

# Caesarean Section in the Mother and Child University Hospital of N'Djamena: Indications and Prognosis

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## Abstract

**Introduction:** Caesarean section is a surgical procedure which allows child-birth after opening the abdominal wall and the uterus. **Objective:** To study caesarean section in the N'Djamena Mother and Child University Hospital (NMCUH). **Patients and Method:** This was a cross-sectional, analytic descriptive study over a 5-month period from 10 January to 10 June 2023, focusing on caesarean sections section in the N'Djamena Mother and Child University Hospital (NMCUH). Studied variables were epidemiological, clinical and prognostic. Patients were divided according to the classification of Robson into 10 groups. **Results:** During the study period, we recorded 724 caesareans sections among 3,565 deliveries, giving a rate of 20.3%. The age group from 25 to 29 represented 39.2%. The average age was  $31.2 \pm 2.8$  years, with extreme ranging from 14 to 44 years. Nulliparous women accounted for 42% and 26% had at least one previous caesarean section ( $n = 188$ ). Patients with full-term pregnancies (37 - 40 gestational weeks + 6 days) represented 64.1%. Emergency caesareans accounted for 92.8% ( $n = 672$ ). Robson's group 1 was noted to be 40.3%. Hemorrhage was the main intraoperative complication, with 7.2%. In post-operatively, anemia was the main complication at 23.8%. We recorded 16 maternal deaths, giving a maternal death rate of 2.2%. Live newborns accounted for 81.1%. **Conclusion:** Caesarean section is a common procedure in the CHUME maternity unit. The main indications are those of Robson's group I. Caesarean sections are associated with both maternal and fetal complications.

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## Keywords

Caesarean Section, Indications, Prognosis NMCUH Tchad

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### 1. Introduction

Caesarean section is a surgical procedure which allows childbirth after opening the abdominal wall and the uterus [1].

Worldwide, the caesarean section rate has almost tripled in a quarter of a century, rising from 6.7% in 1990 to 19.1% in 2014 according to WHO data [2].

In Chad, as in most countries in sub-Saharan Africa, the practice of caesarean section has remained very low and has changed very little, as shown by the MICS surveys of 2014 - 2015 and 2019 (less than or equal to 1.1%) [2] [3].

According to WHO reports, “the priority should not be to achieve a specific rate but to do everything possible to perform a caesarean section for women who need one” [4].

However, there have been many publications on caesarean section rates, but very few on quality caesarean sections [5] [6].

We undertook this series with the aim of studying Caesarean sections in the N'Djamena Mother and Child University Hospital (NMCUH).

### 2. Patients and Method

This was a cross-sectional, analytic descriptive study of caesarean sections performed in the N'Djamena Mother and Child University Hospital (NMCUH) during a period of 5 active month period from 10 January to 10 June 2023.

We included in these study patients who had undergone a caesarean section during the study period and consented to participate in this study (term of pregnancy  $\geq$  28 gestational weeks) were included in the study.

We recruited patients for whom a caesarean section was indicated and we monitored them during their stay in N'Djamena Mother and Child University Hospital.

Patients that had undergone caesarean section in another hospital and were admitted for complications were not included. The studied variables were epidemiological, clinical and prognostic. We have used statistical test as p value to compare data (p sensitive when  $\leq$  5%).

Patients were divided into 10 Robson groups according to the following six parameters:

Parity;

Number of fetuses;

Fetal presentation;

Gestational age at delivery;

Whether or not there has been a previous caesarean section;

And induction of labour.

The data collected using a pre-established file and analyzed using collection form were entered using Word and Excel 2013 software and processed using SPSS version 26 IBM software.

### 3. Results

#### 3.1 Frequency

During the study period, we recorded 724 caesarean sections among 3565 deliveries giving a rate of 20.3%.

