of our caesarean section babies. Improving these results requires the support of all sectors of society.

Keywords: Caesarean section, indications, evacuation, prognosis maternal-fetal.

INTRODUCTION

A caesarean section is an obstetric operation in which the uterus is surgically opened (hysterotomy) and an abdominal delivery is performed after a coeliotomy [1].

Worldwide, it is estimated that around 529,000 women die each year as a result of pregnancy and childbirth [2].

Approximately half of these deaths occur in Africa, a continent with an estimated population of 850 million [2].

Africa accounts for just 13.5% of the world's population and 23.5% of global births [2].

West Africa is the region with the highest maternal mortality rate. It is estimated at 1,020 deaths per 100,000 live births [3], a situation that is due to poor coverage of maternal health needs.

In Mali, the direct estimate of the maternal mortality rate in 2012 was 368 deaths per 100,000 live births according to EDSM V [4], despite efforts to reduce maternal mortality.

Since 1985, the World Health Organisation (WHO) has considered that the <<ideal rate >> of caesarean section is between 10% and 15%.According to new studies, when the caesarean section rate rises to close to 10% for the population as a whole, maternal and neonatal mortality falls. However, no further reduction in mortality is observed when this rate exceeds 10% [5]. From the 19ème to the 20ème century, Caesarean sections were considered a perilous and deadly procedure for live women [6], but they are now seen as a way of improving obstetric care.

Its indications are increasingly being extended to several obstetric pathologies, leading to an increase in its frequency over the last two decades.

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In 2010, these rates reached 20.8% in France [7], 17% in the Netherlands and Sweden, 38% in Italy and 37% in Portugal [8] and 16% in Morocco in 2011.

In the various regions of Mali for the period 2012, we noted:

1.7% of caesarean deliveries in Kayes; 1.4% in Koulikoro; 2.3% in Sikasso; 1% in Mopti; 2% in Ségou; 0.4% in Tombouctou; 0.2% in Gao; Bamako is the only city with a caesarean delivery rate of 8.4% [9].

More than four million newborn babies die every year, mostly as a result of inadequately managed pregnancies and childbirths burden. The perinatal mortality rate according to EDSM V in 2012 was 34 deaths per 1000 births [4].

To reinforce previous strategies aimed at reducing maternal-foetal mortality, the Malian government decided on 23 June 2005 to institute "free" caesarean sections in public hospitals, referral health centres in the cercles and communes of the Bamako district, and army health service establishments [10].

The CS Réf in Markala, affected by these measures, has seen its system reorganised to meet the needs of the population.

No study had been carried out on caesarean sections in the Markala referral health centre, which is why we initiated this study to gain an overview of caesarean sections and the difficulties involved in performing them.

General Objective

- Studying caesarean sections at the Markala referral health centre.

METHODOLOGY

1-Study Framework:

Our study was carried out in the gynaecology-obstetrics department of the Markala referral health centre.

2-Type of Study:

This was a retrospective, analytical and descriptive study.

3-Study Period:

It covers a 4-year period from 01 January 2019 to 31 December 2022.

4-Study Population:

It is made up of all the women who consulted the maternity ward of CS Réf in Markala.

5-Sampling:

5-1 Inclusion Criteria: Our study included:

- Women who gave birth by caesarean section;
- Newborn babies born after these caesarean sections.

5-2 Non-Inclusion Criteria: Not included:

- Women admitted to the maternity unit but who have not had a caesarean section.
- Incomplete files.

6- Study Variables:

Age, Profession, Origin, Mode of admission, Parity, Gestité Indications for caesarean section, Types of caesarean section (prophylactic, emergency).

Operator qualification; Intraoperative and postoperative maternal complications, Postoperative neonatal complications, Maternal mortality, Circumstances of death, Neonatal mortality

7- Data Collection:

The data were collected from: obstetrical records, the operative report register.

