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Management of Obstetrical Emergencies at Aristide Le Dantec Teaching Hospital: Epidemiological Clinical and Therapeutic Aspects

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Abstract **Original Research Article**

Obstetrical emergencies are a real health problem around the world. The WHO has estimated that each year more than half a million women die from obstetric complications worldwide. These obstetrical emergencies present themselves in various clinical forms and their causes are multiple and variable. They require specific and well-coded management, which helps to minimize maternal and neonatal morbidity and mortality. ***Objectives:*** To describe the epidemiological, therapeutic and evolutionary aspects of obstetrical emergencies admitted to the operating room of the maternity ward of Aristide Le Dantec Hospital. ***Patients and Methods:*** This is a descriptive cross-sectional study with retrospective data collection. It covered a period of 8 months (January 1st to August 31st, 2021) and involved 248 patients. ***Results:*** The frequency of obstetrical emergency admissions was 18.77%. The average age of the patients was 29.52 years with extremes of 15 and 44 years. Most of the pregnancies were full term (43.2%). The average gestational age was 2.16 ± 1.10 and the average delivery number was 1.16 ± 1.12. The main obstetrical emergencies recorded were: dystocia (41.53%), fetal hypoxia of all causes (41.02%), hypertensive emergencies (25.81%), hemorrhagic emergencies (15.33%) and infectious emergencies (14.92%). Caesarean section was performed in the majority of parturients (94.35%) and spinal anesthesia was the most common anesthesia technic used in 64.53% of cases. Fetal mortality was 5.13%. Maternal mortality was 1.21% and was mainly related to hemorrhagic shock. ***Discussion and Conclusion:*** Obstetrical emergencies are frequent at Aristide le Dantec Hospital. They occur in young parturients, mostly primiparous. They are responsible for a still high morbidity and mortality. The reduction of maternal and fetal mortality is a major public health objective. It could be achieved through better patient education, medicalized monitoring of high-risk pregnancies and improvement of the technical equipment.

Keywords: obstetrical emergencies, emergency obstetrical care, morbidity, mortality.

INTRODUCTION

The anesthesiologist plays an important role in the management of obstetrical emergencies. Optimal management of the emergency requires prior reflection on the organization of care and the application of procedures to be implemented. The clinical symptoms of obstetrical emergencies and their causes are multiple and variable.

The World Health Organization has estimated that each year more than half a million women die from pregnancy-related complications. The management of these obstetrical emergencies remains a major public health objective, especially in developing countries where 99% of annual maternal deaths related to pregnancy occur [1].

It is in this context that we conducted this study whose objective is to determine the epidemiological, clinical, therapeutic and evolutionary aspects of patients admitted to the operating room of the maternity department of Le Dantec hospital for the management of an obstetrical emergency.

MATERIALS AND METHODS

This is a retrospective study of obstetrical emergencies managed in the operating room of the gynecological and obstetrical clinic of Aristide le Dantec Hospital. The duration of the study was eight

months from January 1st, 2021 to August 31st, 2021. All patients admitted to the operating room for obstetrical emergencies were included. We excluded patients with incomplete medical records. Data were collected on an Excel file from maternity records, anesthesia records, and the operating room book. Excel and sphinx 2.0 software were used to analyze the results obtained.

RESULTS

A total of 248 patients were collected in our study, and the number of emergency room consultations at the gynecological and obstetrical clinic during this period was 1321. The frequency of admission to obstetric emergencies was 18.77%. The average age of the patients was 29.52 years with a standard deviation of 5.17. The extremes were 15 and 44 years. Pregnancies were full term in 43.2%. The average gestational age was 2.16 ± 1.10 and the average delivery number was 1.16 ± 1.12. Pregnancies were full term in 43.2% of cases and 15.9% of the women had an extended or overdue term.

The main obstetrical emergencies found were dystocia and hypertensive emergencies, hemorrhagic emergencies, and infectious emergencies. Cases of beating umbilical cord prolapse, molar abortion and threatened premature delivery were noted. Table 1 shows the distribution of obstetrical emergencies according to their frequency. In our study, dystocic causes (43.51%) are represented mainly by pelvic abnormalities, macrosomia, maternal fetal disproportions and scarred uteri.

We found 64 cases of severe preeclampsia including 3 cases of eclampsia, i.e. a frequency of 25.81% for hypertensive emergencies. No case of isolated hypertensive emergency was identified in our study. Hemorrhagic emergencies included antepartum hemorrhage (12.91%) (placenta prevae, retro-placental hematoma, ruptured ectopic pregnancy) and postpartum hemorrhage (2.42%). A frequency of 15.33% of bleeding emergencies was found in our study. Direct infectious emergencies requiring urgent management in the operating room represented 14.92% of our series. These were premature rupture of membranes and suspected chorioamnionitis.

