

Research Article

# The Risk of Adverse Maternal and Neonatal Outcomes in Cameroonian Primiparous Women Aged More Than 26 Years

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Received 11 December 2010; Accepted 30 December 2010

**Abstract** Primiparas with advanced age are predisposed to adverse maternal and neonatal risks. The aim of this retrospective cohort study, conducted between January 1st and December 31st, 2004 in the maternity of the Yaounde University Teaching Hospital, Cameroon, was to identify from what age these adverse risks become significant in Cameroonian women. The medical files of 233 primiparae aged 26 and above (case) and that of 404 primiparae aged between 20 and 25 years (control) were reviewed and some data compared. Cesarean sections, instrumental deliveries, low Apgar scores at 5th minute and early neonatal death rates were significantly higher in primiparae aged 27 years and above. Hence, Cameroonian women should be enlightened about the risks of delaying first delivery. Furthermore, first pregnancies to be carried at term and first deliveries in women aged 27 and above shall be considered at high risk and consequently well followed.

**Keywords** primiparas aged more than 26 years; soft tissue dystocia; increased cesarean section risk; poor neonatal outcome

## 1 Introduction

Pregnancy among married African women is considered a good event because it is a proof of fertility. Nevertheless, this event is anticipated with a lot of anxiety concerning the outcome of the pregnancy and the delivery. For the past 2 decades and for various reasons (educational, financial and social), women are delaying the age of their first maternity worldwide [6, 7]. Elderly primiparity in developed countries has been defined as first delivery occurring in a woman aged more than 35 years [8]. Elderly primiparity is associated with increased risk of hypertensive diseases in pregnancy, soft tissue dystocia, cesarean section and poor Apgar score [2, 8]. In Cameroonian environment, such complications seem to occur even before the age of 35. No study has been carried out in our country to define the age

at which those complications significantly occur. The aim of this study was to analyze the obstetric complications that occurred in primiparas, so as to know from what age they become significant.

## 2 Materials and methods

This is a retrospective cohort study that was conducted from the 1st of January 2004 till the 31st of December 2004 in the maternity of the Yaounde University Teaching Hospital, Cameroon. The medical files of all primiparous women who delivered in our service during the study period were analyzed. The following data were collected in each case: the patient's age at delivery, the gestational age, the complications that occurred during pregnancy, the mode of delivery, the birth weight, Apgar score at the 1st and 5th minutes, the fetal survival status, the use of episiotomy, the maternal morbidity and mortality. The total number of deliveries was obtained through the delivery room records.

Women aged 20 to 25 are known to carry less obstetrical risks [5]. This age group was used as control group. Women aged 26 and above constituted the study group. In the study group, data of women of the same age were compared to those of the control group.

With regards to determination of sample size, the prevalence of primiparae aged 20 to 25 in our service was 16.0% ( $P_0$ ) while that of primiparae aged 26 and above was 7.04% ( $P_1$ ). The degree of precision of our study is 0.05 ( $Z_{\alpha} = 1.65$ ) with a power of 90% ( $Z_{\beta} = 1.28$ ). By applying the formula  $N = [2/(1-f)] \times [(Z_{\alpha} + Z_{\beta})^2 / (P_0 - P_1)^2] \times P \times (1 - P)$ , our sample should have at least 218 women in each group. We then had to collect patients during 12 months. A questionnaire containing the studied variables was filled for each patient. The confidentiality of data was guaranteed and the research was approved by the hospital authorities.

Our data were analyzed using SPSS 12.0. The Student's *t*-test and Fisher's exact test were used for comparison. The significance level was .05.

Study group		Control group		RR	95% CI	P
Age (number)	C/S N (%)	Age (number)	C/S N (%)			
		20–25 (n = 404)	32 (7.9)			
26 (n = 39)	2 (5.1)		32 (7.9)	0.64	0.16, 2.6	.755
27 (n = 55)	9 (16.3)		32 (7.9)	2.06	1.04, 4.0	.046
28 (n = 37)	7 (18.9)		32 (7.9)	2.38	1.13, 5.0	.034
29 (n = 29)	4 (13.8)		32 (7.9)	1.74	0.66, 4.5	.286
30 (n = 27)	5 (18.5)		32 (7.9)	2.33	0.99, 5.5	.070
31–32 (n = 18)	4 (22.2)		32 (7.9)	2.80	1.11, 7.0	.057
33–34 (n = 13)	3 (23.0)		32 (7.9)	2.91	1.02, 8.3	.086
≥ 35 (n = 15)	5 (33.3)		32 (7.9)	4.20	1.91, 9.2	.006
Total: 233	39 (16.7)		32 (7.9)	2.11	1.36, 3.2	.0007

RR: relative risk, CI: confidence interval, C/S: cesarean section.

