

Immediate post-partum haemorrhage: Epidemiological aspects and maternal prognosis at South N'djamena District Hospital (Chad)

Gabkika Bray Madoue^a, Djongali Salathiel^a, Oumarou Garba Souleyman^a, Atade Sedjro Raoul^b, Adoum Tchari^a

^a South Ndjamen District Hospital (Chad);

^b University Abomey Calavi of Cotonou (Benin).

Correspondence: Gabkika Bray Madoue kickbray@yahoo.fr

Background: Post-partum haemorrhage defined as blood loss after delivery over 500mls, affects all countries and is the commonest cause of maternal mortality. It is a frequent obstetric emergency in developing countries.

Objective: To identify the causes of post-partum haemorrhage and identify adequate management of immediate post-partum haemorrhage and thus reduce maternal mortality.

Patients and methods: This was a prospective and descriptive study of one year from 1st January 2014 to 31st December 2014 conducted at South N'Djamena district hospital. Before including a patient in our survey her consent was obtained after explaining to her the need for the survey. All consenting patients with post-partum haemorrhage were included. Data were analyzed using SPSS 17.0.

Results: We recorded 100 cases of post-partum haemorrhage among 6815 deliveries giving an incidence of 1.47%. The average age of the women was 25.0 years. The majority of deliveries (90%) were vaginal. The main cause of immediate post-partum haemorrhage was a third stage of labour bleeding (66%) followed by genital lesions (32%). The management was medical (uterotonic drug, fluid replacement and blood transfusion), obstetric (manual removal of placenta or clot), and surgical (suture of lesions, vascular ligation and hysterectomy). There were two maternal deaths (2%).

Conclusion: Post-partum haemorrhage is often fatal in our region. Preventive measures and efficient management can help to improve maternal prognosis.

Introduction

More than 90% of maternal deaths worldwide occur in sub-Saharan Africa (SSA) and south Asia. These high maternal and associated neonatal mortality rates persist despite considerable efforts from the World Health Organization, governments, development partners, and others [1,2,3]. The majority of these deaths are related to pregnancy complications that are inadequately managed because of a lack of access to emergency health care.

The maternal mortality ratios (MMRs) of Sweden, the United Kingdom, and the United States are 4, 12, and 21 per 100,000 live births, respectively, whereas those of Chad, Nigeria, and Congo are 1099, 630, and 540 respectively. In SSA, the major direct causes of maternal mortality are haemorrhage, pre-eclampsia/eclampsia, obstructed labour, and sepsis [4, 5]. According to previous studies, the main cause of haemorrhage in Chad is immediate post-partum haemorrhage [6]. Post-partum haemorrhage is defined as blood loss after delivery over 500 mls [7]. The management of this problem is hampered by the lack of blood products and often leads to maternal death. This situation is the same in South N'Djamena district hospital.

Our objective was to identify the main causes of post-

partum haemorrhage in order to identify adequate management of immediate post-partum haemorrhage and thus reduce maternal mortality.

Materials and methods

This was a prospective and descriptive survey of the epidemiological aspects and prognosis of immediate post-partum haemorrhage. It was carried out for one year from 1st. January 2014 to 31st. December 2014 at South N'Djamena district hospital.

The survey population included patients who had given birth at South N'Djamena district hospital or had been referred from another hospital because of post-partum haemorrhage. Before including a patient in our survey her consent was obtained after explaining to her the need for the survey.

Studied variables were: age, parity, causes and risk factors, treatment and prognosis. Data were analyzed using SPSS 17.0.

Results

Incidence

We had 100 cases of immediate post-partum haemorrhage among 6815 delivery giving an incidence 1.47%.

Table 1. Age and parity

Characteristic	Number	Percentage
Age (years)		
15 -19	18	18
20 - 24	33	33
25 - 29	23	23
30 - 34	12	12
≥ 35	14	14
All ages	100	100
Parity		
Primiparous	26	26
One previous baby	14	14
Multiparity	60	60
Total	100	100

Table 2. Risk factors

Risk Factor	Number	Percentage
Multiparity	60	60
Eclampsia	2	2
Placenta abruption	5	5
Precipitate delivery	3	3
Intra uterine death	6	6
Macrosomia	5	5
Uterine myoma	3	3
No risk factor	40	40

Age and parity

Table 1 shows that 33 (33%) of the mothers were aged 20 to 24 years, and 68 (68%) were aged 20 years to 34 years. The average age was 25.0 years. Multiparity was more represented at 60%, and the average parity was 2.5.

Risk factors of immediate post-partum haemorrhage

Table 2 shows that 40% of patients had no risk factors, and that the most common risk factor was multiparity (60%). Six cases of intra-uterine death were recorded which can cause clotting problems.

