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Original Research Article

Preterm Birth at the Kalaban-Coro Reference Health Centre: Epidemioclinical Aspect, Management and Maternal-Fetal Prognosis

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Abstract: The aim was to study preterm birth. ***Materials and methods*:** This was an analytical cross-sectional study from 1 January 2016 to 31 December 2018. ***Results:*** We recorded 325 cases of premature delivery out of 5278 deliveries, a frequency of 6.16%. The mean age was 26± 5 years, primiparous 24.5 years. The gestational age between 32-33SA+6 days was 66% with moderate prematurity. CPN 0 accounted for 52%, pre-eclampsia accounted for 58% of cases. Twin pregnancy occupied 79% of cases. The lower route of delivery was the most represented, accounting for 85% of cases. The weight of the newborn between 1000 to 2000grams was 52.21%, 76.92% had an Apgar score greater than 7 at the 1st minute, maternal complications were immediate postpartum hemorrhage 45.15% and puerperal infection 44.92%. ***Conclusion*:** Preterm birth is an obstetric emergency and a common situation in our context. The factors influencing the prognosis of newborns were: non-achievement of NPCs, parity, term of pregnancy.

Keywords: Preterm birth, perinatal morbidity and mortality, management.

INTRODUCTION

Childbirth is the set of physiological and mechanical phenomena that result in the exit of the fetus and its appendages out of the maternal genital tract, from the moment the pregnancy has reached the theoretical term of six months (28 weeks of amenorrhea) [1]. If the delivery occurs before the 37th week of amenorrhea is called premature delivery, or the 259th day of amenorrhea. The lower limit is imprecise, the progress of neonatology lowers it to 26 or even 24 weeks of amenorrhea [2].

The frequency of preterm birth is high, which varies depending on the place and time. It depends mainly on the prevention and treatment of the threat of preterm birth. The rate of delivery before 37 SA varies in European countries between 5% and 7% [3]. The preterm birth rate in the United States is highest among black populations (13.8%), followed by American Indian/Alaska Native (11.6%), Hispanic (9.6%), Caucasian (9.1%), and Asia/Pacific Islander (8.7%) [3]. In South-East Asia and sub-Saharan Africa, the preterm birth rate was 12-13% in 2010 [4]. In Mali, according to 2018 DHS VI reports, the preterm birth rate was 4.1%. Indeed, in Bamako, Avodo M [5] and Diarra A [6] reported respectively a frequency of 2.11% and 2.74% of premature delivery. Given the lack of data on preterm birth in the Reference Health Center of

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Kalaban-Coro, we initiated this study with the following objectives:

OBJECTIVE: The aim was to study preterm birth in the ward.

MATERIALS AND METHODS

It was a descriptive, cross-sectional and analytical study with a prospective data collection ranging from April 1, 2019 to March 31, 2020 or a period of 12 months. The population consisted of all parturients admitted to the maternity ward of the CSRéf of kalaban Coroduring the period. This was an exhaustive sample taking into account all parturient women meeting our inclusion criteria. Inclusion criteria: All parturient women with a gestational age between 28 to 36 SA and 6 days who gave birth in the ward with a usable obstetric record during the period were included in the study. Non-inclusion criteria: Female labourers with a gestational age less than 28SA and greater than 37SA and those with records were not included in the study. Technique and data collection: Data collection was retrospective, using a questionnaire using partograms, delivery records, obstetric records, newborn transfer records and caesarean section registries. Analysis and data entry: Data was entered and analyzed on Word 2013, Excel, SPSS version 20, Epi info version 7. The variables studied: Qualitative: marital status, occupation, level of education, mode of admission, reason for admission, maternal history, clinical signs, associated pathologies, fetal prognosis. Quantitative: age, number of deliveries, gestational age, Baumgarten score. O perational definitions: Gestity: the number of confirmed pregnancies, Parity: the number of deliveries after 22 weeks, age of pregnancy was determined by: The date of the last menstrual period, Ultrasound especially early Examination of the newborn. Delivery between 28 to 36SA+6 days.

RESULTS

Epidemiological aspects

Our study took place over a period of 12 months from April 1, 2019 to March 31, 2020 and allowed us to record 325 cases of preterm birth out of 5278 deliveries, a prevalence of 6.16%. The 20-29 age group was the most represented at 36% The average age was 26 years±5 years, the primiparous aged 24.5 years. The out of school with 53%, followed by the primary level or 25%. In our study housewives were mostly represented with 81%. These epidemiological aspects are shown in Table 1.

