



Caesarean in Rural Environment of Eastern Kasai (Dr Congo): Evolution of Caesarean Section Rates in Kasansa and Tshilenge

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Abstract

Objective: To analyze the evolution monthly of the disastrous Caesarean and to their influence one maternal mortality and infantile in the General hospitals of reference of Kasansa and Tshilenge. **Methods:** Descriptive retrospective study Bi-centric related to 434 Caesareans carried out to the maternity of the general hospital of reference of Kasansa and that of Tshilenge during years 2015 and 2016. Our dated were collected in the obstetric files, registers of the maternity and the operating room. Public garden Ki square is used to compare it with the percentages and T of Student for the comparison of the averages in two maternities, and the percentage of increase gold reduction was calculated with the formulated of growth used also in economy. **Results:** Two maternities received respectively in 2015, 549 and 227 childbirth, among which 136 Caesareans carried out with Kasansa and 72 in Tshilenge. During the Disastrous months (from January to December), Caesareans dropped by 68.2%, (10.7% to 3.4%) in Kasansa and of 71.1% with Tshilenge (from 19.7% to 2.8%). In 2016, 702 childbirth and 109 Caesareans with Kasansa and 376 childbirth and 117 Caesareans with Tshilenge. Disastrous Caesarean dropped by 7% (from 12.8% to 11.9%) with Kasansa and raised of 143.3% with Tshilenge (from 6% to 14.6%). Perinatal mortality dropped by 69.5% in 2015 and 51.8% in 2016 and maternal mortality dropped respectively by 100% in 2015 and in 2016 of 35.9%. **Conclusion:** During 24 months concerned with the study (of January 2015 with December 2016), the practice of the Caesarean Knew has fell into the two structures except for maternity of Tshilenge 2016. Thus, the improvement of the maternal forecast master keys rather by year improvement of the quality of the obstetric assumption of responsibility but

not by the increase amongst operational childbirth. Thesis results encourage custom to analyze the participation of the various disastrous indications in the variation of the Caesarean in this medium.

Subject Areas

Public Health

Keywords

Caesarean, Failure, Evolution, Kasansa, Tshilenge

1. Introduction

Caesarean section is recognized as an effective surgical procedure to reduce maternal and newborn mortality if it is practiced in time for pregnant women who really need it. This is the case, for example, for patients whose work is too long or when delivery is slow in coming and the fetus lacks oxygen. However, at a time when the incidence of caesarean section is increasing worldwide [1] [2] [3] [4], in these considered disadvantaged areas of sub-Saharan Africa, the coverage of needs in this intervention is still lower in relation to the WHO minimum threshold of 5% [5] [6]. It is difficult for a large number of women living in this area to quickly access a caesarean section because the costs of the act and transportation to the hospital remain too high. This difficulty of access is associated with the risk and safety associated with caesarean delivery that differs from one place to another in the world [7]. In developing countries, including the Democratic Republic of Congo, which are still excluded from scientific and technological advances, caesarean section remains a dangerous operation for the mother-child couple. Different studies across sub-Saharan Africa show high maternal and perinatal morbidity and mortality [8] [9] [10] [11] [12].

To reduce this financial barrier, the Democratic Republic of Congo, like some African countries, has decided, with the help of partners, to partially or totally fund some obstetric care. This was the case in some rural areas of Kasai Oriental, including Kasansa and Tshilenge since the end of 2014.

As the subsidy has increased caesarean section rates in some countries after implementation [13], no study has shown either its increase or its impact on maternal and newborn mortality in Kasansa and Tshilenge. On the other hand, it is also not known whether, in this context, the indications for cesarean sections were well posed, according to objective clinical criteria, or conversely if some caesarean sections were performed without real medical reasons.

The objective of this study is to analyze the monthly evolution of the rates as well as their influence on maternal and perinatal mortality at Kasansa and Tshilenge HGR.