Timing and causes of immediate post-partum haemorrhage

The majority of cases (66 patients) bled during the third stage of labour. There were 40 cases of uterine atony and 26 cases of placental retention – see Table 3.

Treatment of immediate post-partum haemorrhage

We carried out manual removal of a clot from the uterus to check the emptiness of the uterus. The second reason for this maneuver is to eliminate a uterus tear. Thus manual removal of clot from the uterus associated with uterine massage was carried out for all cases. Manual removal of the placenta was associated in three cases.

To ensure uterine contraction, uterotonic drugs were used. In district hospitals of N'Djamena, oxytocin or methylergometrin (if blood pressure is normal) were used. Patients who had received between 60-80 IU could not have more because after this dose, undesirable effects can occur. For these patients we added misoprostol. Removal of a clot from the uterus can allow infection, so we gave antibiotics routinely.

Surgical treatment was carried out in 40 cases, mostly suturing of genital tract lesions (32 patients). We achieved bilateral ligation of the uterine artery in 6 cases, one B-Lynch suture (1%) and one hysterectomy (1%). Twenty five patients (25%) received a blood transfusion. – see Table 4.

Maternal prognosis

We recorded two cases of maternal death giving a mortality of 2%. These deaths were due to massive haemorrhage exacerbated by the lack of blood available to transfuse.

Discussion

Incidence

According to the World Health Organization post-partum haemorrhage is annually responsible for a quarter of maternal deaths (estimated at 585,000) [8, 9]. In France the incidence is estimated as 2% [5]. In Africa, according to previous studies, the incidence varied from 1.7% to 10.4 % [10, 11].

We report an incidence of 1.47%. Dlinga [12] noted previously an incidence of 1.26% in N'Djamena city. Factors like exemption for medical fees in South N'Djamena district hospital can explain this proportion. The South N'Djamena district hospital receives mostly rural and poor people. The population surrounding N'djamena city is poor and cannot afford treatment in a private hospital. The exemption for medical fees is an opportunity for them to receive free treatment.

Age and parity

A third of the patients (33%) were aged 20 to 24 years, and two thirds (64%) were aged less than 30 years. Our results confirm a national statistic that reported a high proportion of marriage among young girls [13]. Cultural practices favour early pregnancy and often lead to obstetric complications.

Table 3. Causes of post-partum haemorrhage

Cause	Number	Percentage
Uterine atony	40	40
Partial placenta retention	23	23
Retained placenta	3	3
Cervical tear	18	18
Vaginal tear	3	3
Perineal tear	11	11
Coagulation disorder	2	2
Total	100	100

Table 4. Treatment

Treatment	Number	Percentage
Medical		
Blood transfusion	25	25
Colloid	38	38
Uterotonic	100	100
Antibiotic	100	100
Crystalloid	100	100
Obstetric		
Manual removal of clot from uterus	100	100
Manual removal of placenta	3	3
Surgical		
Suture of lesion	32	32
Vascular ligature	6	6
B-lynch	1	1
Hysterectomy	1	1

Multiparity was common (60%). This proportion is similar to other data that underlined a predominance of post-partum haemorrhage in this group [14, 15]. The risk of post-partum haemorrhage increases with parity and may be explained by uterine muscle weakening which cannot ensure uterine retraction allowing good haemostasis. Multiparity and some factors like uterine distention (macrosomia, hydramnios, multiple pregnancies) or uterine myoma are recognized as risk factor of post-partum haemorrhage [6, 12].

Mode and place of delivery

Ninety percent of patients had a vaginal delivery and 10% delivered by Caesarean section. Twenty six patients (26%) delivered at home. Difficulties with home deliveries were linked to problems with access for women in labour to the health centre during the rainy season and at night.

Causes of post-partum haemorrhage

Bleeding occurred in the third stage of labour for the majority of patients with post-partum haemorrhage (66%). This proportion is consistent with those reported by previous surveys that showed the third stage bleeding as the main time of post-partum haemorrhage [15, 16].

The most important and major finding in our study was that the commonest cause of post-partum haemorrhage was uterine atony, which is loss of tone in the uterine musculature. Normally, contraction of the uterine muscle compresses the vessels and reduces flow. This increases the likelihood of coagulation and prevents bleeds. Thus, lack of uterine muscle contraction can cause an acute haemorrhage. These findings were also evident in studies conducted in America and Pakistan [17, 18,19].

Cervical and vaginal tears also emerged as one of the causes of post-partum haemorrhage and were seen in 32 % of cases. Many authors have noted a lower proportion than ours. Thus, Ducloy [10], Dreyfus [20], and Chaouki [21], reported respectively proportions of 4%, 9% and 16.3%. A qualified health care provider is required for the management of delivery aiming to prevent complications [14].