Table 1: The epidemiological aspects of parturient women who gave birth prematurely at the reference health center of Kalaban Coro, Bamako, Mali

Age in years	Staff	Percentage
≤19	85	26,00
]20-29]	**117**	**36,00**
]30-36]	81	25,00
≥36	42	13,00
Total	325	100
Education level	Staff	Percentage
Out of school	**172**	**53,00**
Primary	81	25,00
Secondary	55	17,00
Superior	17	5,00
Total	325	100
Profession	Staff	Percentage
Housewives	**263**	**81,00**
Housekeeper	13	4,00
Official	7	2,00
Student	29	9,00
Merchant	13	4,00
Total	325	100

Clinical aspects

First-time buyers were more represented with 38%. CPN 0 accounted for 52%, The majority of pregnant women had preterm birth ATCD, accounting for 88% of cases. Uterine contractions were the main reason at 56.92% followed by hypertension 26.15%. The gestational age between 32-33SA+6 days was 66% with moderate prematurity, twin pregnancy occupied 79% of cases. Pathologies that occurred during pregnancy were mainly pre-eclampsia 58% of cases, anemia 26.15%. The Baumgarten index was between [4-6] in 61% of cases. The clinical aspects are presented in Table 2.

Table 2: Clinical aspects of preterm birth at the Kalaban Coro Reference Health Centre, Bamako, Mali

Parity	Staff	Percentage
Primiparous	**124**	**38,00**
Paucipare	65	20,00
Multiparous	26	8,00
Large multiparous	110	34,00
Total	325	100
NPC	Actual	Percentage
0	**169**	**52,00**
[1- 3]	75	23,00
Sup or equal to 4	81	25,00
Total	325	100
Age of pregnancy	Staff	Percentage
[28-31SA+6]	91	28,00
[32-33SA+6]	**214**	**66,00**
[34-36SA+6]	20	6,00
Total	325	100
Reason for admission	Staff	**Percentage**
CUD/pregnancy	**185**	**56,92**
.RPM	39	12,00
Haemorrhage	12	3,69
Hydramnios	4	0,0001
HTA	85	26,15
Total	325	100
Pathologies that occurred during pregnancy	Staff	Percentage
Threat of abortion	7	
MAP	3	
Urinary tract infection	13	
Malaria	29	
Anaemia	85	
Pre-eclampsia	**188**	
Baumgarten index	Staff	Percentage
<4	98	30,00
4-6	**198**	**61,00**
>6	29	9,00
Total	325	100

Management

Those with only magnesium sulfate were the most numerous. The route of delivery was the most represented, 85% of cases, Among caesareal groups, RPM / Cicatricial uterus was the most indicated with 26.53% followed by HRP with 24.48%. The aspects of care are presented in Table 3.

Table 3: Aspects of preterm birth management at the Kalaban Coro reference health centre, Bamako, Mali

Treatment received by at admission	**Staff**	**Percentage**
ATBprophylaxis	25	7,69
MnSO4	305	93,85
Tocolytics+ Corticosteroid therapy	215	66,15
Childbirth	Staff	Percentage
Low track	**276**	**85,00**
Caesarean section	49	15,08
Total	325	100
Indications for caesarean section	Staff	Percentage
SFA	9	18,37
HRP	12	24,48
PP	7	14,28
RPM/Cicatricial uterus	**13**	**26,53**
Stationary dilation	8	16,32
Total	49	100

Maternal-fetal prognosis: Patients with immediate postpartum hemorrhage accounted for 46.15% of cases. The average weight of newborns was [1000-2000], or 52.21% with an extreme of 1000 and 2000g. The weight range of [45-46] dominated with 63.72% of cases. In our study 45% of newborns had APGAR between [4-7] with 47 stillbirths or 8.85%. At minute 5 76.92% of newborns had APGAR>. The aspects of care are presented in Table 4.

Table 4: Management aspects of preterm birth at the Kalaban Coro reference health centre, Bamako, Mali

Complications Mother tongues	**Staff**	**Percentage**
HPPI	**171**	**46,15**
Puerperal infection	154	44,92
Total	325	100
Newborn weight	**Staff**	**Percentage**
< 1000	144	27,43
[1000-2000[	**275**	**52,21**
≥2000	107	20,35
Total	526	100
Newborn size	**Staff**	**Percentage**
<45	191	36,28
[45-46]	**335**	**63,72**
Total	526	100
APGAR at the^{1st} mn	**Staff**	**Percentage**
0	47	8,85
≤3	182	34,51
[4-7]	**237**	**45,14**
>7	60	11,50
Total	526	100
APGAR at the^{1st} mn	**Staff**	**Percentage**
≤3	19	3,85
[4-7]	95	19,23
>7	**380**	**76,92**
Total	494	100