**Table 1:** Distribution of cesarean section according to maternal age.

Study group		Control group		RR	95% CI	P
Age (number)	Low AS5m N (%)	Age (number)	No. of low AS5m (%)			
		20–25 (n = 372)	11 (2.9)			
26 (n = 37)	1 (2.7)		11 (2.9)	0.91	0.12, 6.78	1
27 (n = 46)	2 (4.3)		11 (2.9)	1.47	0.33, 6.42	.643
28 (n = 30)	2 (6.6)		11 (2.9)	2.25	0.52, 9.70	.251
29 (n = 25)	3 (12.0)		11 (2.9)	4.05	1.20, 13.6	.050
30 (n = 22)	2 (9.0)		11 (2.9)	3.07	0.72, 13.0	.159
31–32 (n = 14)	2 (14.3)		11 (2.9)	4.83	1.18, 19.7	.075
33–34 (n = 10)	1 (10)		11 (2.9)	3.38	0.48, 23.7	.276
≥ 35 (n = 10)	1 (10)		11 (2.9)	3.38	0.48, 23.7	.276
Total: 194	14 (7.2)		11 (2.9)	2.44	1.12, 5.27	.029

AS5m: Apgar score at the 5th minute, RR: relative risk, CI: confidence interval.

**Table 2:** Distribution of low Apgar score at the 5th minute (< 7) according to maternal age in cases of vaginal delivery.

### 3 Result

During the period of study, a total of 2315 deliveries were conducted. A number of 838 primiparous deliveries were identified, among whom 233 women aged 26 or more were assigned to the study group (cases). Another 404 primiparous women aged between 20 and 25 were used as control group.

Maternal ages in the study group ranged between 26 and 41 with a mean of  $29.0 \pm 2.8$  years. In the control group, the mean was  $22.4 \pm 1.6$  years. Gestational ages varied between 28 and 43 weeks with a mean of  $38.7 \pm 2.3$  weeks in the study group against  $38.6 \pm 2.3$  in the control group ( $P = .5973$ ). There was no significant difference in the gestational age at different maternal ages.

Regarding the route of delivery, 39 cases (16.7%) were delivered by cesarean section in the study group against 32 (7.9%) in the control group ( $P = .0007$ , RR 2.1, 95% CI 1.36, 3.27). Cesarean section rate became

significantly increased at 27 years and above (Table 1). The main indications in the study group were acute fetal distress (9 cases), primiparas' breech presentation (5 cases), cephalopelvic disproportion (3 cases) and cervical dystocia (3 cases). In the control group, the main indications were cephalopelvic disproportion (12 cases), acute fetal distress (8 cases), placenta praevia and eclampsia (3 cases each).

Birth weights ranged between 1025 g and 4540 g with a mean of  $3092 \pm 530$  g in the study group and between 1050 g and 4597 g with a mean of  $3066 \pm 512$  g in the control group ( $P = .5425$ ).

Apgar scores at the 5th minute varied between 0 and 10 in both groups with a mean of  $9.2 \pm 1.9$  in the study group and  $9.5 \pm 1.0$  in the control group ( $P = .009$ ). Low-5th minute Apgar scores after vaginal delivery were also more encountered in the study group, and became significantly increased at 27 years and above (Table 2).

Instrumental deliveries were conducted in 5.6% (11/194) in the study group against 2.9% (11/372) in

Study group		Control group		RR	95% CI	P
Age (number)	ENND N (%)	Age (number)	No. of ENND (%)			
		20–25 (n = 404)	5 (1.2)			
26 (n = 39)	1 (2.5)		5 (1.2)	2.07	0.24, 17.2	0
27 (n = 55)	2 (3.6)		5 (1.2)	2.93	0.58, 14.7	.199
28 (n = 37)	1 (2.7)		5 (1.2)	2.18	0.26, 18.2	0
29 (n = 29)	1 (3.4)		5 (1.2)	2.78	0.33, 23.0	.341
30 (n = 27)	1 (3.7)		5 (1.2)	2.99	0.36, 24.7	.323
31–32 (n = 18)	2 (11.1)		5 (1.2)	8.97	1.86, 43.1	.031
33–34 (n = 13)	1 (7.7)		5 (1.2)	6.45	0.78, 49.4	.174
≥ 35 (n = 15)	1 (6.6)		5 (1.2)	5.38	0.67, 43.3	.197
n = 233	10 (4.3)		5 (1.2)	3.32	1.15, 9.61	.028

**Table 3:** Distribution of early neonatal death according to maternal age.

Study group		Control group		P
Age (number)	mean BW ± SD	Age (number)	mean BW ± SD	
		20–25 (n = 404)	3066 ± 512	
26 (n = 39)	3229 ± 399		3066 ± 512	.0541
27 (n = 55)	3128 ± 597		3066 ± 512	.4097
28 (n = 37)	3042 ± 486		3066 ± 512	.7842
29 (n = 29)	3023 ± 652		3066 ± 512	.6686
30 (n = 27)	3057 ± 686		3066 ± 512	.9312
31–32 (n = 18)	2743 ± 666		3066 ± 512	.0101
33–34 (n = 13)	3042 ± 422		3066 ± 512	.8673
≥ 35 (n = 15)	3117 ± 506		3066 ± 512	.7049
n = 233	3092 ± 530		3066 ± 512	.5425

BW: birth weight, SD: standard deviation.