Fetal hypoxia of all causes, whether funicular or not, was found in 41.02% of cases. This is the set of patients who presented an abnormality of the fetal cardiac rhythm during their monitoring.

Caesarean section was the most frequent surgical indication in 94.35% of cases. Salpingotomy and laparotomy for ectopic pregnancy were surgical indications in 2.42% of cases. Perineal repair was performed in 1.41% of cases. Hysterectomy and cervix cerclage were performed in 2 cases (0.81%) respectively for postpartum hemorrhage due to uterine atony and threat of early delivery due to cervix opening. Fetal heart rate abnormalities were reported in 41.01%.

Spinal anaesthesia was the most performed anaesthetic technique in 64.52% of cases. The remaining cases were represented by general anesthesia with orotracheal intubation. The newborns had an APGAR score higher than 7 in 84% of the cases and 5% of them were stillborn. Maternal mortality was 1.21%. All maternal deaths occurred in a hemorrhagic context, 75% of which were secondary to a ruptured ectopic pregnancy. The perinatal mortality rate was 5.13%.

Table 1: Distribution of obstetrical emergencies according to their frequency

Obstetrical emergencies		**Number**	**%**
Dystocia		103	**43,51**
Hypertensives Emergencies	Preeclampsia	61	**24,6**
	Eclampsia	3	**1,21**
Haemorrhagic emergencies	Retro-placental hematoma (RPH)	16	**6,45**
	Postpartum hemorrhage (PPH)	6	**2,42**
	Placenta preavia(PP)	5	**2,02**
	Ectopic pregnancy(EP)	6	**2,42**
	Uterine rupture	5	**2,02**
Infectious Emergencies	Pre-term membranes rupture and suspected chorioamnionitis	13	**14,94**
Others	Prolapsus of umbilical cord	3	**1,21**
	Molar abortion	1	**0,4**
	Threat of early delivery	2	**0,8**

DISCUSSION

Obstetrical emergencies are a real health problem in our regions. In our study, we found a high frequency of obstetrical emergency admissions at 18.7%. The same observation was made in certain series in Africa, particularly in the studies of Tchaou and Boyoma [2, 3], which respectively found a frequency of admission to obstetrical emergencies of 31.8% and 29.6%. In Morocco in 2010, Zouini *et al.*, in their study found a lower frequency of 2.4% [4]. On the other hand, the frequency of obstetric emergency

admissions is lower in developed countries and is estimated at 1% [5]. This difference is probably secondary to the fact that pregnancies are poorly monitored or not monitored at all in developing countries [6]. On the other hand, the low socioeconomic level makes access to quality care difficult. In our series, obstetrical complications occur in young women with an average age of 29.52 years. Patients under 25 years of age represent 27.44% of the population in our series. This trend is similar to that found in the studies of Chaou *et al.,* Lèye and Fall *et al.,* [2, 7, 8]. Sidiki B Guindo [9] showed that women under 20 years of age represented 21.28% of his series. Barboza *et al.,* [10] reported an average age of 23.6% with 42.25% of women under 20 years old. Young women are characterized by physical immaturity of the pelvis and perineum, which exposes them to pregnancy-related complications. This trend is also linked to the fact that in some regions of Senegal, early weddings are still practiced and pregnancy in young women constitutes a risk of obstetrical emergencies. Owono *et al.,* [6] in their study found that 74% of complicated pregnancies occurred in single women with an average age of 25.7 ± 7.3 years. Pregnancies were carried to term in 43.2% of cases, a result similar to that of Lèye [7] who found that 53% of pregnancies were carried to term. For Owono [6], 44% of pregnancies in young women were carried to term. Because of its geographical location, its technical facilities and the specialists who work there, Aristide Le Dantec Hospital is a last resort obstetrical referral facility. Patients who request the facility are often admitted late. The main groups of obstetrical emergencies found in our series were dystocia (14.51%), hypertensive emergencies (preeclampsia and its complications) in 25.91% of cases, hemorrhagic emergencies (15.33%) and infectious emergencies (14.92%). A similarity was found in the study of Fall ML [8], as well as Tchaou [2] who reported a frequency of 32.1% for dystocia, 21.7% for hemorrhagic emergencies and 16.4% for hypertensive emergencies. Early pregnancies are associated by a pelvic anomaly that must be diagnosed and managed very early to avoid dystocic labor. Owono [6] and Andriamady [11] found a higher frequency of hypertensive emergencies in 72.3% and 63.5% of cases.