2. Methods

This bi-centric descriptive and retrospective study focused on 434 cesarean sections performed at the Maternity Hospital of Kasansa Reference General Hospital and that of Tshilenge General Hospital during 2015 and 2016 (24 months). The sources of our data are obstetric records, maternity and operating room registers, operative records and newborn records. These hospital data were recorded on the survey card. The variables studied were: maternal age, parity, caesarean section (caesarean section uterus), gestational age, indications for caesarean section and Maternal and perinatal prognosis. This study excludes any patient who has been operated on in another surgical structure and who has been trained in the structures under study for management.

Their analysis was done using Epi info 2007 software and the Excel 2007 software was used to plot the graphs. The t-Student and Khi-square tests were used respectively to compare the average rates in the two maternities.

3. Ethical Considerations

The data of this study being intended for scientific purposes, the principle of anonymity was respected and the study obtained the approval of the interuniversity ethics committee of the city of Mbuji-Mayi (Kasai Oriental/DR Congo).

4. Results

4.1. Patient Description

The results in this table (**Table 1**) indicate that the difference was significant in both structures in terms of mean maternal age ($p = 0.223$), parity ($p = 0.340$) and gestational age ($p = 0.088$) because $p > 0.05$. Caesarean sections performed on the scarred uterus was 14.7% overall. The prevalence of iterative caesarean was no different to Kasansa and Tshilenge (15.7% against 13.2%; $p = 0.539$).

The results in this table (**Table 2**) indicate that in Kasansa and Tshilenge there was no significant difference in maternal mortality ($p = 0.7844$); however, more perinatal deaths were recorded in Tshilenge (7.1%) in Kasansa (4.8%), very significant statistical difference ($p = 0.0000$).

4.2. Monthly Evolution of Caesarean Section Rates

In 2015, Kasansa maternity hospital, 36 deliveries were recorded in January and 78 in December, caesareans saw a sharp decline, from 10.7% at the beginning of the year to 3.4% at the end (**Figure 1**). The Tshilenge Maternity Hospital registered 31 deliveries at the beginning of the year and 16 deliveries at the end. During the same period, caesarean section rates increased from 9.7% to 2.8% (**Figure 2**).

In 2016, deliveries at Kasansa Maternity Hospital increased from 64 in January to 74 in December and caesarean section rates from 12.8% to 11.9% (**Figure 3**). In Tshilenge, 20 deliveries were recorded in January and 50 in December and 6% of caesarean deliveries were performed in January compared to 14.6% in December (**Figure 4**).

Table 1. Characteristics of the patients.

	Kasansa		Tshilenge		Total		p-value
	Effective	%	Effective	%	Effective	%	
Age	n = 245		n = 189		n = 434		
<18 years	17	6.9	16	8.5	33	7.6	0.350
18 - 35 years	183	74.7	121	64	304	70	0.016*
>35 years	45	18.4	52	27.5	97	22.4	0.023*
<i>Mean and standard deviation</i>	28.1 ± 6.7;		28.9 ± 7.3;		t = 0.223		0.223
Parity							
Primiparous	47	19.2	46	24.3	93	21.4	0.194
Paucipares	34	13.9	23	12.2	57	13.1	0.601
Multiparous	85	34.7	62	32.8	147	33.9	0.680
Large multiparous	79	32.2	58	30.7	137	31.6	0.729
<i>Mean and standard deviation</i>	4.4 ± 3.2		4.1 ± 3		t = 0.34		0.340
Gestational age(AW)							
<37	52	21.2	42	22.2	94	21.7	0.914
37 - 42	102	41.6	84	44.4	186	42.9	0.729
>42	21	8.6	23	12.2	44	10.1	0.368
Unknown	70	28.6	40	21.2	110	25.3	
<i>Mean and standard deviation</i>	38.8 ± 3.7		39.5 ± 3.3		t = 0.08		0.088
Cesarean antécédent							
Once	31	12.7	20	10.6	51	11.8	0.506
Two times	6	2.4	3	1.6	9	2	0.905
Thrice	2	0.8	2	1.1	4	0.9	0.806
Total	39	15.9	25	13.2	64	14.7	0.539
Admission mode							
Direct	170	69.4	97	51.3	267	61.5	0.0007
Reference	2	0.8	2	1.1	4	0.9	0.8063
<i>Emergency evacuation</i>	73	29.8	90	47.6	163	37.6	0.0001
Prenatal consultation							
Any	121	49.4	36	19	157	36.2	0.0000
1 - 2	9	3.6	2	1.1	11	2.5	0.393
≥3	69	28.2	68	36	137	31.6	0.007
Not indicated	46	18.8	83	43.9	129	29.7	

