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Immediate Postpartum Hemorrhage at the Regional Hospital Center (CHR) of Yamoussoukro: Retrospective Studies of Epidemio-Clinical, Therapeutic and Prognostic Aspects about 194 Cases Collected from 2019-2022

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Abstract

Objective: To study the epidemio-clinical, therapeutic and prognostic aspects of immediate postpartum hemorrhage in the gynecology-obstetrics department of the Yamoussoukro CHR. **Patients and method:** this was a case-control study conducted in the gynecology and obstetrics department of the Yamoussoukro CHR running from January 2019 to December 2022. The study involved 582 deliveries, of which 388 had a normal delivery and 194 cases presented with HPPI in the department and recruited immediately after 2 normal deliveries serving as controls. We determined risk factors, causes of hemorrhage, treatment and maternal prognosis. **Results:** The prevalence of IPH was 1.22% of deliveries. The most common age group was [20 - 34 years], with 70.10% of cases versus 71.13% of controls. The rate of pupils/students who had HPPI was 14.95 vs. 9.54 among controls. 15.46% of HPPI patients vs. 9.02% of controls came from another health facility. The main causes were uterine atony (75.26%) and retained placenta (66.49%). The transfusion rate was 31.96% in cases vs. 1.03% in controls. Uterine revision was performed in 96.39% of cases vs. 14.95% of controls. The frequency of hysterorrhaphy was 39.53%. The case fatality rate was 11.34%. **Conclusion**: HPPI remains a real public health problem. Preventing PPH involves controlling risk factors and monitoring pregnancy, delivery and the postpartum period.

Keywords

Postpartum Hemorrhage, Risk Factor, Blood Transfusion, Hysterorrhaphy, Hysterectomy

1. Introduction

Despite significant progress in the management of immediate postpartum hemorrhage (IPPH), it remains a major factor in maternal morbidity and mortality, both in developing and developed countries with state-of-the-art hospitals [1]. According to the WHO, around 830 women die every day. Haemorrhage remains the leading cause of maternal death in under-medicalized countries. In Nigeria, it is responsible for 23% to 25% of maternal mortality [2]. In this nosological group, immediate postpartum haemorrhage ranks first, accounting for over 25% [3]. Immediate postpartum hemorrhage is common in West Africa, and remains a real public health problem. Indeed, a study carried out in Mali reported 2.16% [4]. This high frequency of IPPH could be explained, on the one hand, by inadequate monitoring of pregnancies, which encourages the development of risk factors, and, on the other hand, by inadequate management of labor during delivery [5]. In view of these observations, it seems important to us to have a good knowledge of the circumstances of occurrence, of the risk factors, as well as of the modalities of good management in secondary-level health structures. Our aim in this study is to improve the prognosis of immediate postpartum haemorrhage in order to reduce maternal mortality. The general objective is to study the epidemiological-clinical, therapeutic and prognostic aspects of these haemorrhages in the Gynaecology and Obstetrics Department of the Yamoussoukro Regional Hospital.

2. Patients and Methods

This was a descriptive and analytical retrospective case-control study conducted over a 4-year period from January 2019 to December 2022, but data collection took place over 4 months from December 2022 to March 2023, conducted in the hospital's archive room. All deliveries from 28 weeks of amenorrhea with immediate postpartum hemorrhage (immediate postpartum hemorrhage (IPPH) was defined as any abnormal bleeding from the reproductive tract in excess of 500 ml within 24 hours of fetal expulsion) were included as cases. Controls were the 2 normal deliveries preceding the recruited case. Case selection was based on exhaustive sampling. All cases of immediate postpartum haemorrhage recorded in the department during the study period. Data were collected from obstetric records, the delivery register, the admissions register and operative reports. We recorded 307 cases of immediate postpartum hemorrhage out of 25088 deliveries, but only 194 files were complete for analysis. However, the prevalence was calculated using the total number of 307, and analyses were based on the 194 usable records for cases and 388 deliveries for controls. Data was recorded on an anonymous,

structured and standardized survey form, and selected according to inclusion and non-inclusion criteria. Quantitative variables were expressed as means and extreme values, and qualitative variables as proportions. Data entry and processing were performed using Epi-Info7, Microsoft Office Word and Excel 2013. Proportion analysis was performed using the KHI2 or FISCHER test, depending on the validity conditions. The alpha threshold chosen was 5%. The parameters studied were: epidemiological profile of patients (age, sex, profession, ethnicity, residence, marital status...), clinical aspects of HPPI (clinical examination...), causes of IPPH (peri- and postpartum incidence...), risk factors (antecedents, mode of admission, pregnancy monitoring, progress of labor...), therapeutic techniques used in the management of IPPH (medical, surgical…), the prognosis of IPPH (favorable, unfavorable...).