Hypertension during pregnancy is a major risk factor for mortality. It is a public health problem in the world. It can lead to serious complications. An adapted and well codified treatment is necessary for this pathology. We found 24.6% of cases of severe preeclampsia with 1.21% of eclampsia. Tchaou [2] reported 9.8% of severe preeclampsia and 1.8% of eclampsia contrary to Lèye and Fall [7, 8] who reported higher frequencies of eclampsia 70% and 23.2%. This can be explained by the organization of the maternity ward with the permanent presence of a resuscitation anesthetist and the transfer of severe forms of preeclampsia to the intensive care unit and the initiation of magnesium sulfate-based treatment [12]. The management of obstetrical emergencies is based on a multidisciplinary approach in which the role of the intensive care anesthetist is no longer in question. Wherever there is a surgical maternity hospital, there should be at least one resuscitating anaesthetist with the appropriate technical equipment and personnel [13]. Caesarean section is the most common surgical procedure performed during obstetrical emergencies, as in the series by Sidiki B. Guindo [9] and Boyoma BM [3], who found a prevalence of this technique at 71.9% and 53%. This can be explained by the importance of antepartum complications including fetal indications. The decision to perform an upper abdominal extraction depends on the clinical condition of the parturient and the fetus, but also on the existence or not of biological disorders and other therapeutic possibilities. This high frequency of cesarean section can be explained by the late admission of patients after a transfer from another facility, with an indication for cesarean section already established. Rapid uterine evacuation is an integral part of the therapeutic arsenal for eclampsia. It is associated with a considerable reduction in maternal mortality [14]. Thus we can understand why Barbosa *et al.,* [10] found a frequency of 94.36% of cesarean sections in their series. In our series, spinal anesthesia was the anesthetic technique used in 64.52% of cases and general anesthesia with tracheal intubation was used in 35.48% of cases. During the management of obstetrical emergencies, the choice of anesthetic technic can sometimes be difficult. In practice, the use of the color code for cesarean section helps to define the most appropriate anesthetic technic [15]. Obstetrical complications have a serious impact on the health of the mother and child [13], as shown by the maternal mortality rate, which remains high. The large series of studies conducted in Africa show the problems surrounding this question [16, 17]. Owono [6] reported a higher maternal mortality of 9.6%. In our series, all the deaths occurred in the context of antepartum hemorrhage and perinatal mortality was 5.13%. This result is similar to those reported by Tchaou and Boyoma [2, 3]. The management of obstetric hemorrhage still causes enormous difficulties in our regions. The non-availability of blood products in real time and the absence of structured blood transfusion units were responsible for a high rate of therapeutic failure. Other causes of maternal death have been reported in the literature such as severe forms of pregnancy toxemia and infections [7, 8, 18]. In developed countries, maternal mortality was 12 per 100,000 cases in 2015, compared with 239 per 100,000 births in developing countries [19]. There are significant disparities between countries, within countries, between low- and high-income populations, and between rural and urban populations. The lifetime risk of maternal death, i.e., the probability that a young woman will die from a cause related to pregnancy or childbirth, is 1 in 4900 in developed countries, compared with 1 in 180 in developing countries [19]. In countries known for their fragility, this risk is 1 in 54

cases, as a result of the collapse of health systems [1, 19]. The high proportion of maternal deaths in developing countries (99%), with sub-Saharan Africa and South Asia alone accounting for 86%, shows that much more needs to be done in public health to improve maternal and child health.

CONCLUSION

Obstetrical emergencies are frequent at Aristide le Ledantec Hospital. They occur in young parturients and mostly primiparous. They are still responsible for a high maternal and perinatal morbidity. To achieve MDG 5 to reduce maternal and child mortality by 2030, public health efforts must be made. Improving socioeconomic conditions and strengthening the equipment of health facilities are essential steps in the implementation of sustainable solutions in order to integrate the concept of safe motherhood.

CONFLICT OF INTEREST

The authors declare that they have no conflicts of interest in relation to this manuscript.