RESULTS

1-Frequency:

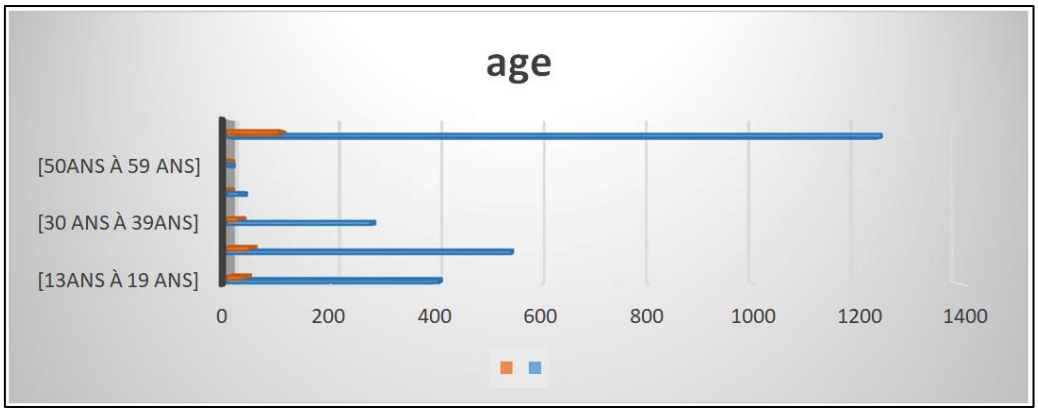
During the study period (1 January 2019 to 31 December 2022), we recorded 1,244 caesarean deliveries out of a total of 4,397, i.e. a rate of 28.29%.

Table I: Annual frequency of births

Years **Birth**	**2019** **Number % of total**	**2020** **Number % of total**	**2021** **Number % of total**	**2022** **Number % of total**
Low track	831(74,9%)	726(76,4%)	828(70,5%)	768(66,0%)
Caesarean section	278(25,1%)	224(23,6%)	347(29,5%)	395(34,0%)
Total	**1109(100%)**	**950(100)**	**1175(100)**	**1163(100)**

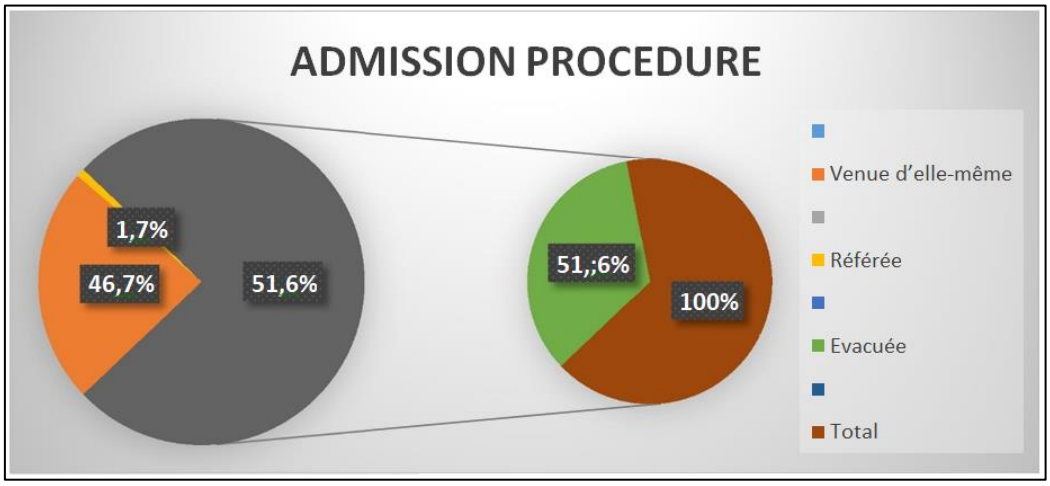
The most caesareans were performed in 2022.

Socio-Demographic Characteristics of Women who have Undergone Caesarean Section
2-Age Groups of Women:



Graph I: Breakdown by age group

3- Inlet Mode



Graph II: Distribution of patients according to mode of admission

More than half of our patients (51.6%) are admitted in an emergency setting from various health centres.

