ISSN: 2476-8642 (Print)
ISSN: 2536-6149 (Online)
www.annalsofhealthresearch.com
Indexed in: African Index Medicus,
Index Copernicus & Google Scholar
A member of C.O.P.E and D O.A.J

# Annals of Health Research

VOL. 5 NO. 1
JAN – JUN, 2019

## IN THIS ISSUE


- Serum Ferritin among Blood Donors
- Stroke
- Neonatal Macrosomia
- Post-operative Symptoms Severity
- Long Lasting Insecticide Treated Nets
- Adolescents & HIV/AIDS Knowledge
- Emergency Obstetric Hysterectomy
- Lower Third Molar Surgery
- Thyroid Disorders
- Serum Vitamin D and Pneumonia


PUBLISHED BY THE MEDICAL
AND DENTAL CONSULTANTS ASSOCIATION
OF NIGERIA, OOUTH, SAGAMU, NIGERIA.

Annals of Health Research
Volume 5, Issue No 1: 65-72
January-June 2019
doi: 10.30442/ahr.0501-7-37

ORIGINAL RESEARCH

# A Seven-Year Review of Emergency Obstetric Hysterectomy in a Nigerian Tertiary Institution

**Jagun OE, Nathaniel GV*, Akinseku AK**

**Department of Obstetrics and Gynaecology, Olabisi Onabanjo University Teaching Hospital, Sagamu, Ogun State, Nigeria**

***Correspondence: Dr GV Nathaniel, Department of Obstetrics and Gynaecology, Olabisi Onabanjo University Teaching Hospital, Sagamu, Ogun State, Nigeria. Email: nathygv2009@yahoo.com; ORCID: https://orcid.org/0000-0003-2107-8934**

**Abstract**

**Background:** Extirpative uterine surgeries for near-miss events are usually the last resort when other conservative measures fail. Emergency obstetric hysterectomy (EOH) may still have a significant role where there are limited options.
**Objectives:** To determine the prevalence of EOH, the associated factors and the foeto-maternal outcome at the Olabisi Onabanjo University Teaching Hospital, Nigeria.
**Methods:** This was a retrospective observational study covering seven years (January 2010 to December 2016). The case records of patients who had EOH during this period were retrieved for data extraction.
**Results:** There were 5, 608 deliveries and 31 cases requiring EOH giving a prevalence rate of 31/5,608 (0.55%). The mean age of the patients was 30.3±4.2 years, while the mean gestational age at delivery was 36.3±5.1 weeks. Most of the patients 16/25 (64.0%) were of higher parity (>3), and 12/25 (48%) of the patients were within the age bracket of 25-34 years. Subtotal hysterectomy was the most common procedure (18; 72.0%), and ruptured uterus was the main indication for EOH (40.0%). The two most common interventions that were critical to survival included massive blood transfusion (24.0%) and Intensive Care Unit admission (20%). Two (8%) maternal deaths and 58.3% perinatal mortality were recorded.
**Conclusion:** EOH is still relatively frequently performed at this centre due to the high incidence of a ruptured uterus. Efforts should be made to increase the proportion of deliveries attended by skilled personnel and improve the capacity of lower level hospitals for comprehensive emergency obstetric care.

***Keywords: Atony, Hysterectomy, Obstetric Emergencies, Postpartum haemorrhage, Ruptured uterus.***

## Introduction

Emergency Obstetric Hysterectomy (EOH) is one of the surgical operations where the surgeon is often at a dilemma -"in this instance, it is whether to sacrifice the uterus to save the mother's life or to preserve the uterus in which case the mother's life might be at risk".

EOH is defined as the surgical removal of a pregnant or a recently pregnant uterus. [1] It is classified as an 'intervention-based' criterion for defining a near-miss event. [2] EOH is an uncommon obstetric procedure usually performed as a life-saving measure in some severe maternal complications such as intractable obstetric haemorrhage. [3]Severe maternal complications are defined by the World Health Organization as "potentially

life-threatening" conditions and diseases that can threaten a woman's life during pregnancy, labour and after the termination of pregnancy. These conditions include severe Post-partum Haemorrhage (PPH), severe systemic infections, ruptured uterus, severe complications of abortion and life-threatening conditions such as shock, acute renal failure, coagulopathy, hepatic failure, respiratory dysfunctions and neurological dysfunctions. [2]

The indications for EOH differ between developed and developing countries. In the developed countries, PPH as a result of abnormal placentation, resulting from high Caesarean delivery rate, is the most frequent indication. [4] On the other hand, PPH from the atonic uterus and ruptured uterus due to unsupervised or poorly supervised labour are the indications in developing countries. [5] It is a useful obstetric armamentarium, [6] most notably in the developing world where prolonged obstructed labour and its sequelae of intractable PPH and ruptured uterus still endanger the lives of women. It is worthwhile for every obstetrician to be conversant with the skills of performing EOH, as it may be the last resort to save the life of women when there is catastrophic rupture of the uterus or failure to arrest PPH with other conservative methods like uterine massage, uterotonics, uterine packing, uterine artery embolization, brace suture application, pelvic vessel ligation and recombinant- activated factor VII. [6, 7]

The prevalence of EOH varies between 0.18 and 0.62%, [8], and the rate depends on the availability of comprehensive emergency obstetric care services. Therefore, EOH remains an essential skill for every obstetrician. The present study was designed to determine the prevalence of EOH, the associated factors and the foeto-maternal outcome of EOH in a Nigerian tertiary facility.