DISCUSSION

The epidemiological aspects our study allowed us to have on 5278 deliveries, 325 cases of premature birth, a frequency of 6.16%. This frequency is lower than those of Magassa B [2] (9.31%) at the Point-G University Hospital, but higher than that of Avodo M [5] (2.11%) and Diarra A [6] (2.74%). The low frequency of our frequency is due to the technical platform that does not allow to take care of certain cases (cases of threat of delivery on pregnancies of less than 32 weeks) hence the transfer in utero at the CHU Gabriel Touré and the low affluence. The mean maternal age was 26.5 years with extremes of 19 and 37 years. The most represented age group is 20-29 years old with 36%. However, according to DHS VI, 36% of 15-19 year olds were already mothers or were pregnant at the time of their survey. Housewives accounted for 81% of cases. This rate is higher than that of Avodo M [5] and Magassa B [2] which reported respectively (56%) and (66.5%) but lower than that reported by Kane J [7] with 86.88%. This could be explained by the predominance of housewives in the general population. Single women were 59% of women in childbirth. This result is significantly higher than that of Togo A [9] which reported 4.1%. According to the authors of the EDS VI 2018 edition, 81% of women were married. This result could be explained by the way of life of the population and the locality (most of the population are loggers of the sand by the river or who come from different localities and do not have a lodge). Out-of-school patients accounted for 53% of cases. This result is comparable to those reported by Avodo M [5] (50%) and Diabaté S [8] (52.11%), higher than that of Belco B [10] which provided 46.1%. Our rate is explained by the decline in the enrolment of girls in the general population in Mali according to the sociodemographic survey carried out in 2013 and this constitutes a risk to the surveillance of the population and the course of childbirth. Primiparous with 38% of cases constituted the high proportion in our series followed by large multiparous with 34%. This result is close to Avodo M [5] which reported (39%) but higher than that of Maiga H [4] with (26.1%). Fa timaB [11] report a higher rate than ours with 80.68%. This is because primiparity and greater multiparity are a risk factor for prematurity. The history of preterm birth was found in 88% of cases. Caesarean section was found as a surgical history in 7% of cases while 92% had no surgical history. Malaria dominates medical history with 47% of cases.

Clinical aspects

The majority of our parturients consulted for painful uterine contraction on pregnancy, or 57% of

cases. In our study 52% of cases had done no NPC, 25% had done 4 or more NPCs. Our result is higher than that of Sawadogo S [12] and Coulibay Y [14] which reported respectively 38.5% and 33%. Also Prazuk *et al*., [14] identified low attendance at NPCs as a risk factor for preterm birth. This could be explained by the decline in educational attainment and the increase in the number of pregnancies in our study population. Analysis of our results showed that 26% of cases manifested anemia, 4% urinary tract infection, 9% malaria, 3% threatened preterm delivery and 58% pre-eclampsia. However Magassa B [2] finds 15.6% of cases of hypertension. Our result can be explained by the non-support of hypertension in peripheral structures (CSCOM...). Preterm birth concerned pregnancy whose age was between 32-33SA+6days with 66% of cases. The mean was 32.45SA with extremes of 28 to 36SA+6days. Our results are close to Coulibaly Y [13] which yields 60%. Coulibaly Z [15], on the contrary, reported 43.33% of pregnancies of 35-36SA+6 days. The delay in admission and the non-follow-up of the pregnancy may explain our results. BDCF was absent in 9% of cases with fetal distress in 21% of cases. The threat was moderate at 61% of cases.

It emerges in our study: 79% of single-fetal pregnancies and 21% of twins. Our are lower than those reported by Hadiza Moutari Soule *et al*., [16] or 91.24% for singletons and 8.29% for twins and triplets.

Support:

Premature delivery requires preventive and curative care; in our series with regard to the causes of preterm birth found in our study, the improvement of archaic reflexes by magnesium sulfate was adopted in 55.97% of cases. Antibiotic prophylaxis was performed in 4.59%. This is because most of our deliveries were imminent.

In order to reduce the risk of hyaline membranes, corticosteroid therapy was initiated in 39.44%. We are close to those reported by Maiga N. S [17] or 33.33% but higher than those of Diakité M [18], 24.40%. Our results relate to the age of pregnancy at which corticosteroid therapy was required. The majority of our patients gave birth vaginally, 85% and this despite having complications associated with pregnancy, vaginal delivery was the most recommended. Caesarean section was performed in 15% of cases. Andriamady *et al.*, [19] achieved 20.9% caesarean section in their study. Our are significantly lower than those reported in France [20] and Morocco [21] respectively 74.9% and 62.5% of caesarean cases. This can be explained by the lack of the technical platform that forced us to evacuate some cases to the centers of the high level. The indications for caesarean section have been: SFA, HRP, PP, RPM/scarred uterus.

Maternal-Fetal Prognosis

In our study we recorded 325 cases of preterm birth including 526 premature among which 8.85% stillbirths, 34.51% in a state of apparent death and 45.14% had a morbid APGAR, only 11.50% had a normal APGAR (≥7). Our results are higher than those reported by Magassa B [2] with 33.9% who had a morbid APGAR, but close to Diarra A [6] with 40.18% morbid APGAR and 10.71% satisfactory APGAR (≥7). This could be explained by the non-realization of NPCs, the lack of knowledge of labour of childbirth among women in labour and the low socio-economic level. We recorded 52.21% weight between 1500-2000g. this result is higher than that of Samassékou M. K [22] and Coulibaly Z [15] which reported respectively 23.8% and 45.84% but lower than that reported by Diakité F. L [2] with 64.5%. This discrepancy is explained by the fact that level three III structures in the health pyramid in Mali receive and hospitalize cases of prematurity.

CONCLUSION

Preterm birth is an obstetric emergency and a common situation in our context. Factors influencing the prognosis of newborns were: non-achievement of NPC, parity, term of pregnancy.

Conflict of Interest: No conflict of interest.

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