4- Gestité

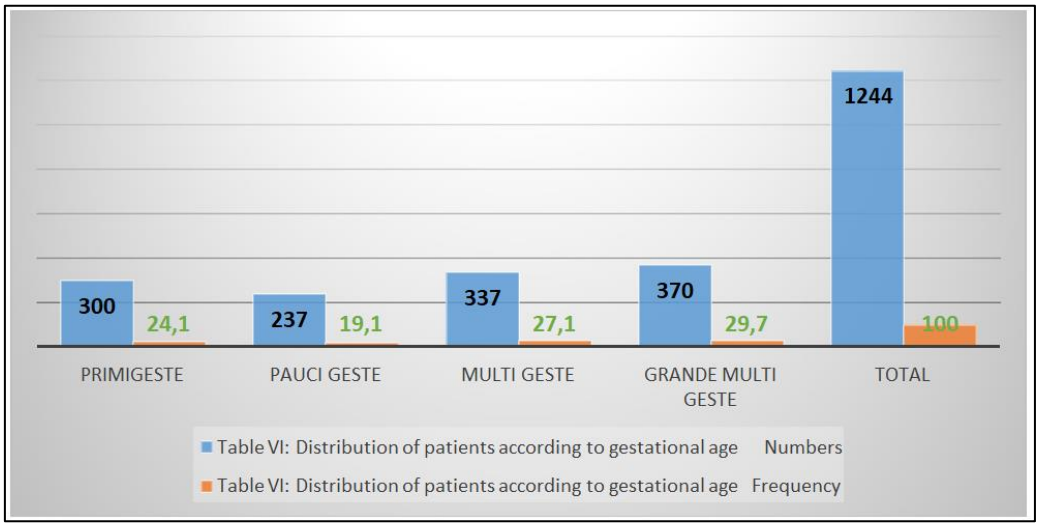
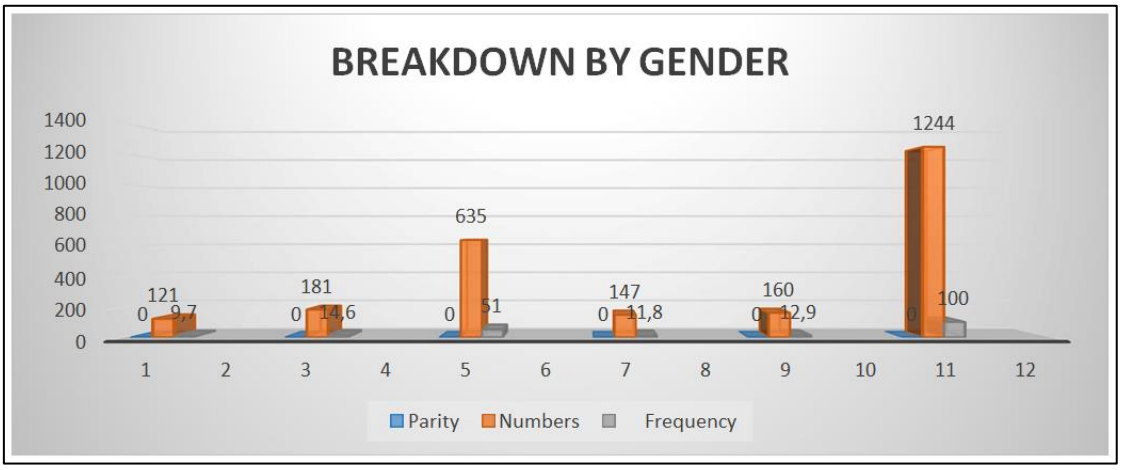


Chart III: Distribution of patients according to gestational age

Large multi gestures are the most numerous at 29.7%, followed by multi gestures at 27.1%.