## Methods

The Olabisi Onabanjo University Teaching Hospital (OOUTH) is located in Sagamu, Ogun State, Nigeria and serves as a referral centre for facilities in the lower tiers of the public health sector such as the primary and secondary health centres, private clinics, maternity centres and Traditional Birth Homes (TBH). The Obstetrics Department is thus, a relatively high-volume hospital unit where complicated obstetric cases like ruptured uterus, PPH and obstructed labour were often referred from the environs. These surgeries were usually performed by the senior residents and the consultants on duty.

This study was a retrospective, observational study which spanned seven years. All the patients who had hysterectomy during pregnancy, labour and puerperium between January 2010 and December 2016 were included in this study. Patients who had hysterectomies for post-abortal complications such as sepsis and uterine perforations were also included. Ethical clearance for this study was obtained from the Health Research Ethics Committee of OOUTH.

The case records of the patients were retrieved from the Health Records Department of the hospital and data on the socio-demographic characteristics of the patients (including age, parity and antenatal care booking status), mode of delivery, conservative treatment given before hysterectomy, type and indications for hysterectomy, complications arising from the procedure and the foeto-maternal outcomes were obtained.

The socioeconomic status was determined and classified into low, middle and upper classes using the husband's occupation and the patient's educational attainment as proposed by Olusanya *et al*. [9]

The data were analyzed using SPSS 17 statistical software. The results were presented in percentages and frequencies for categorical variables and mean (±SD) for continuous variables.

## Results

The total number of deliveries during the period of study was 5,608; these comprised 3,684 (65.7%) vaginal deliveries and 1,924 (34.3%) Caesarean deliveries. The total number of patients that had EOH was 31, giving an incidence rate of 31/5608 (0.55%). Twenty-five (80.6%) case records out of the 31 identified EOH cases were retrieved and thus, were available for analysis.

The mean age of the patients at delivery was 30.3 ± 4.2 years (age range 19 - 43 years) while the mean gestational age at birth was 36.3 ± 5.1weeks (range 23 - 41 weeks).

Table I shows the other socio-demographic characteristics of the patients who had EOH during the period of study. A high proportion of the patients (48.0%) who had EOH were within the age group of 25-34 years. Most of the patients 16/25 (64.0%) were of high parity (parity > 3) with 40.0% being grandmultiparous. A majority (76.0%) of the patients were unbooked for antenatal care at the referring centre, while 64.0% belonged to the low socio-economic class.

**Table I: Socio-demographic characteristics of the 25 patients who had EOH**

| Characteristics | Frequency | Percentage |
|---|---|---|
| ***Age group (Years)*** | | |
| 16-24 | 4 | 16.0 |
| 25-34 | 12 | 48.0 |
| 35-45 | 7 | 28.0 |
| >45 | 2 | 8.0 |
| ***Parity*** | | |
| 1 | 2 | 8.0 |
| 2 | 5 | 20.0 |
| 3 | 2 | 8.0 |
| 4 | 6 | 24.0 |
| ≥5 | 10 | 40.0 |
| ***Booking status*** | | |
| Booked | 6 | 24.0 |
| Unbooked | 19 | 76.0 |
| ***Socioeconomic Status*** | | |
| Low | 16 | 64.0 |
| Middle | 7 | 28.0 |
| High | 2 | 8.0 |

Table II shows the various indications for EOH. Ruptured uterus and atonic PPH accounted for 40.0% and 32.0% respectively. The other significant indication for EOH was abnormal placentation (20.0%) which included placenta praevia, acreta and abruption.

Among the patients who had a hysterectomy, 7 (28.0%) had total hysterectomy while 18 (72.0%) had sub-total hysterectomy. Further analysis of the result revealed that EOH was performed on 16 (64.0%) patients following emergency Caesarean Section (C/S), 2 (8.0%) following elective C/S, 5 (20.0%) following spontaneous vaginal delivery, 2 (8.0%) following instrumental delivery and 1 (4.0%) following induced abortion. There were 14 perinatal deaths among a total of 24 patients that had EOH at fetal viability accounting for 58.3% perinatal mortality.