Table 2. Maternal and perinatal prognostic.

	Kasansa		Tshilenge		Total		p-value
	Effective	%	Effective	%	Effective	%	
Maternal							0.7844
Living	1380	99.5	671	99.4	2051	99.4	
Death	7	0.5	4	0.6	11	0.5	
Perinatal							0.0000
Living	1321	95.2	595	88.2	1916	92.9	
Death	66	4.8	80	11.8	146	7.1	

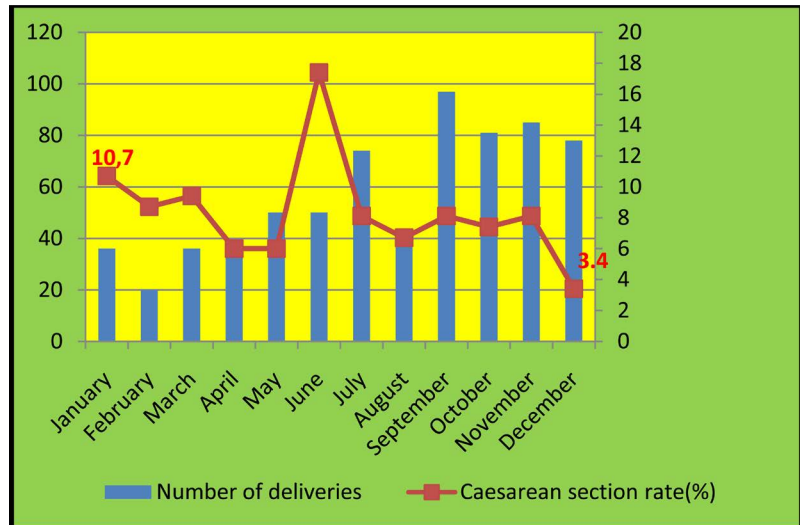


Figure 1. Monthly evolution of Caesarean section rate in Kasansa in 2015.

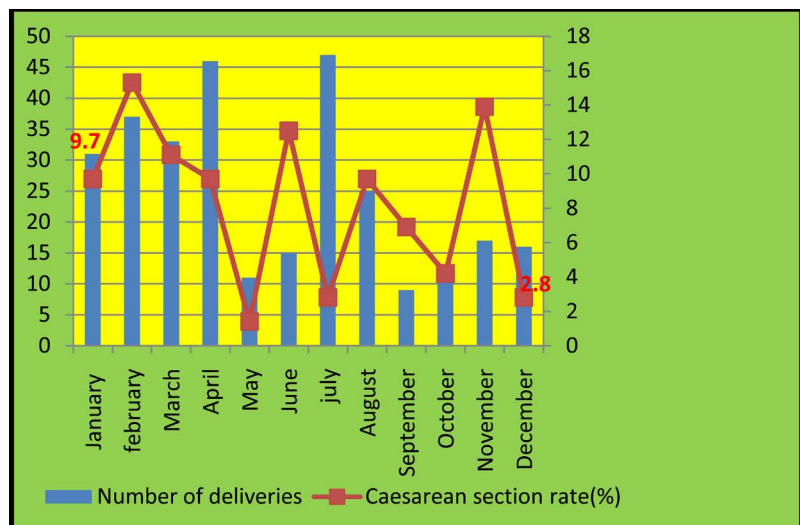


Figure 2. Monthly evolution of Caesarean section rate in Tshilenge in 2015.

