

Evaluation of the use of the partogram in the obstetric gynecology department of the National Hospital Donka University Teaching Hospital Conakry Guinea

Boubacar Siddi Diallo ^{1,*}, Boubacar Alpha Diallo ¹, Ibrahima Sory Sow ¹, Abdourahamane Diallo ², Daniel Leno ¹, Ibrahima Sory Balde ², Telly Sy ², Yolande Hyjazi ¹ and Namory Keita ¹

¹ University Department of Gynecology Obstetrics, Donka national Hospital, Conakry Guinea.

² University Department of Gynecology Obstetrics, Ignace Deen national Hospital, Conakry Guinea.

World Journal of Advanced Research and Reviews, 2021, 11(02), 366–372

Publication history: Received on 24 July 2021; revised on 28 August 2021; accepted on 30 August 2021

Article DOI: <https://doi.org/10.30574/wjarr.2021.11.2.0412>

Abstract

Objectives: To calculate the proportion of partogram use in the department, to describe the epidemiological profile of parturients, to identify the main reasons for not filling out the partogram and to establish the maternal and fetal prognosis in the gynaecology-obstetrics department of the Donka National Hospital, University Teaching Hospital of Conakry.

Methodology: This was a prospective analytical cross-sectional study lasting six (6) months. All patients admitted to the department during the study period with a longitudinal presentation (cephalic, breech), permeable pelvis with a minimum of 28 weeks of gestational age with a live fetus were included in the study. The following were not included in this study: patients admitted for extreme obstetric emergencies (haemorrhagic placenta previa, retro-placental haematoma, uterine rupture, eclampsia....), patients admitted for prophylactic caesarean section; patients with a gestational age of less than 28 weeks of amenorrhoea and all contraindications to vaginal delivery with a live foetus. Word software from the 2007 office pack, Epi DATA3.1 was used for data entry, SSPS 20.0 was used for data analysis and Power Point software for presentation. The Chi-square test was used for the variables and a probability of $p < 0.05$ was obtained in favour of an association between the variables compared.

Results: Out of a total of 402 patients, the partogram was opened in only 269 patients, i.e. 67%, while 133 patients, i.e. 33%, did not receive a partogram. The epidemiological profile of the patients was that of women aged 20-24 years (31.3%), a housewife (34.1%), primiparous women (64.2%) and women who had not attended school (39.1%). 13.02% of the partograms were filled in correctly and 86.98% were filled in inadequately. 60% of the partograms were filled in correctly when they were carried out by a doctor, and only 12.8% were carried out by a midwife. Hypokinesia was found to be the most common anomaly, 60.59%, and the majority of patients (96.3%) did not cross the alert line. The reasons given by the staff interviewed for not filling out the patients were: lack of motivation on the part of the providers (25.56%), emergencies and overflowing activities in the delivery room (15.03%). Half of the staff interviewed did not give any reason for not filling out the partogram (50.37%). A previous caesarean section at the last delivery was found in 2.7% of the patients. The proportion of newborns without labour monitoring with a partogram with an APGAR score of less than 7 was 30.8%, compared with 11.2% with labour monitoring with a partogram. More than 2/3 of the births, 79.56%, that took place before the alert line was crossed, against 20.44% of the alert line. The morbidity is 3.7% for births before crossing the alert line against 20% after crossing it. The overall maternal morbidity is 6.5%: It is 5.57% under partogram, and 8.3% without partogram. Fetal mortality is 2.6% for those who gave birth under labour monitoring with partogram, and 3% for those who did not give birth under labour monitoring with partogram. We did not record any maternal deaths.

* Corresponding author: Boubacar Siddi Diallo
University Department of Gynecology Obstetrics, Donka national Hospital, Conakry Guinea.

Conclusion: The partogram is an indispensable tool in labour monitoring. We note a better maternal-fetal prognosis in patients who have given birth under partogram monitoring. The improvement of the quality of filling in the partogram would be achieved through the motivation of medical staff and supervision.

Keywords: Evaluation; Partogram; Delivery; Patients

1. Introduction

The partogram is an instrument exclusively for the monitoring and management of labour to identify abnormalities and make decisions in time to ensure a safe delivery (WHO) [1]. The graphical analysis of the progress of labour developed from Friedman's publications in 1954. In 1972, Philpott and Castle developed Friedman's concept into a labour monitoring tool by adding so-called "action" and "warning" lines to the graph. The current partogram is intended to monitor not only the progress of labour, but also the health of the mother and the fetus during labour. The aim is to detect labour abnormalities at an early stage in order to improve maternal and fetal management [2]. Numerous studies on the partogram, notably in South-East Asia, Tanzania, Senegal and Mali, have shown its effectiveness and low cost [3].