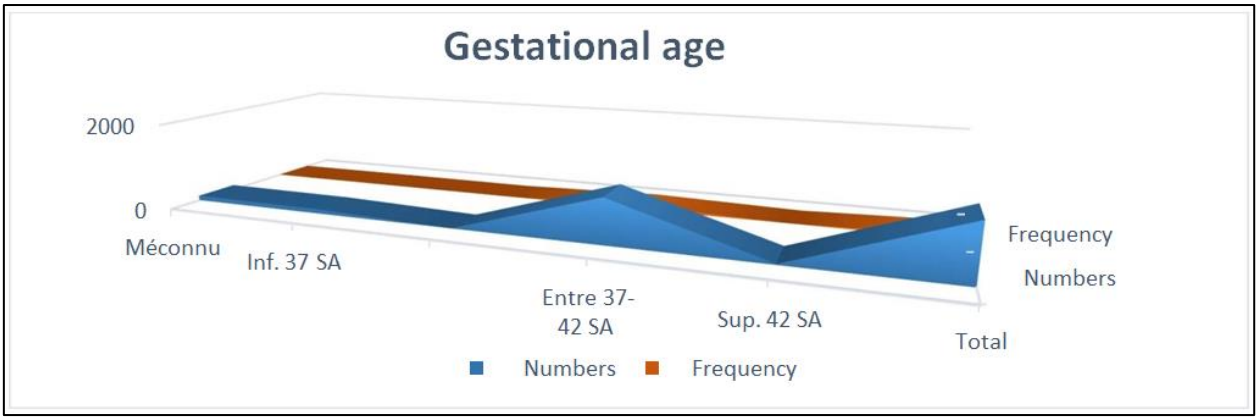
5- Parity of Caesarean Patients



Graph IV: Distribution of caesarean section patients according to parity.

Pauci-pares are the most numerous, accounting for half the sample at 51.04%.

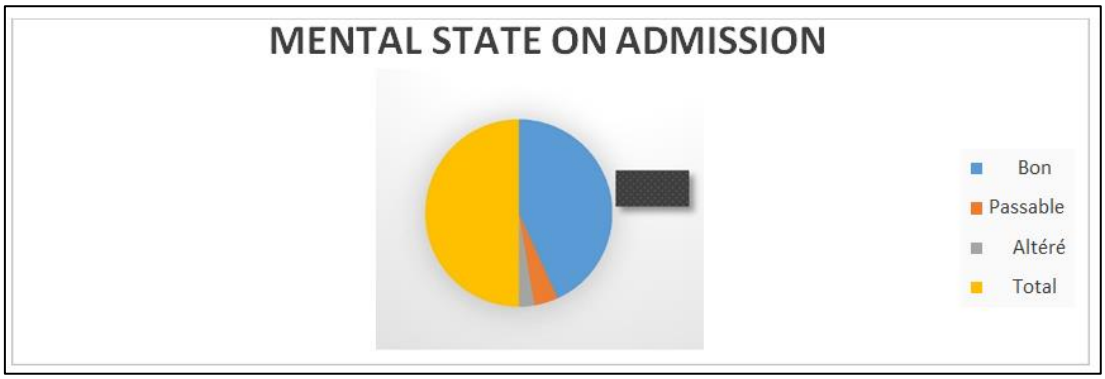
6- Gestational age



Graph V: Distribution of patients by gestational age

The majority of our patients had an estimated gestational age at term (81.7%).