3. Results

In our study, the incidence of IPPH was 1.22%. The most common age group was 20 - 34 years, with 70.10% of cases versus 71.13% of controls. The average age was 26.89 years, with extremes ranging from 15 to 45 years among cases, compared with an average of 25.81 years, with extremes ranging from 13 to 46 years among controls. The rate of pupils/students with HPPI was 14.95 (Table 1). The difference was significant in both groups ($p = 0.006$). Married women accounted for 71.65% of cases versus 68.04% of controls. No statistically significant relationship ($p = 0.38$). Among patients with HPPI, 15.46% came from another health facility vs. 9.02% among controls, with a statistically significant difference ($p = 0.02$). Only 49.48% of patients had completed at least the recommended number of 4 prenatal consultations, compared with 45.11% of controls, with no statistically significant relationship ($p = 0.36$). Among cases, 8.37% were followed by a general practitioner (Table 2). There was a statistically significant difference with $p = 0.01$ (Table 2). Large multiparous females accounted for 7.73% of cases versus 4.90% of controls. Nulliparous women were the most numerous, with 34.5% of cases compared with 36.9% of controls but the statistical difference was not significant ($p = 0.16$). Caesarean section was performed in 2.58% of cases versus 14.43% of controls, with a statistically significant difference ($p = 0.0001$). The use of prepartum uterotonics was observed in 29.90% of cases versus 12.37% of controls, with a statistically significant difference ($p = 0.0001$). Multiple pregnancies occurred in 6.19% of cases versus 2.84% of controls, with a statistically significant difference ($p = 0.04$). The mean weight of newborns was 2987 g in the case group versus 3018 g in the controls. Macrosomia was observed in 5.15% of cases versus 2.32% of controls, with a statistically significant difference. Active management of the third childbirth period was performed in 86.60% of women who bled. The main causes were uterine atony (75.26%) (Table 3). The transfusion rate was 31.96% in cases vs. 1.03% in controls, with an average of 220.23 ml of blood derivatives transfused, with extremes of 101 cc and 1382 cc. 79.03% of women transfused received less than 500 cc of blood. Uterine revision was performed in 96.39% of cases vs.

14.95% of controls. Uterine massage was performed in 99.48% of patients in each group. All cases had received uterotonics, the main protocol being a combination of Methylergometrine + oxytocin in 49.48% (Table 4). Bimanual compression was performed in 9.33% of women who bled. Hemostasis suture was performed in 46.51% of cases, hysterorrhaphy in 39.53%, arterial ligation in 11.64% and hemostasis hysterectomy in 2.32%. The case-fatality rate was 11.34%, *i.e.* 22 deaths.

Table 1. Distribution of patients by occupation.

Activities \ Patients	Cases		Controls	
	Number	%	Number	%
Informal sector	65	33.50	180	46.39
Housewife	85	43.81	156	40.20
Student	29	14.95	37	9.54
Salaried	15	7.74	15	3.87
Total	194	100.00	388	100.00

Khi-2 = 12.60; ddl = 3; p = 0.006.

Table 2. Distribution of patients according to health agent consulted.

Author of the PNC \ Patients	Cases		Controls	
	Number	%	Number	%
Gynaecologist	14	7.33	30	7.79
General practitioner	16	8.37	11	2.86
Midwife	161	84.30	344	89.35
Total	191	100.00	385	100.00

Khi-2 = 8.70; ddl = 2; p = 0.01.

Table 3. Recap of etiologies.

Etiologies		Numbers	%
Delivery hemorrhage	Uterine atony	146	75.26
	Complete retention of placenta	21	10.82
	Partial placental retention	108	55.67
	Insertion anomaly (placenta previa, retro placental hematoma)	16	08.25
	Coagulation disorder	22	11.34
Traumatic injury	Cervical tear	29	14.95
	Perineal tear	17	08.76
	Vaginal tear	12	06.18
	Uterine rupture	06	03.09
	Haematoma (pelvic, perineal...)	05	02.58

Table 4. Distribution of patients according to use of uterotonics.