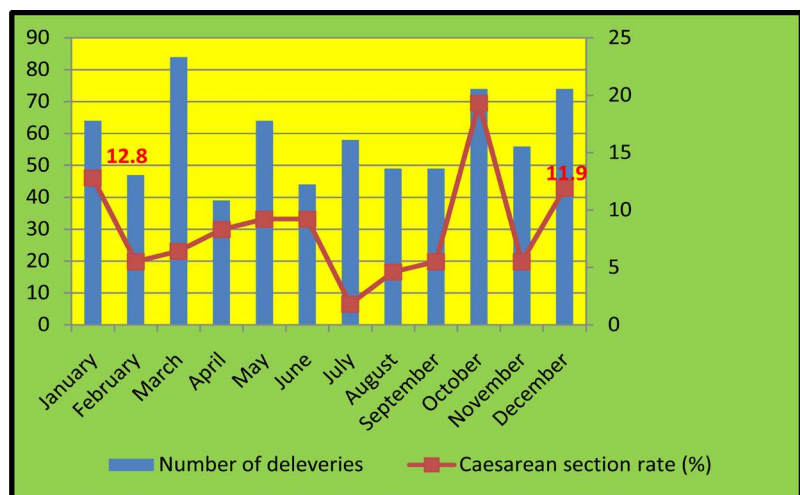


Figure 3. Monthly evolution of Caesarean section rate in Kasansa in 2016.

4.3. Perinatal and Maternal Mortality Related to Caesareans

In 2015, out of 984 deliveries, we counted 73 perinatal deaths, a rate of 74 per 1000 births. Thus, perinatal mortality, which was 105 per 1000 in January, increased to 32 per 1000 births in December (Figure 5).

In 2016, 73 perinatal deaths were recorded among 1078 deliveries. The perinatal mortality rate was 68 per 1000. This rate, which was 83 per 1000 in January, increased to 40 per 1000 births in December 2016 (Figure 6).

In 2015, maternal clinics in Kasansa and Tshilenge recorded 7 maternal deaths, representing a mortality of 768/100,000 live births. The maternal death

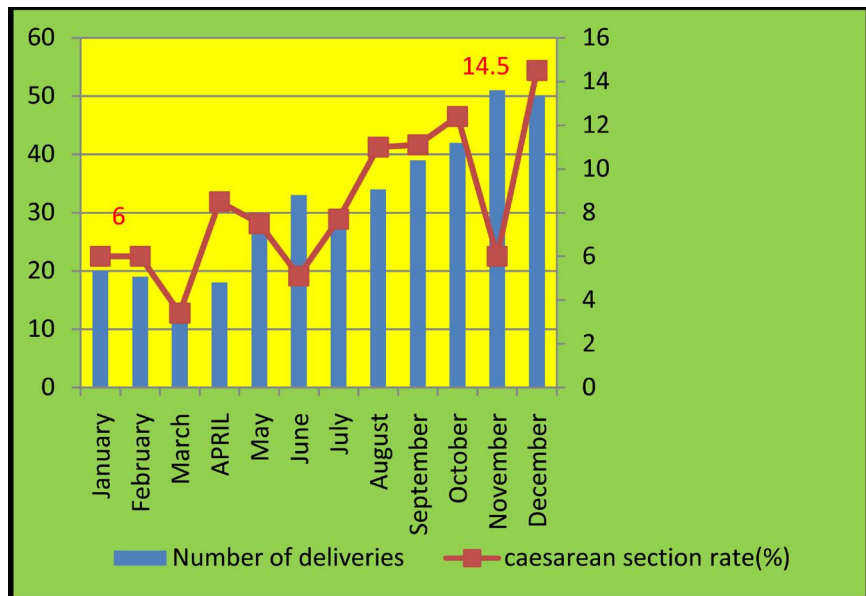


Figure 4. Monthly evolution of Caesarean section rate in Tshilenge in 2016.