In ZIMBABWE, according to the WHO, the perinatal mortality rate was reduced from 5.8 to 0.6% with the use of the partogram [4]. In MALI, a decrease in the maternal death rate from 131 to 106.6 per 100. According to the same study, there was a significant decrease in the frequency of fetal distress from 74 to 41 per 1,000 live births and the stillbirth rate decreased from 65 to 32 per 1,000 live births with the use of the partogram [5]. Guinea, like many developing countries, has introduced the partogram through the Ministry of Health as a tool to reduce maternal-fetal mortality rates. A study conducted in 4 maternity hospitals in Conakry showed that the use of the partogram increased from 18% to 27% and the percentage of complete partograms increased from 46% to 52%. 70% of providers were trained on the partogram and 60% said they used it systematically [6].

The objectives of this study were to calculate the proportion of partogram use in the department, to describe the epidemiological profile of patients, to identify the main reasons for not filling out the partogram and to establish the maternal and fetal prognosis in the gynaecology-obstetrics department of the Donka National Hospital, Conakry.

2. Methodology

This was a prospective analytical cross-sectional study of six (6) months. All patients admitted to the department during the study period with a longitudinal presentation (cephalic, breech), patent pelvis with a minimum of 28 weeks gestational age with a live fetus were included in the study. The following were not included in this study: patients admitted for extreme obstetric emergencies (haemorrhagic placenta previa, retro-placental haematoma, uterine rupture, eclampsia...), patients admitted for prophylactic caesarean section; parturients with a gestational age of less than 28 weeks of amenorrhoea and all contraindications to vaginal delivery with a live foetus. Word software from the office pack 2007, Epi DATA3.1 was used for data entry, SSPS 20.0 was used for data analysis and Power Point software for presentation. The Chi-square test was used for the variables and obtaining a probability $p < 0.05$ is in favour of a link between the variables compared. The variables studied were:

- The quantitative ones: proportion of use of the partogram, maternal age, parity, number of prenatal consultations, Apgar score, duration of the partogram and the child's weight at birth.
 - Other qualitative data: profession, level of education, mode of delivery, anomalies detected, reasons given by health workers for not filling out the partogram, quality of filling out the partogram, qualification of the filling out agent, whether or not the alert line was crossed, maternal morbidity, maternal mortality, foetal morbidity, foetal mortality.
-

3. Results

3.1. Proportion of use of the partogram

out of a total of 402 patients, the partogram was opened in only 269 patients, i.e. 67%, while 133 patients, i.e. 33%, did not receive the partogram.

3.2. The epidemiological profile

- **Maternal age:** the 20-24 age group was the most affected (31.3%), followed by the 20-24 age group (23.42%). The average age was 24.3 years with extremes of 14 and 45 years
- **Parity:** most of our patients were primiparous 64.2%, followed by pauciparous 23.6%.
- **Occupation:** housewives were in the majority 34.1% followed by professionals 30.1%.
- **Level of education:** those who did not attend schools were the most numerous 39.1% followed by those with secondary education 30.1%.