ENND: early neonatal death, RR: relative risk, CI: confidence interval.

**Table 4:** Distribution of birth weight (in grams) according to maternal age.

the control group (RR 1.94, 95% CI 0.84, 4.3). The rate of instrumental deliveries were significantly increased at 27 years and above (10 cases/157 or 6.3%, RR 2.15, 95% CI 0.93, 4.96) and were most indicated for prolonged second stage and acute fetal distress due to soft tissue dystocia.

Cervical tears were more frequent among the study group: 4/194 (2.0%) than in the control group: 3/372 (0.8%) (RR 2.55, 95% CI 0.57, 11.3). Cervical tears and second degree perineal tears due to rigid tissue were more frequent at 27 years and above.

The rate of episiotomy was slightly increased in the study group: 14.9% (29/194) than in the control group: 12.3% (46/372) and the rate of episiotomy was significantly increased at 27 years and above and were more indicated for rigid perineum.

Early neonatal death was 10/233 (4.3%) in the study group against 5/404 (1.2%) in the control group ( $P = .028$ , RR 3.32, 95% CI 1.15, 9.61). No maternal death was observed amongst both groups (Tables 3 and 4).

#### 4 Discussion

It is well known that elderly primiparity is associated with adverse risks during pregnancy and delivery. There was no statistically significant difference in gestational age in both groups, or in birth weight or episiotomy rate. In some studies, elderly primiparity has been associated with increased risk of prematurity and low birth weight. According to the same authors, older primiparas have an increased risk of hypertensive diseases of pregnancy [6,7]. In our series, there was no statistically significant difference in hypertensive diseases occurring during pregnancy in both groups.

Cesarean sections were more frequent among women aged 27 and above with a statistically significance difference. Similar results have been observed in other studies, but among women aged 35 and above [1,2,4,8,9]. So, as initially thought, maternal adverse complications appear sooner among Cameronian women. The main indications for cesarean sections among women aged 27 and above were acute fetal distress, primiparous breech presentation,

cephalopelvic disproportion (CPD) and cervical dystocia. Cervical dystocia was responsible for 3 cases of cesarean section among those women. In some studies, soft tissue dystocia and rigid cervix have been responsible of 66% cases of cesarean section in patients aged 35 years and above [8]. We have noticed that the ability of the cervix and vagina to dilate normally during labor and delivery decreases with advancing primiparas' age. These events have also been noted by others [2,8]. In the control group, main indications for cesarean sections were CPD, acute fetal distress, placenta praevia and eclampsia.

For those who delivered vaginally, instrumental deliveries were more frequent among women aged 27 and above and were not influenced by birth weight. These instrumental deliveries were more indicated for prolonged second stage and acute fetal distress due to soft tissue dystocia. Failed operative vaginal delivery has been observed with advanced maternal age [3,9].

In our study, the neonatal well-being was judged by Apgar score. Low Apgar scores at the 5th minute were frequent among the study group and especially at 27 years and above (12 cases/157 or 7.6%) than in the control group (11 cases/372 or 2.9%). This poor Apgar score was related to poorly dilating cervix despite good contractions, to rigid perineum and sometimes to poorly distended vagina. This has also been noticed elsewhere among women aged 35 and above [2,8,9].

Early neonatal death was also more frequent in the study group and especially at the age of 27 and above (10 cases/194 or 5.1%) than in the control group (5 cases/404 or 1.2%). Usually, this was secondary to acute fetal distress and poor Apgar score.

No maternal death was observed in the study population. This may be due to better care observed in the service.

Further studies with larger samples are needed to confirm these assertions. Soft tissue dystocia leading to cervical and perineal tears was more observed among women aged 27 and above.

The main objective of this study was to look at what age the risk of adverse effects started, and it was found that it was from the age 27. It means that women delivering for the first time were at increased risk, as well as their neonates when they were 27 or more. The risk increased with maternal age.

## 5 Conclusion

Our study has shown that primiparous women aged 27 and above have a significantly increased risk of obstetric complications such as cesarean section, instrumental deliveries, and corresponding poor neonatal outcome. Therefore, Cameroonian women should be enlightened about the risks of delaying first delivery or choosing to have a first child late in life, especially at the age of 27 years or above. Furthermore,

pregnancies and deliveries in primiparous women aged 27 and above will be considered at risk and consequently well followed.

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