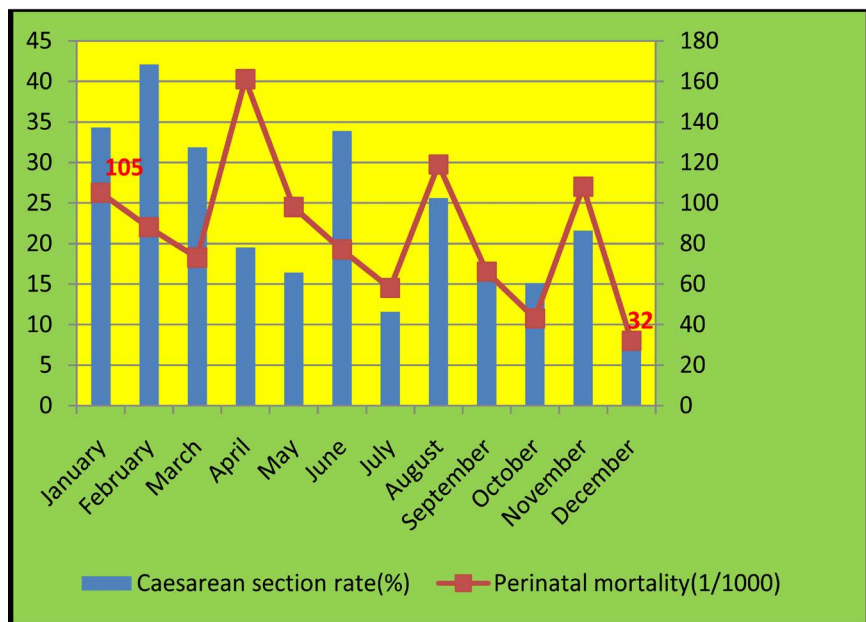


Figure 5. Perinatal mortality related to Caesareans in 2015.

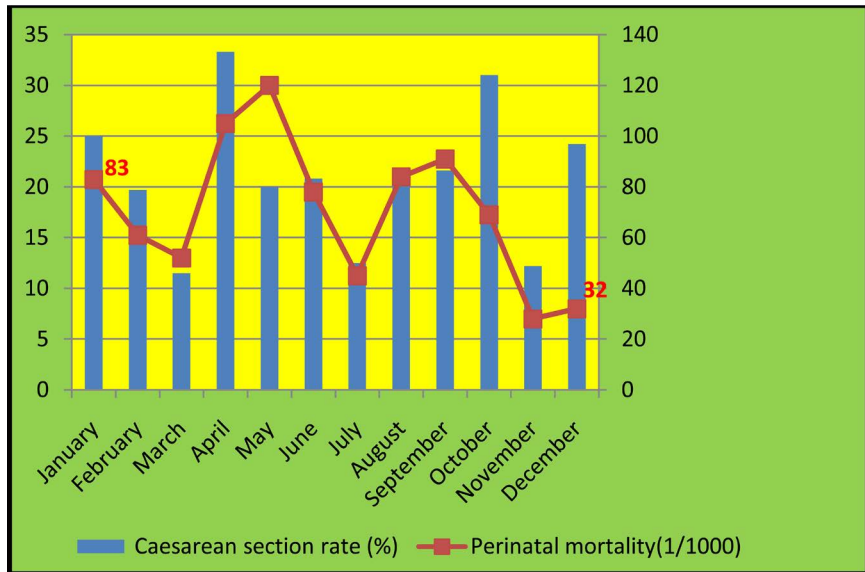


Figure 6. Perinatal mortality related to caesareans in 2016.