#### 3.2. Maternal Age

**Table 1.** Maternal age.

Maternal age (year)	n	%
<20	48	6.6
20 - 24	112	15.5
25 - 29	284	39.2
30 - 34	196	27.1
35 - 39	56	7.7
≥40 ans	28	3.9
Total	<b>724</b>	100

The age group from 25 years to 29 years represented 39.2%. The mean age was  $31.2 \pm 2.8$  years, with extremes of 14 and years (**Table 1**).

#### 3.3. Parity

Nulliparous women represented 42% (n = 304) followed by pauciparous and primiparous women with respectively 26% (n = 183) and 14.4% (n = 104). Multiparous and grand multiparous accounted for 12.7% (n = 92) and 5% (n = 36) respectively.

#### 3.4. Previous Caesarean Section

Five hundred and thirty-six patients (74%) had no previous caesarean section, compared with 26% with at least one previous caesarean section (n = 188, p = 0.02).

#### 3.5. Pregnancy Cares

In 37.6%, patients had had between 1 and 3 contacts. Patients who had had between 4 - 7 contacts accounted for 32.6% (n = 236). Those having 0 contacts and ≥8 contacts represented respectively 22.6% (n = 164) and 7.2% (n = 52).

#### 3.6. Gestational Age (Table 2)

Patients with full-term pregnancies (37 – 40 GW + 6 days) accounted for 64.1%.

**Table 2.** Gestational age (in weeks).

Gestational week(GW)	n	%
<34	68	9.4
34 à 36 GW + 6 jours	160	22.1
37 à 40 GW+ 6 jours	464	64.1
>41 GW	32	4.4
Total	724	100

### 3.7 Mode of Admission

In 55.2%, patients were not referred. The remainder (44.8% n = 324) were referred.

### 3.8. Type of Caesarean Section

Emergency caesarean sections represented 92.8% (n = 672) compared with 7.2% (n = 92) of programmed caesarean sections.

### 3.9. Fetal Presentation and Type of Pregnancy

Fetuses in cephalic presentation accounted for 93.9% (n = 764), followed by transverse and breech presentations with 4.1% (n = 32) and 1.8% (n = 12) respectively.

In 94.5% (n = 684) the pregnancy was a singleton. Twin pregnancies accounted for 5.5% (n = 160) (**Table 3**).

**Table 3.** Classification of Robson.

Classification of Robson	n	%
Group 1 (nulliparous women, spontaneous labour)	292	40.3
Group 2 (nulliparous women, induced labour or scheduled caesarean section)	90	12.4
Group 3 (multiparous women, spontaneous labour)	49	6.8
Group 4 (multiparous women, induced labour or scheduled caesarean section)	39	5.4
Group 5 (multiparous women, scarred uterus)	10	1.4
Group 6 (nulliparous, breech presentation)	14	1.9
Group 7 (multiparous, breech presentation, including scar uterus)	188	26
Group 8 (multiple pregnancies, including scar uterus)	8	1.1
Group 9 (transverse or oblique presentation, including scar uterus)	21	2.9
Group 10 (before 37 SA, cephalic presentation, including scar uterus)	13	1.8
<b>Total</b>	<b>724</b>	<b>100</b>

Robson's group 1 was represented 40.3%.

### 3.10. Maternal Complications

Hemorrhage was the main intraoperative complication, with 7.2% (n = 52, the p

value was significant when patients was multiparous or grand multiparous ( $p = 0.03$ ) and baby weight above 4000 g ( $p = 0.001$ ) followed by anesthesia complications (1.1%,  $n = 8$ ).

Post-operatively, anemia was the most common complication with 23.8% ( $n = 132$ ). Followed by parietal suppuration with 4.9% ( $n = 36$ ).

We recorded 16 maternal deaths giving a rate of 2.2%.

### 3.11. Birth Weight

Newborns weighing between 2500 – 3500 g represented 46.1%. Followed by those weighing between 3500 and 4000 g and <2500 g with 22.5% ( $n = 132$ ). In 8.9% ( $n = 68$ ) the newborns were macrosomia (weight >4000 g).

### 3.12. Prognosis of Newborns

**Table 4.** Newborn prognosis.

Newborn prognosis	n	%
alive	620	81.1
Death after birth	112	14.6
Stillborn	32	4.3
Total	764	100

Alive newborn accounted for 81.1% (**Table 4**).