REFERENCES

1. Stratégie mondiale pour la santé de la femme, de l'enfant et de l'adolescent (2016-2030) . Chaque femme, chaque enfant, ONU, 2015.
2. Tchaou, BA, Hounkponou, NFM, Salifou, K., Zoumenou, E., & Chobli, M. (2015). OBSTETRIC EMERGENCIES AT THE UNIVERSITY HOSPITAL OF PARAKOU IN BENIN: CLINICAL, THERAPEUTIC AND EVOLUTIVE ASPECTS. *European Scientific Journal*, *11*(9), 260-272.
3. Boyoma, B. M. (2011). Etude de la fréquence des Urgences obstétricales à l'Hôpital Général de Référence de Kamina RDC - Université de Kamina RDC - Licence en santé publique. http://www.memoireonline.com.
4. Zouini, M., El Hamdani, F. Z., Baali, A., Cherkaoui, M., Vimard, P. (2006). La morbidité maternelle chez les populations rurales et isolées au Maroc. *L'apport d'un système d'observations conjointes pour une meilleure connaissance.* http://www.uclouvain.be/cps/ucl/doc/demo/documents/Zouini.pdf. 1- 21**.**
5. Steven, L. C., Janet, A. M., Donna, R. F., Kathryn, Mc. M., & Jonathan, B. P. (2012). A systematic approach to the identification and classification of near-miss events on labor and delivery in a large national health care system. *American Journal of Obstetrics and Gynecology*, 207(6), 441-445.
6. Owono Etoundi, P., Metogo Mbengono, AJ, Tchokam, L., Danwang, C., Kago Tcheyanou, L., Afane Ela, A., & Ze Minkandé, J. (2017). obstetrical complications admitted in intensive care: epidemiology, diagnosis and prognosis. *Health Sci. Say*, *18* (1), 48-52.
7. Leye, P. A. (2010). Réanimation des formes sévères de pré-éclampsie au CHU le Dantec. Thèse mémoire. Dakar : *Université Cheikh Anta Diop de Dakar, Faculté de médecine*, 1.
8. Fall, M. L., Diop, E. N., Barboza, D., Diop, M. N., Diédhiou, M., Gaye, I., & Ba, E. B. (2020). Prise en charge des urgences obstétricales dans une réanimation périphérique en Afrique subsaharienne exemple du CHR de Ziguinchor. *Rev Afr Anesth Med Urg*, 25(2).
9. Sidiki, B. G. (2008), Les urgences obstétricales dans le cadre de la référence et de la contre référence au service de gynécologie obstétrique à l'Hôpital de Sikasso, *Thèse de Doctorat, Université de Bamako, République de Mali*.
10. Barboza, D. (2018). Prise en charge de l'éclampsie en réanimation dans un hôpital périphérique. *Rev Afric Anesth Méd Urg*, 23(1), 40-46.
11. Rcl, A., Mo, A., & Rj, R. (2000). LES ACCOUCHEMENTS DYSTOCIQUES. *Médecine d'Afrique Noire*, *47*(11).
12. Traoré, A. S. (2012). La morbidité et mortalité maternelle des urgences obstétricales en réanimation de l'hôpital Nianankoro Fomba de Ségou (HNFS). *Thèse de Médecine. Bamako : USTTB Faculté de médecine.*
13. Diouf, E. (2011). Contribution des anesthésistes réanimateurs à la réduction de la mortalitématernelle. *Rev Afric Anesth Méd Urg*, 16(2), 1-3.
14. Mellier, G., Mellier, C., Griot, J. P., Perrot, D. (1984). L'éclampsie : analyse d'une série de 18 observations. Conduite à tenir devant une crise grave. *Rev Fr Gynecol Obstet*, 79, 271-276.
15. Huissoud, C., Du Mesnildot, P., Sayegh, I., Dupuis, O., Clément, HJ, Thévenet, S., ... & Rudigoz, RC (2009). The implementation of "color" codes reduces the decision-to-birth time for urgent caesarean sections. *Journal of Obstetrics Gynecology and Reproductive Biology*, *38* (1), 51-59.
16. Wade, K. A., Diop, F. N., Niang, E. M., & Diallo, A. (2011). Mortalité maternelle en réanimation de Dakar. *Dakar Méd*, 56(2), 341-347.
17. Alkema, L., Chou, D., Hogan, D., Zhang, S., Moller, A. B., Gemmill, A., ... & Inter, U. N. M. M. E. (2016). Global, regional, and national levels and trends in maternal mortality between 1990 and 2015, with scenario-based projections to 2030: a systematic analysis by the UN Maternal Mortality Estimation Inter-Agency Group. *The lancet*, *387*(10017), 462-474.
18. Beye, MD, Diouf, E., Kane, O., Ndoye, MD, Seydi, A., Ndiaye, PI, & Sall, BK (2003, January). Management of severe eclampsia in intensive care in tropical Africa. About 28 cases. In *French Annals of Anesthesia and Resuscitation* (Vol. 22, No. 1, pp. 25-29). Elsevier Masson.
19. Organisation Mondiale de la Santé. (2015). Mortalité maternelle. *Centre des media. Aide-mémoire*, 348, 6.