Therapeutic aspects and prognoses

All patients received an uterotonic drug by intravenous route (oxytocin), intra muscular (oxytocin or methylegometrin), or rectal route (misoprostol) and antibiotics. Manual removal of clot from uterus was systematically done beforehand. These treatments aimed to ensure uterine retraction and prevent infection. Like Armide and al [22], these treatments were instituted as the two first steps of the treatment.

Surgical treatment concerned 40 patients (40%). In the majority of cases this treatment was the suture of genital lesions (32%). Chaouki [21] in his series reported a higher proportion (83.3%).

For complicated cases we did six vascular ligatures, and insertion of B-Lynch (1 case) all as recommended by the Obstetricians and Gynaecologists of Canada [23] and B Lynch [24].

One hysterectomy (1%) was permitted in order to save a patient who had a massive haemorrhage. This proportion is less than that noted by Chaouki [21] in his series (5.4%). Recourse to hysterectomy was the final solution to stop bleeding. Our attitude was conservative that is why we carried out more vascular ligatures aiming to reduce or stop blood loss.

Maternal prognosis

Post-partum haemorrhage is the main cause of maternal death in the world. We registered two cases of maternal death (2%). This mortality rate is lower than that reported

by Dlinga [12]. The maternal deaths noted in this survey were due to massive blood loss that led to hypovolemic shock. We didn't get time to carry out any surgical treatment for these patients that died.

Conclusion

Post-partum haemorrhage is the most common cause of maternal mortality. Oxytocics given to contract the uterus is the most common prevention and treatment. Preventive measures and efficient curative treatments are useful to improve maternal prognosis.

Authors approval

All authors approve the submission of this work.

Conflict of interest

All authors have declared that there is no conflict of interest.

Funding

No financial assistance or grants were solicited or obtained during the course of preparing this article.

Consent

For this survey we got the consent of patients and the agreement of the director of South N'Djamena district hospital.

References

1. World Health Organization. Trends in maternal mortality: 1990 to 2008. 2010 World Health Organization, Geneva.
2. World Health Organization. The World Health Report 2005. Make every mother and child count. World Health Organization, Geneva. 2005.
3. World Health Organization. 1999. Reduction of maternal mortality: a joint WHO/UNFPA/UNICEF/World Bank statement. World Health Organization, Geneva.
4. Khan KS, Wojdyla D, Say L, Gulmezoglu AM, Van Look PF. WHO analysis of causes of maternal death: a systematic review. *Lancet*, 2006. 367, pp. 1066–1074.
5. Lawn JE, Cousen S, Zupan SJ. Four million neonatal deaths: when? where? why? *Lancet*, 2005. 365, pp. 891–900.
6. Memadji M, Dzbernis L, Welfens C, Mamourou.K, Quenum G. Résultats préliminaires de cause de décès maternels enregistrés à la maternité de Moundou de 2001à 2009. 2010. SAGO.
7. Lansac J, Teurnier F, Nguyen F. Delivrance normale et pathologique. *Traité d'obstétrique 2010*. Ed Masson, Paris. p 144-146.
8. Organisation Mondiale de la santé. Réduire la mortalité maternelle. Déclaration commune OMS/UNFPA/UNICEF/Banque Mondiale. 1999. Organisation Mondiale de la Santé, Genève, 45p.
9. POPPHI (Prevention Of Post-Partum Haemorrhage Initiative). La prévention de l'hémorragie du post-partum : la gestion active de la troisième période de l'accouchement – formation d'accoucheurs qualifiés : Manuel de référence. 2008. Seattle Path.

TRAINING TO MANAGE POST-PARTUM HAEMORRHAGE

Most readers know that immediate post-partum haemorrhage is a problem in South Sudan as well as Chad (see above article). In Chad the most common risk factor was multiple births and the most common cause was uterine atony. Is this the same in South Sudan? Please send us your experience. Training of medics, mid-wives and nurses is needed to prevent and manage immediate post-partum haemorrhage. Figure 1 shows suturing and Figure 2 shows a less-available method – how to use an uterine balloon device.



Figure 1. Student midwives at Yei Medical College practice suturing to minimise blood loss from genital lesions (credit Nancy MacKeith)



Figure 2. Frontline health workers in Ikotos, South Sudan, receive training in the use of a low-cost uterine balloon device developed by Massachusetts General Hospital's Maternal, Newborn and Child Survival program. © 2012 Samuel Boland, Courtesy of Photoshare

Thanks to Nancy MacKeith for helping to prepare this note and the article on page 28.