## 4. Discussion

In this study, we noted a caesarean section rate of 20.3%. This rate is higher than that recommended by the WHO [4], which recommends a caesarean section rate between 5 and 15%. This rate can be attributed to the status of the N'Djamena Mother and Child University Hospital, which is recognized as a reference facility in terms of reproductive health, thus motivating referrals from peripheral facilities for better care. The second reason stems from the fact that emergency caesarean sections are seen as freer of charge at the NMCUH, thus justifying the enthusiasm of patients likely to undergo a caesarean section.

Taking age into account, we found that the age group from 25 to 29 years represented 39.2%. The same findings were made by Sissoko [7] in Mali in 2006, who noted a predominance of the age group from 25 to 29 years. These proportions can be explained by the fact that this is the most acceptable age for childbearing for women who have done a long study. This assertion is confirmed in this study, with 32% of patients in higher education. This is the optimal age for fertility in Africa, particularly in Chad.

In terms of admission mode, we noted that 66.3% came on their own. This result is higher than those of Gabkika *et al.* [8] in 2020, who reported that 62% of patients were not referred the status of the NMCUH could justify this result.

According to the authors in the literature [8]-[11], caesarean sections are more common in full-term patients. This series confirms these assertions, with 64.1% of patients with term pregnancies between 27 SA and 40 GW + 6 days.

Comparing the types of caesarean section, we observed that 92.8% of caesareans were emergency caesareans. This rate is comparable to those of other authors who obtained a rate of emergency caesarean section in the order of 80 to 92% of cases [12] [13]. This high rate of emergency caesarean section is thought to be linked to the hospital's status as a national and university referral facility, and above all to the fact that emergency surgery is free of charge, a policy promoted by the Government of Chad as part of its policy of free emergency care.

With regard to Robson's classification, the groups most concerned were group 1 (40.3%), group 7 (26%) and group 2 (12.4%). This is in line with the literature, which emphasizes that the three groups (1, 2, 5, 7) contribute to more than 50% of the caesarean section rate [14]-[16]. This result is similar to that of and Mihimit [13] in Chad notes a predominance of group 1 with 74%.

Some authors, such as Donigolo [17] in Senegal and Mbungu *et al.* [9] in Congo, report a predominance of group 5 with 72% and 61.3% respectively. On the other hand, Kazmi [18] found a predominance of group 3 with 62.5%.

Apart from the morbidities that indicated a caesarean section, there are some morbidities associated with caesarean sections. These complications may arise during or after the operation. According to the literature [18] [19], hemorrhage is the main intraoperative complication. This study confirms this statement, with 7.2% of hemorrhagic complications occurring during caesarean section. The post-operative period is not free of complications. These complications may be related to the morbidity that led to the indication of the caesarean section, or sometimes they may be independent.

These complications vary according to the WHO [4]. They may be related to the caesarean section or to the delivery itself. We have reported that anemia is the main complication in the post operative period with 23.8%. These anemias were the result of the operative complication or the indication for Caesarean section. This observation remains valid with the findings of Essibein *et al.* [20] in Cameroon which reported a high proportion of hemorrhage among the post operative complications.

On the fetal side, we reported 81.1% live births. This result is lower than those of Mihimit [13] who reported 85.2% of live newborns. This result could be explained by factors such as the indication of the caesarean section, the term of the pregnancy, the Apgar score and the cares received. These different factors can influence the fetal prognosis.

## 5. Conclusions

Caesarean section is a common procedure in the CHUME maternity unit. The main indications are those of Robson's group I. Caesarean section is associated with complications such as intraoperative hemorrhage and anemia in the

postoperative period. Fetal prognosis is good, with most newborns alive.

On the basis of this study, we suggest that public awareness and a change of attitude are needed in order to reduce the obstacles to Caesarean section.

## Conflicts of Interest

The authors declare no conflicts of interest regarding the publication of this paper.

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