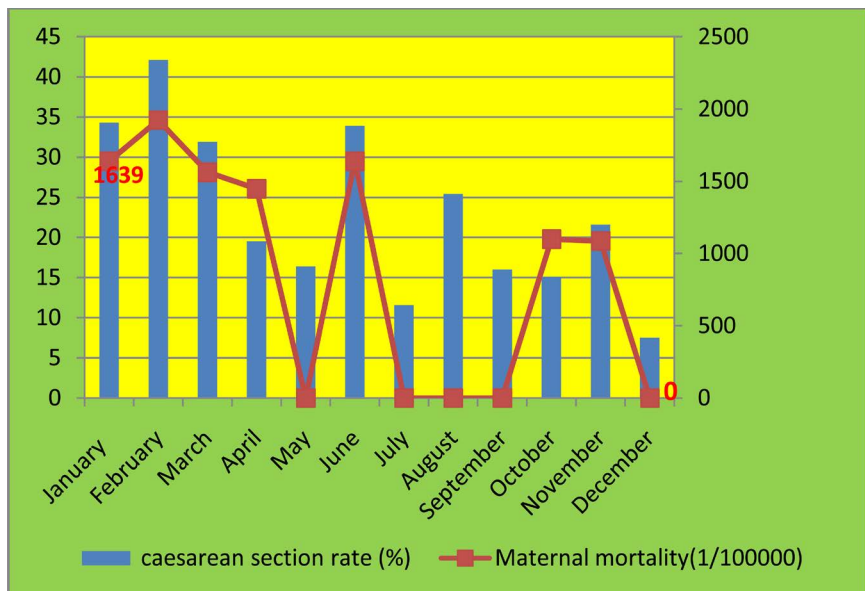


Figure 7. Maternal Mortality for Caesareans in 2015.

from 1639/100,000 births in January to 0/100,000 births in December (Figure 7).

In 2016, 4 maternal deaths were recorded, representing a maternal mortality of 398/100,000 births. It had increased from 1299/100,000 births at the beginning of the year to 833/100,000 births in December (Figure 8).

5. Discussion

5.1. Characteristics of the Patients

This study was initiated to identify the epidemiological situation and the evolution of caesarean section rates in rural health areas of Tshilenge and Kasansa. The main results show in the structures where our study was conducted, during

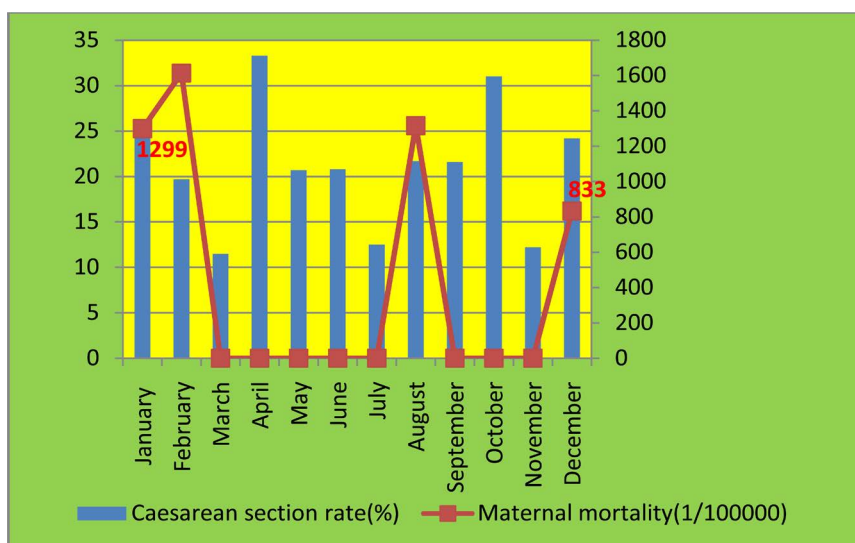


Figure 8. Maternal mortality related to Caesareans in 2016.