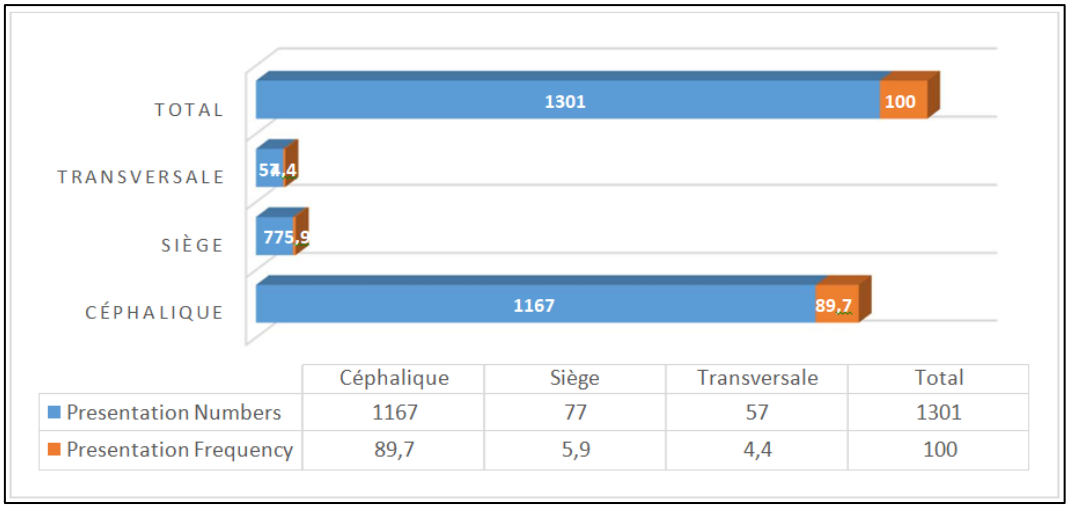
7- Maternal Status on Admission



Graph VI: Distribution according to maternal status on admission

8- Fetal Status on Admission

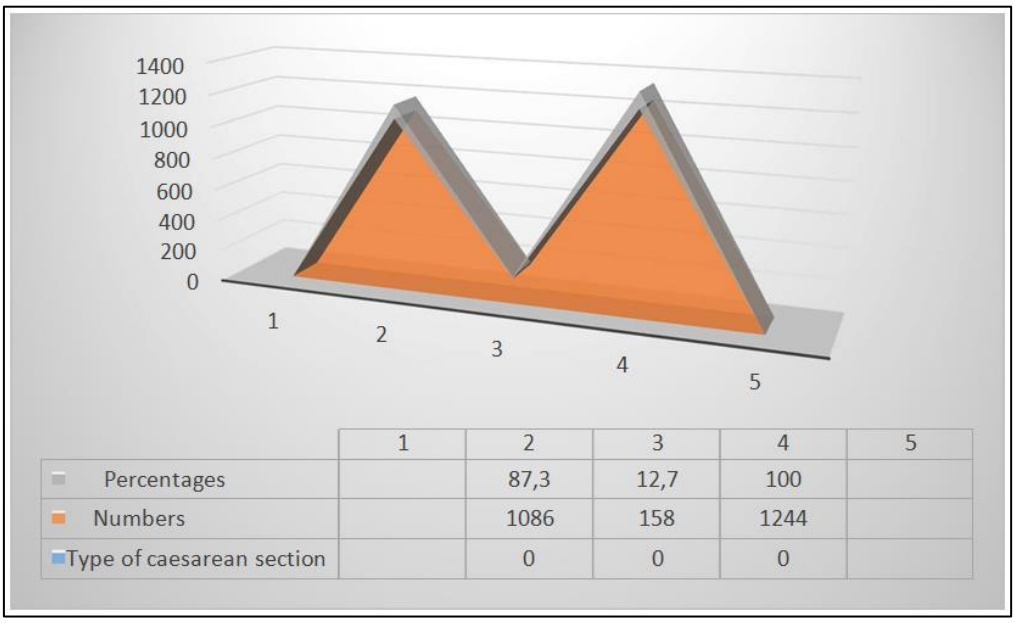
Cephalic presentation represented the majority with 91.2%.



	Céphalique	Siège	Transversale	Total
Presentation Numbers	1167	77	57	1301
Presentation Frequency	89,7	5,9	4,4	100