3.3. Obstetrical

- **Quality of filling the partogram:** during the study period, we recorded 269 patients who gave birth under labour monitoring with a partogram. Of these Partograms, 35 were correctly filled out or 13.02% and 234 were insufficiently filled out or 86.98%.
- **Qualification of the filling agent:** the correct filling is 60% when it is done by a doctor, 12.8% for full time midwives and no partogram was correctly filled by trainee midwives.
- **Anomalies detected:** at the end of the study, it was found that hypokinesia was the most common anomaly encountered 60.59%.
- **Crossing or not crossing the alert line:** for the majority of patients 96.3%, the alert line was not crossed; during this time, it was noted that the longer the partogram, the greater the risk of fetal morbidity, 11 cases out of 55, i.e. 20%, compared to 3.7% when the alert line was not crossed.
- **The reasons given by the health workers for not filling out the partogram:** lack of motivation of the providers 25.56%, emergencies and overflowing activities in the delivery room 15.03%. 50.37% of the staff questioned did not justify not filling out the partogram. 50.37% Other reasons given: lack of monitoring and control of the partograms by the supervisors and the reception of patients with dilatation of 8cm and more.
- **Relationship between antecedent caesarean section at last delivery and mode of delivery:** antecedent caesarean section at last delivery was found in 11 women (2), i.e. 2.7%, who delivered by caesarean section, i.e. 18.2%, compared with 9 cases by vaginal delivery, i.e. 81.8%.
- **Relationship between the opening or not of the partogram and maternal morbidity:** we note that the overall maternal morbidity is 6.5%. It is 5.57% under partogram, and 8.3% without partogram.
- **Maternal mortality:** we did not record any maternal deaths.
- **Relationship between the opening or not of the partogram and the APGAR score:** we observed that 82.34% of the newborns had an higher APGAR score equal to 7, against 17.66% having a score lower than 7. However, the proportion of the newborns without monitoring of the labour with partogram having an APGAR score lower than 7 was 30.8%, against 11.2% with monitoring of the labour with partogram.
- **Relationship between crossing the alert line and foetal morbidity:** more than two thirds of births (79.56%) that take place before the alert line is crossed, as opposed to 20.44% after. In fact, morbidity is 3.7% for births before the alert line is crossed, compared with 20% after it is crossed.
- **Relationship between type of delivery and fetal morbidity:** the majority of our patients had natural deliveries (95.2%), compared to 4.8% of caesarean sections. However, the morbidity was 36.9% when the delivery was by caesarean section, whereas it was 6.7% for vaginal delivery.
- **Relationship between the opening or not of the partogram and fetal mortality:** we note that 67% of patients gave birth under labour supervision with partogram, and 33% without partogram. Fetal mortality was 2.6% for those who gave birth under labour monitoring with a partogram, and 3% for those who did not give birth under labour monitoring with a partogram.

4. Discussion

4.1. Proportion of use of the partogram

out of a total of 402 patients, the partogram was only opened to 269 patients, i.e. 67%, while 133 patients, i.e. 33%, did not receive the partogram. This high proportion could be explained by the fact that our study setting is a reference centre in the health pyramid on the one hand, and on the other hand, the impact of the various emergency obstetric and neonatal care (EmONC) training courses, which have improved the knowledge and skills of the staff. Our result is comparable to that reported by SIMON. O et al. [AZANDEGBE and COLL.who reported a rate of use of 98% in their study on the evaluation of the use of the partogram in Benin [5].

4.2. The epidemiological profile

- **Maternal age:** the 20-24 age group was the most affected (31.3%), followed by the 20-24 age group (23.42%). The average age was 24.3 years with extremes of 14 and 45 years. This situation could be explained by the fact that women marry early and have children at a very young age. Our results are close to those reported by CAMARA.S et al. who found an average age of 28.5 years with extremes of 14- 43 years, at the reference health centre of the commune V of the district of BAMAKO [13]. BALDE .M.D et al. reported that the most frequent age range is 15-19 years, the average age of patients was 21.76 years with extremes of 15-45 years in their study on the impact of the use of the partogram on the reduction of women work complications in rural areas [9].
- **Parity:** most of our patients were primiparous 64.2%, followed by pauciparous 23.6%, which can be explained by the early age of marriage and illiteracy. Our result is superior to that of DIARRA I et al. who reported that primiparous women were the most numerous in their study (32%) [10].
- **Occupation:** housewives were in the majority 34.1% followed by those with a liberal profession 30.1%. BARRY. T.O et al. reported in their study on the impact of the use of the partogram in the monitoring of labour 52.77% of housewives [11]. This predominance of housewives can be explained by the fact that in GUINEA, their proportion remains dominant in the general population.
- **Level of education:** those who did not attend school were the most numerous, 39.1%, followed by those with secondary education, 30.1%. The predominance of the uneducated could be explained by the fact that more than half of the women in the general are uneducated.