Uterotonics	Number	%
Methylergometrine + oxytocin	96	49.48
Ocytocin	76	39.16
Ocytocin + misoprostol	14	7.24
Misoprostol + methylergometrine + ocytocin	6	3.09
Misoprostol	2	1.03
Total	194	100

4. Discussion

Our hospital frequency is lower than that of Oumar in Mali in 2020 with 2.16% IPPH [4]. Our age range predominance was different from that of Onyema *et al.* in 2015 in Nigeria [2], reported a predominance in the 35+ age group with a proportion of 68.75%. This observed difference could be justified by the fact that we took steps of 10 years. Our average age was superposable with that of McLelland *et al.* in 2018 in Victoria [6], who reported an average age of 29.1 years. Pupil/student status was a risk factor for HPI, with a statistically significant difference (p = 0.006) and this could be explained by low purchasing power and lack of time for proper follow-up to detect risk factors due to studies [5]. Married women were the most numerous in our study. Our observation was identical to that of Thies-Lagergren L *et al.* in 2021 in Sweden [7], who reported a predominance of married women with 94%. Marital status was not a factor associated with IPPH. Medical evacuations were associated with the risk of IPPH in our series. Similarly, Fenomanana *et al.* in 2009 in Madagascar [8] reported medical evacuations in 58.8% of cases, and were an aggravating factor with an OR of 5.83. Less than half of women had not completed the minimum number of 4 recommended prenatal visits with no statistically significant relationship (p = 0.36). According to the literature, IPPH can occur without any particular risk factor [9]-[11]. When the general practitioner carried out prenatal consultations, it was a risk factor for IPPH. This observation could reflect incompetence on the part of GPs in pregnancy monitoring, since properly conducted prenatal consultations can detect at-risk gestations and reduce the risk of hemorrhage [5]. In our study, high multiparity was not associated with the occurrence of HPPI, contrary to the literature [7] [8]. This difference may be explained by our smaller sample size. Caesarean section was a factor associated with IPPH compared to the 2 groups (p = 0.0001). Onyema *et al.* [2] reported that caesarean section was associated with IPPH in 56.4% of cases. We observed that the use of uterotonics during labor at onset was associated with HPPI (p = 0.0001). According to the literature, induced labor and accelerated labor are risk factors for PPH [10] [12]. Multiparity, macrosomia and multiple pregnancies were found to be factors associated with the occurrence of HPPI. This observation is consistent with the literature, which reports them as a risk factor for IPPH [10] [11] [13]. The AMTSL achievement observed in our series was

lower than that of Sitti *et al.* in 2016 in Togo [14], who reported 95%. This difference could be justified by a lack of practitioner competence. The main causes of IPPH were uterine atony. This observation is in line with the literature, which reports that uterine atony is the main cause of IPPH [15]-[17]. Less than half the cases in our series had received a transfusion. Our results are similar to those of Haidara *et al.* in Mali in 2021 [18] which reported 29.35% of transfusion needs. This observation could be explained by the shortage of blood products in our national blood transfusion centers. Uterine revision and massage were performed in over 96% of deliveries in the 2 groups. All cases received uterotonics, mainly oxytocics. Surgically, haemostasis suture was the most common procedure, with 46.5%, and radical treatment (hysterectomy) was used in 2.32% of cases. Unlike Mba Edou *et al.*, in Libreville in 2024, who reported surgical management in 51.2% of cases, with 15.7% of hysterectomies [19]. This difference could be explained by the different protocols preferred by each school. Overall, management was consistent with the protocols and techniques described in the literature [20]-[23]. The case-fatality rate was 11.34%. Our rate was similar to that of Okon *et al.* in Abidjan (3 deaths out of 23, *i.e.* 13%), but much higher than that of Mba Edou *et al.*, who reported 4% [19] [24]. This difference could be explained by the delay in evacuating parturients, the availability of blood products and the delay in making the decision for hysterectomy.

5. Conclusion

Immediate postpartum hemorrhage was common in our department. The main associated factors were: profession, medical evacuation, quality of follow-up provider, uterine overdistension and route of delivery. Management protocols were respected. However, the significant unmet need for transfusions was not conducive to curbing maternal mortality.

Conflicts of Interest

The authors declare that they have no conflicts of interest.

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