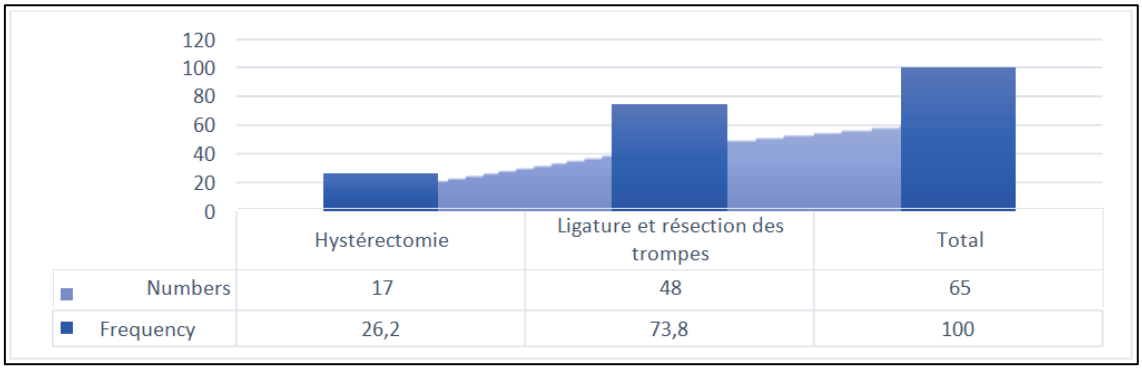
87.3% of caesareans were performed as emergencies.

9- Intervention Associated with Caesarean Section



	1	2	3	4	5
Percentages		87,3	12,7	100	
Numbers		1086	158	1244	
Type of caesarean section		0	0	0	

Graph VII: Distribution of patients according to type of caesarean section



	Hystérectomie	Ligature et résection des trompes	Total
Numbers	17	48	65
Frequency	26,2	73,8	100

Graph VIII: Distribution according to the operation associated with the caesarean section

10- Post-Operative Follow-Up

Table II: Distribution of patients according to postoperative follow-up

Post-operative care	Numbers	Frequency
Simple	1232	90,0
Complicated	12	10,0
Total	**1244**	**100,0**

The majority of our caesarean patients (90.0%) had a simple post-operative recovery.

11- Intraoperative Complications:

Table III: Breakdown of intraoperative complications

	Type of caesarean section	
Complications	**Emergency**	**Prophylactic**
No	1074 (98,9%)	152 (100%)
Haemorrhagic	9 (0,8%)	0 (0,00%)
Bladder lesions	3 (0,3%)	0 (0,00%)
Total	**1086(100,0%)**	**152 (100%)**

Chi2= 0.075 P< 0.8

Haemorrhagic complications were more frequent in the case of emergency caesarean section, with a statistically non-significant difference (p < 0.8).

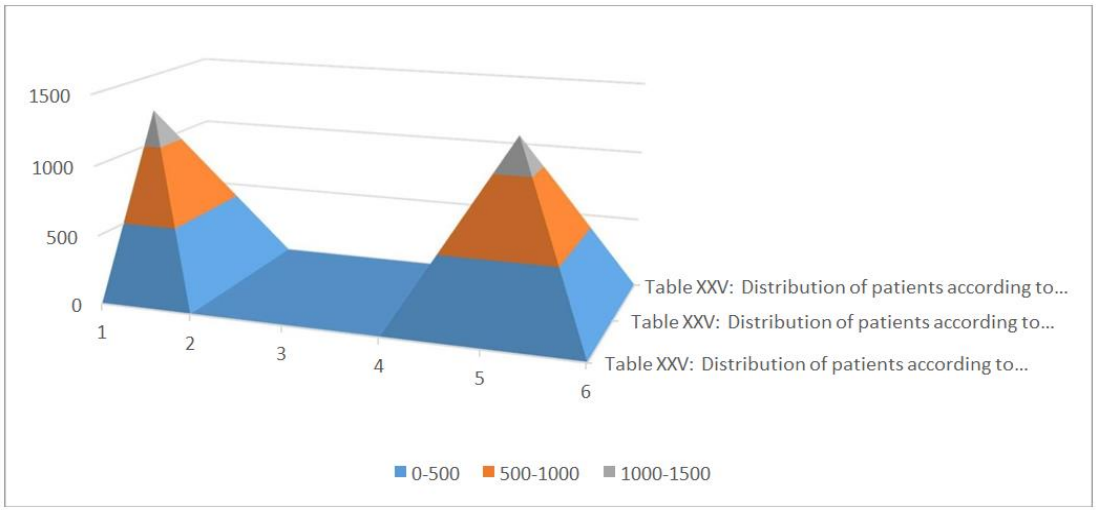
12- Post-Operative Complications

Table IV: Distribution of maternal complications according to operator.