4.3. Obstetrical

- **Quality of filling the partogram:** during the study period, we recorded 269 patients who gave birth under labour monitoring with a partogram. Among these Partograms, 35 were correctly filled out or 13.02% and 234 were insufficiently filled out that is 86.98%. Our results are inferior to those reported by DIARRA I and PERENNES SM et al. who found respectively 82.15% and 59% of the partograms correctly filled [10; 12].
- **Qualification of the filling agent:** the correct filling is 60% when it is done by a doctor, 12.8% for full time midwives and no partogram was correctly filled by trainees. Our results are consistent with those reported by Fawole et al. in their study of partograph knowledge and use among midwifery care providers in southwestern Nigeria [13].
- **Anomalies detected:** At the end of the study, it was found that hypokinesia was the most common anomaly encountered 60.59%. Our result is close to that reported by BEA. al. who found a frequency of 66.67% of hypokinesia in their study on the impact of the partogram in labour monitoring [8].
- **Crossing or not crossing the alert line:** for the majority of patients 96.3%, the alert line was not crossed; during this time, it was noted that the longer the partogram, the greater the risk of fetal morbidity, like the 11 cases out of 55, i.e. 20%, compared to 3.7% when the alert line was not crossed. The actions carried out when the alert line was not crossed were not compliant, this was the case for the administration of oxytocics 31.30% and the performance of a caesarean section 0.93%. No action was taken in 36.36% of cases when the alert line was crossed, compared to 64.95% when the alert line was not crossed. The same remarks were made by BEA.A[8] and AZANDEGBE et al. [3] who respectively reported non-compliant oxytocic use rates of 17.50% and 16%. This corresponds to an abusive use of oxytocics that can be the cause of unnecessary expenses and obstetrical complications such as: fetal suffering, uterine rupture and uterine inertia. During this time, after the alert line was crossed, 38.18% of oxytocin administration and 21.81% of caesarean sections were recorded, compared to 31.50% reported by BEA and 46.4% by AZANDEGBE.
- **Relationship between previous caesarean section and mode of delivery:** 11 women (2.7%) had a previous caesarean section (18.2%) and 9 women (81.8%) had a vaginal delivery. Statistical analysis showed a statistically significant relationship between previous caesarean section at last delivery and mode of delivery with a value of $p < 0.01$. Our result is lower than that reported by DIARRA I et al [10] who found 61.45% caesarean sections in women with a previous caesarean section at last delivery compared to 29.52% who had a vaginal delivery
- **Relationship between the opening or not of the partogram and maternal morbidity:** we note that the overall maternal morbidity is 6.5%. It is 5.57% under partogram, and 8.3% without partogram. It is more prevalent among patients who did not give birth under labour monitoring with a partogram. However, we did not find a statistically significant difference in morbidity between patients who delivered under partogram supervision and those who did not have a partogram ($p > 0.25$).
- **Maternal mortality:** we did not record any maternal deaths. Our result is different from those found by BEA [8] who reported 3 maternal deaths in patients who did not benefit from partogram monitoring.
- **Relationship between the opening or not of the partogram and the Apgar score:** we found that 82.34% of the newborns had an APGAR score greater than or equal to 7, against 17.66% having a score lower than 7.

However, the proportion of newborns without labour monitoring with partogram having an APGAR score lower than 7 was 30.8%, against 11.2% with labour monitoring with partogram. Statistical analysis showed a statistically significant association between the opening or not of the partogram and the APGAR score with a p value <0.001. Our results are lower than those reported by BEA. who found 82.14% of newborns whose mothers did not undergo a partogram had an APGAR score of less than 7 compared to 17.86% of those who did undergo a partogram [8]. BARRY TO et al. report that 24.53% of newborns whose mothers did not receive a partogram had an APGAR score of less than 7 compared to 7.32% of those whose mothers did receive a partogram [11] (Table 1).

Table 1 Relationship between the opening or not of the partogram and the APGAR score

Opening partogram	Score d'APGAR				Total
	< 7	7	≥7	>7	
Yes	41	30.8	92	69.2	133
No	30	11.2	239	88.8	269
Total	71	17.66	331	82.34	402
X ² = 23.64		ddl = 1		p < 0.001	

- **Relationship between crossing the alert line and foetal morbidity:** more than two thirds of births (79.56%) take place before the alert line is crossed, as opposed to 20.44% after. Indeed, morbidity rate is 3.7% for births before the alert line is crossed, compared to 20% after it is crossed. The analysis also showed that there was a statistically significant relationship (P <0.001) between the pre-crossing and post-crossing births in terms of the occurrence of fetal morbidity. Indeed, the morbidity is 3.7% for births before the alert line is crossed, compared to 20% after the crossing (table 2).