the period concerned, a constant decline in the number of deliveries by caesarean section. A study conducted at the same time in the same structures with the same sample revealed a rate of 21.1% for all two structures (Kasansa and Tshilenge) [14]. This almost general decline in our series is explained by the fear of this intervention in African women in general and the “Taboo” character attributed to them. The idea that giving birth is “giving birth by the vaginal way” means that this intervention, which is essential to save the life of the mother and the child, is most often carried out urgently, and a caesarean section of convenience is generally rare [15]. Contrary to the phenomenon observed in the industrialized countries and some emerging countries where there is a plague of caesarean section, one of the explanations of which would be the demographic changes occurring in these countries which have reduced the average number of children per family so that each child becomes and that the limitation of the number of births often rightly or wrongly imposed by caesarean section ceases to be poorly accepted [16] [17] [18]. The plausible explanation for the caesarean section rate increase observed in 2016 at the Tshilenge maternity ward would be the result of increased use of the structure by patients from surrounding health areas or the city. Mbujimayi following the SONU grant.

5.2. Maternal and Perinatal Mortality Related to Cesarean Section

In both structures, the decline in perinatal mortality is a phenomenon opposite to that experienced in industrialized countries, where, in parallel with the increase in caesarean section rates, perinatal mortality has declined significantly [5] [8] [9] [17] [19], he corroborates O’Driscoll *et al.* who have shown that in Dublin this mortality had improved without the rate of caesarean section increasing [20].

Like the perinatal mortality, in our series, maternal mortality experienced significant regressions during the study period until reaching the zero point at certain times despite the increasingly low rates of caesarean section. On the other

hand, in the industrialized countries, the resurgence of caesarean section in recent decades has been accompanied by a proportional benefit for the mother-child couple, *i.e.* a dramatic decline in maternal and perinatal mortality [21]. For caesarean section rates above 20%, maternal mortality and perinatal mortality from 1990 to 2013 increased from 7.4 to 4.8 per 100,000 births and from 4.4 to 2.6 in Denmark, from 10 to 3 to 3.2 per 100,000 births and 4.6‰ to 2.3‰ in Austria, 10.4 to 6.1 per 100,000 births and 4.5‰ to 2.7‰ in England and 15.6 to 8.8 per 100,000 births and 3.6‰ to 2.3‰ in France [12]. In our study it is difficult to evoke the same reasons as those of the industrialized countries for the improvement of maternal-infantile prognosis because the working conditions in the hospitals which we have observed are not very different, African environment in general and rural environment in particular. On the other hand, Cisse's study in Dakar revealed a considerable increase in the rate of caesarean section, which had no significant impact on overall maternal mortality (1411 deaths per 100,000 live births in 1992 as against 1394 deaths per 100,000 births 2001) and overall perinatal mortality (121 deaths per 1000 in 1992 compared to 116 deaths per 1000 births in 2001) [5].

6. Conclusions

The increase in caesarean section rate is a general phenomenon observed in most series of the literature. This evolution is justified mainly by an improvement in the prognosis of the mother-child pair. However, the majority of authors report high mortality and morbidity related to caesarean section compared to the vaginal approach.

In maternal clinics in Kasansa and Tshilenge, maternal and perinatal mortality remained low despite that monthly rates of caesarean sections were significantly lower in both years of study, with the exception to Tshilenge maternity hospital in 2016, which saw a 143,3% increase.

Thus, the price to pay for the improvement of the maternal prognosis goes rather by an improvement of the quality of the obstetric care and not by the increase of the number of the operative deliveries. This conduct will aim at a generalization of pregnancy surveillance; more rigorous care for high-risk pregnancies; informing the public of the dangers of attempting home deliveries and improving the health facilities of peripheral centers; and finally, a tendency to define and master the indications for cesarean section is of great value.

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Contribution of Our Study

First multi-center study conducted in rural Kasai Oriental, which will assess the

maternal and perinatal prognosis in our context.

Conflicts of Interest

The authors declare no conflict of interest.

Contribution of the Authors

Each author contributed to the realization of this work and all read and approved the final version

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