Operator	Obstetrician	Doctor Generalist	Surgeon	Total
Complication	**eff %**	**eff %**	**eff %**	**eff %**
Yes	12 4,8	54 6	5 18,5	71 5,7
No	239 95,2	912 94	22 81,5	1173 94,3
Total	**251 100,0**	**966 100**	**27 100,0**	**1244 100,0**

Chi2=23.06 P<0.001

13- Maternal prognosis



We noted 04 maternal deaths, i.e. 0.3%, caused by coagulation disorders and uterine rupture, all admitted in an emergency context.

COMMENTS AND DISCUSSION

1. Frequency of Caesarean Section :

During our study period (1 January 2019 to 31 December 2022) we recorded 1,244 caesarean sections for 4,397 deliveries.

The overall frequency of caesarean section was 28.29%.

Our frequency per year during these four years is lower than that of Gaoussou T [1] in Mali who found 35.9% and of Noumoutié S 10] in Mali who found 36.9% in on the other hand higher than that of Marie charlotte G [1] in Toulouse who found 22.1% in 2011 and of Abou Coulibaly [12] in Burkina Fasso who found 12.3%.

The increase in our rate can be explained by the influx of parturients evacuated to our department for dystocic labour.

2. Socio-Demographic Characteristics:

a- Age:

In our study, the average age was 24.3 years, ranging from 13 to 59 years.

Some authors have found results comparable to ours: Gaoussou T [10] at the CSRéf in Bla with an age range of 20 to 30 years; Noumoutié S [9] at the CSRéf in Kadiolo with an age range of 20 to 34 years; Imane T [11] at the CHU Mohamed VI in Marrakech with an age range of 21 to 29 years, i.e. 52.5%, 50.7% and 44.32% respectively.

We believe this is because this age group is the most genitally active.

b- Profession:

Housewives accounted for 94.1% in our study, and other authors have found results comparable to ours:

Noumoutié S [10] ; Karounga C [4] ; A Diallo [5] ; Seydou AC [6] at the CSRéf of the CV in Bamako found 69.7%, 52%, 94.06% and 75% respectively.

C- Admission Procedure:

In our series, 51.6% of women were evacuated, compared with 1.7% referred and 46.7% self- referred. These same findings were reported by:

Noumoutié S [9]; Bah A M [7] and Seydou AC [6] were respectively 74.6% of evacuees versus 26.3% referred or self-referred, 65.7% of evacuees versus 6.8% referred and 27.5% self- referred, and 31.1% of evacuees versus 47.9% self-referred.

This explains why the reference/evacuation system works quite well.

3- Clinical Features

1- Obstetrical Characteristics a-History:

a- Parity:

The pauci pares are the most represented with 51.04%, followed by primiparous with 14.55%. These same findings are reported by Noumoutié S [9] S who found 37.1% pauci pares, Seydou AC [6] who found 37.8% pauci pares and 26.4% primiparous at the Cs ref de la CV Bamako, Imane T [12] at the CHU Mohamed VI who found 45.93% primiparous.

b- Pregnancy Consultation (CPN):

Antenatal consultation in relation to the number is considered normal when it is greater than or equal to 4 [28].

In this case 14.23% of our ANC were normal compared with 88.77% of poor quality. These results differ from those of Noumoutié S [9] at the CSRéf in Kadiolo, Salaha G at the hospital in Timbuktu [12] and Imane T [12] at the CHU Mohamed VI in Morocco who found respectively 25.4% good quality compared with 74.5% poor quality, 51.6% good quality compared with 48.4% and 21.36% good quality compared with 41.12% poor quality.