Table 2 Relationship between crossing the alert line and fetal morbidity

Labor flow	Fetal morbidity		Without fetal morbidity		Total
	n	%	n	%	
Alert line crossed	11	20	44	80	55
Alert line not crossed	8	3.7	206	96.3	214
Total	19	7.06	250	92.93	269
X ² = 17.23		ddl = 1		P <0.001	

- **Relationship between type of delivery and fetal morbidity:**
Table 3 Relationship between type of delivery and fetal morbidity

Mode of delivery	Morbidity		Without morbidity		Total
	n	%	n	%	
cesarean	7	36.8	12	63.2	19
vaginally	26	6.8	357	93.2	383
Total	33	8.2	369	91.8	402
X ² = 18.16		ddl = 1		p <0.001	

the majority of our patients had a natural delivery of 9.2%, compared to 6.8% with caesarean section. However, the morbidity is 36.8% when the delivery is by caesarean section, while it is 6.8% for vaginal delivery. There is a statistically significant relationship between morbidity and route of delivery ($p < 0.001$) (Table 3).

- **Relationship between the opening or not of the partogram and fetal mortality:** we note that 67% of parturients gave birth under labour supervision with partogram, and 33% without partogram. Fetal mortality was 2.6% for those who gave birth under labour monitoring with a partogram, and 3% for those who did not give birth under labour monitoring with a partogram. Analysis of the results did not find a statistically significant association between fetal mortality and whether or not the partogram was opened with a p -value > 0.25 . Studies in ZIMBABWE and MALAWI reported a significant decrease in perinatal mortality with the use of the partogram, from 5.8% to 0.6% in ZIMBABWE and 5.3% to 3.8% in MALAWI respectively [4].

5. Conclusion

The partogram is an indispensable tool in labour monitoring. We note a better maternal-fetal prognosis in patients who gave birth under partogram monitoring. The improvement of the quality of filling in the partogram would be achieved through the motivation of medical staff and supervision.

Compliance with ethical standards

Disclosure of conflict of interest

No conflict of interest.

Statement of informed consent

Informed consent was obtained from all individual participants included in the study.

References

- [1] WHO. The application of the WHO partograph in the management of labour: report of a WHO multicentre study. 1990-1991; 1- 3.
- [2] SONI BL. Effects of the use of the partogram on outcomes in spontaneous labour at term. WHO B S G Geneva. 2009; 4: 23-27.
- [3] AZANDERGBE R. Evaluation of the use of the partogram in Benin .Santé(Montrouge). 2004; 14: 251-255.
- [4] WHO.Partogram: principles and strategies Maternal and child health programme.
- [5] CAMARA S. Evaluation of the use of the partograph at the reference center of the V district commune of BAMAKO. Doctorate thesis in medicine University of BAMAKO. 2007; 1-98.
- [6] BAH E, HYJAZI Y, CAMARA H, ARIBOT J, DIAO B, PLEAT T. Partogram: quality of use and providers' views in guinea]hpiego, Conakry,Guinea. 2013.
- [7] SIMON .O, ZEPHER.K,ELIZEUS.R. Evaluation of partogram use during labour in Rujumbura sub-health district, Rukungiri district, Uganda. Africa Health Science. 2009; 9: S27-S34.
- [8] BEAVOGUI. A. Impact of the use of the partogram in labour monitoring. Doctoral thesis in medicine, University of Conakry. 2007; 1-55.
- [9] BALDE MD, DIALLO A, CISSEKO O. Impact of the use of the partograph on the reduction of labor complications in rural areas: Application to health centers in the administrative region of Kankan, in the Republic of Guinea. Research report by the Reproductive Health Research Unit in Guinea (CERREGUI) May 2004; 1-55.
- [10] DIARRA I, CAMARA S, MAIKA MK. Evaluation of the use of the partograph in the maternity ward of the reference health center of the commune v of the district of Bamako. Mali Medical. 2010; 2: 36-41.
- [11] BARRY TO. Impact of the use of the partograph in the monitoring of labor at the maternity ward of the Mamou regional hospital. Doctorate in Medicine 2010; 1-57safe motherhood. Family Health Division, Geneva 1997; 13-15.

- [12] PERENNE SM. Evaluation of the use of the partogram in the gynaecology and obstetrics department of the regional hospital of Kindia. Doctoral thesis in medicine, University of Conakry. 2011; 1-58.
- [13] FAWOLE AO, HUNYINBO KI, ADEKANLE DA. Knowledge and utilization of the partograph among obstetric car givers in south west Nigeria. *Afri Reprod Health*. 2008; 12: 22-29.