10. Ducloy-Bouthors AS, Provost-Hélou N, Pougeoise M, Tournays A, Ducloy JC, Sicot J et al. Prise d'une hémorragie du post – partum. *Réanimation*; 2007. 16 : 373 – 379.
11. Ngbalé RN, Koirokpi A, Goddot NMJ, Gaunefet CE, Songo-KetteT, Heredeibona LS et al. Les hémorragies du post – partum immédiat à l'Hôpital Régional Universitaire de Bossangoa, Centrafrique. *Méd.Afr Noire*; 2012. 59 (1) :39 – 43.
12. Dlinga D. Management of post-partum haemorrhages in the Gynecology and Obstetrics department of N'Djamena General Hospital of National Reference about 171 cases. PhD in Medicine, Chad. 2012. 97p.
13. Ministry of Economy, Planning and cooperation. National Institute of Statistics, Economic and Demographic Studies. Demographic and Health Surveys in Chad 2004; 2:214-8.
14. Hohfeld P. Hémorragie durant la troisième phase du travail et le post – partum. *Rev Med. Suisse*; 1996. 116: 261 – 265.
15. Bateman BT, Berman MF, Riley LE, Leffert LR. The epidemiology of postpartum haemorrhage in large nationwide sample of deliveries. *Anesth Analg*; 2010. 110: 1368 – 1373.
16. Subtil D, Sommé A, Ardiet E, Depret-Mosser S. Recommandations de pratique clinique. Hémorragies du post-partum : fréquence, conséquences en terme de santé et facteurs de risque avant l'accouchement. *J Gynecol Obstet Biol Reprod*; 2004. 33 (Suppl 8) : 4S9 – 4S16.
17. Sheikh L, Zuberi NF, Riaz R, Rizvi JH. Massive primary postpartum haemorrhage: setting up standards of care. *J Pakistan Med Assoc*; 2006. 56(1):26
18. Sheikh L, Najmi N, Khalid U, Saleem T. Evaluation of compliance and outcomes of a management protocol for massive postpartum haemorrhage at a tertiary care hospital in Pakistan. *BMC Pregnancy Childbirth*; 2011.11(1):28.
19. Oyelese Y. Ananth CV. Postpartum haemorrhage: epidemiology, risk factors, and causes. *Clin. Obstet. Gynecol*; 2010. 53(1):147-56.
20. Dreyfus M, Beucher G, Mignon A, Langer B. Prise en charge obstétricale initiale en cas d'hémorragie du post-partum. *J Gynecol Obstet Biol Reprod*; 2004. 33 (Suppl8):4S57 – 4S64.
21. Chaouki M, Marwen N, Amjed A, Haykel M, Maha J. L'hémorragie grave du post-partum : épidémiologie et prise en charge à l'Hôpital Universitaire de Nabeul, Tunisie. *Ann. Afr. Med*; 2013. 6 (4) : 1 – 6.
22. Bischofberger A, Irion O, Savoldelli GL. Prise en charge multidisciplinaire des hémorragies du post-partum : nouvelles stratégies. *Rev Med Suisse*; 2011. 334-339
23. Leduc D, Senikas V, Lalonde AB, Ballerman C, and al. Active management of the third stage of labour: prevention and treatment of postpartum haemorrhage. *J Obstet Gynaecol Can*; 2009. 31(10): 980-93.
24. B-Lynch C. A Textbook of Postpartum Haemorrhage: A Comprehensive Guide to Evaluation, Management and Surgical Intervention. 2006. Sapiens Publishing.

NON-COMMUNICABLE DISEASES

Alcohol and liver cancer

Liver cancer is the second most common cause of death from cancer worldwide, accounting for 746,000 deaths around the world in 2012. The World Cancer Research Fund International finds strong evidence that consuming approximately three or more alcoholic drinks a day causes liver cancer. The finding provides the clearest indication to date of how many drinks actually cause liver cancer. The systematic review analysed 34 studies from around the world - comprising over eight million men and women and 24,600 cases of liver cancer – and also found strong evidence that:

- Being overweight or obese is a cause of liver cancer. This finding takes the number of cancers linked to being overweight or obese to 10 for the first time.
- Foods contaminated by aflatoxins (produced by a fungus that contaminates inappropriately stored food) cause liver cancer.
- Drinking coffee decreases the risk of liver cancer. Further research is needed on coffee to establish how much and what kind of coffee should be consumed before any advice is offered on this finding.

The report's findings support our current Cancer Prevention Recommendations:

- Maintain a healthy weight.
- It's best to avoid alcohol - but if you do drink, limit consumption to a maximum of 2 drinks a day for men and one drink a day for women. Read the full details on all the report's findings and conclusions (see <http://www.wcrf.org/>)

Tackling soaring global obesity rates

This Lancet series on obesity (at <http://www.thelancet.com/series/obesity-2015>) exposes the slow progress in tackling soaring global obesity rates over last decade. It shows how today's food environments exploits people's biological, psychological, social, and economic vulnerabilities, making it easier for them to eat unhealthy foods. This reinforces preferences and demands for foods of poor nutritional quality, furthering the unhealthy food environments. Regulatory actions from governments and increased efforts from industry and civil society will be necessary to break these vicious cycles.