4- Indications for Caesarean Section

In our study, the indications for caesarean section were dominated by acute foetal distress with a frequency of 29.5%, followed by HRP 6.6% and BL 5.9%. Other authors: Seydou AC [26] in Commune V of Bamako found 31.4% fetal distress followed by scar uterus with a rate of 26.8% and BGR in 15.2%; Karounga C [24] in his study found 30% of indications for caesarean section related to multi scar uterus followed by shrunken pelvis 23% and scar uterus on borderline pelvis in 22% of cases, Coulibaly A [7] in Burkina Fasso found 26,3% of indications related to acute foetal distress followed by DFP in 19.7% and vicious presentation in 11% and Imane T [3] at CHU Mohamed VI found acute foetal distress in 22.68% followed by scar uterus in 22.3% as the first indication for caesarean section.

5- Procedure Associated with Caesarean Section:

Tubal sterilisation was the main procedure associated with caesarean section with a percentage of 3.7%. This freency is lower than that obtained by Noumoutié S [1,2] and Bah A M [7], i.e. 14.4% and 7.2% respectively.

6- Maternal-Fetal Prognosis:

Of all our caesarean patients, 5.7% suffered intra- and post-operative complications, dominated by haemorrhage, infection and anaemia (0.72%, 1.8% and 1.3% respectively). Infectious complications were the most common complication after caesarean section. They cause significant post-natal morbidity, prolong the length of hospital stay and significantly increase the financial cost. The main infectious aetiologies are: unexplained postoperative fever, which is more likely to be the manifestation of an infectious process of undetermined origin, post- partum endometritis and scar infections. In addition to infectious complications, haemorrhagic complications are a major cause of maternal mortality and morbidity.

They may be of uterine origin (by rupture or inertia), of placental origin (placenta previa or placenta accreta), of traumatic origin or related to general factors such as haemostasis disorders. Referring back to the data in the literature, these complications were revealed by Abdourahamane MB [12] at the CSRéf in Kita, respectively 1.1% (2/236 cases), 4.2% (10/236 cases), 0.4% (1 case) for haemorrhage, infections and anaemia, and by Salaha G [9] at Timbuktu hospital, who found 3.3% infectious complications. The main infectious aetiologies are: unexplained postoperative fever, which is more likely to be the manifestation of an infectious process of undetermined origin, post-partum endometritis and scar infections.

During the study period, we recorded 4 cases of maternal death at a rate of 0.3% and 1,146 cases of live newborns compared with 98 cases of stillbirths, i.e. 88.1% and 7.5% respectively. Deaths within 24 and 48 hours of hospitalisation accounted for 4.4% (57 cases), and resuscitation was required for 23.5% of newborns in all our caesarean sections.

Our high rate of maternal deaths could be due to the delay in admission and the absence of a resuscitation unit. Compared with the literature, our rate of maternal death may be comparable to that of Noumoutié S who reported the death of 4 patients, i.e. 1.5% of caesarean sections, and Salaha G [12] who found 2 cases of maternal death, i.e. 1.7%, due to an eclampsia complicated by anuria, loss of consciousness (coma) and a case of uterine rupture. However, this figure was lower than that of Imane T [12], who found 18 deaths (1.7%) in two years.

Newborns born after our caesarean sections were resuscitated in 23.5% of cases compared with 76.5% who were not resuscitated. Compared with the literature, our rate of resuscitation of newborns is lower than that of Salaha G [12] at Timbuktu hospital who found 32.8% resuscitated compared with 67.2% not resuscitated and Diallo A [10] at Kenièba CSRéf who found 41.67% of newborns resuscitated before free care compared with 28.38% during free care.

CONCLUSION

Analysis of the results of our study led us to deduce that: Caesarean section is considered to be a common surgical procedure, but it is characterised by the multiplicity of indications leading to the operation.

The absence or inadequacy of pregnancy monitoring and consultation means that the decision to have a caesarean section is taken late and sometimes in a critical state, exposing both the mother and the foetus to risk.

Our main causes of caesarean section are acute foetal distress, retroplacental haematoma and pelvic borderline.

Maternal and foetal prognosis is conditioned not only by the caesarean section, but also by the pathology that prompted the operation.

As in most developing countries, our constant concern in Mali is to reduce maternal mortality and to ensure that children are born in the best possible condition. To achieve this, a number of recommendations seem essential to improve the maternal-foetal prognosis.

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