**Table II: Indications for Emergency Obstetric Hysterectomy in OOUTH**

| Indication | Frequency | Percentage |
|---|---|---|
| Ruptured uterus | 10 | 40.0 |
| Atonic PPH | 8 | 32.0 |
| Abnormal Placentation | 5 | 20.0 |
| Puerperal sepsis | 2 | 8.0 |
| **Total** | **25** | **100.0** |

The maternal morbidities and intervention-based criteria for maternal near-miss events are shown in Table III. The most common interventions that were critical to survival included massive blood transfusion (24.0%) as a result of severe anaemia and hypovolaemia and Intensive Care Unit (ICU) admission (20.0%). Other morbidities included hypovolaemic shock (16.0%) and surgical site infection (16.0%). Two of the parturients died following the procedure, giving a Case Fatality Rate (CFR) of 2/25 (8.0%). A comparison of some of the findings of this study was made with those of other regions of the country and international studies (both resource-poor and developed regions). This is presented in Table IV.

**Table III: Interventions, maternal morbidities and complications**

| Complications | Frequency | Percentage |
|---|---|---|
| Massive Blood Transfusion | 6 | 24 |
| ICU admission | 5 | 20 |
| Hypovolaemic shock | 4 | 16 |
| Surgical site infection | 4 | 16 |
| Disseminated Intravascular Coagulopathy | 2 | 8 |
| Acute Renal Failure | 2 | 8 |
| Repeat laparotomy | 2 | 8 |
| Paralytic ileus | 2 | 8 |
| Maternal death | 2 | 8 |
| Bladder/Ureteric Injury | 1 | 4 |
| Anaesthetic complications | 1 | 4 |

## Discussion

Emergency Obstetric Hysterectomy (EOH) remains a life-saving procedure and an essential skill required of obstetricians practising in the developing countries where the catastrophic rupture of the pregnant uterus or intractable PPH are still rife.

The prevalence of EOH in this study was 0.55%. This is similar to the rate of 0.54% reported in India by Singh *et al.*, [6] and 0.51% reported in Sokoto by Nwobodo *et al.*, [1] but more than 0.22% reported in Benin by Okogbenin *et al.* [10] 0.26% in Faridabad by Kant *et al.*, [11] 0.27% in Pakistan by Korejo *et al.*, [12] and 0.053% in Canada by Baskett *et al*, [13] This may be because most of the patients were usually in a moribund clinical state on arrival in addition to a poor referral system and non-use of other uterine conserving procedures.

High frequencies of EOH were recorded among patients with multiparity, unbooked status and low socio-economic status. This is similar to the findings of Omole-Ohonsi *et al.* [8] This could be due to the risk of uterine rupture being higher among multiparae and

unbooked parturients who are likely to have primary or secondary delays or unsupervised labour with subsequent development of prolonged, obstructed labour and foeto-pelvic disproportion. [13,14] The risk of multiple uterine scars from Caesarean deliveries or myomectomy and abnormal placentation is higher among this group of parturients. Most of the patients who had EOH in this study were unbooked and presented following prolonged/obstructed labour at TBHs or had labour supervised by other birth attendants. The predominance of EOH among the parturients in the low socio-economic group is not surprising as such parturients will rather patronize traditional birth homes or have their labour supervised by unskilled personnel because of financial constraints. [13 - 15]

The most common indication for EOH in the present study was ruptured uterus. This is one of the common sequelae of prolonged, unsupervised labour in resource-poor regions, further corroborating the reports by Olatunji *et al*. [13] which had earlier identified uterine rupture as the most frequent cause of maternal mortality in Sagamu. Closely following uterine rupture were atonic PPH and abnormal placentation as indications for EOH. These findings are similar to that of other studies. [1,6,10,12] A review of studies done in developed countries showed that the most common indication for EOH was abnormal placentation, which is due to the increased incidence of repeat Caesarean deliveries in these regions. [16, 17] In a study done in Turkey by Zorlu *et al*, [17] to demonstrate the changing clinical perspective of Emergency Hysterectomy in modern obstetric practice over a 10-year period, it was shown that uterine atony was the major indication followed by placenta acreta and ruptured uterus in the first 5 years whereas, in the last 5years, it was placenta acreta followed by uterine atony.

**Table IV: Comparison of the incidence, major indications, associated maternal and perinatal mortality in EOH**

| N | Author/Year | Location of Study | Incidence (%) | Major Indications (%) | | | Maternal Mortality (%) | Perinatal Mortality (%) |
|---|---|---|---|---|---|---|---|---|
| | | | | Ruptured Uterus | Atonic PPH | Abnormal Placentation | | |
| 1 | Nwobodo *et al* 2012 | Sokoto | 0.51 | 93.20 | 2.70 | 1.40 | 12.10 | - |
| 2 | Omole-Ohonsi *et al* 2012 | Kano | 0.40 | 73.3 | 6.70 | 20.00 | 13.30 | 73.30 |
| 3 | Obiechina *et al* 2012 | Nnewi | 0.62 | 34.50 | 6.90 | 58.60 | 31.00 | 44.80 |
| 4 | Okogbenin *et al* 2004 | Benin | 0.226 | 35.0 | 32.50 | 22.50 | 12.50 | - |
| 5 | Abasiattai *et al* 2012 | Uyo | 0.20 | 67.80 | 17.90 | 14.20 | 14.30 | 64.30 |
| 6 | Rabiu *et al* 2010 | Lagos | 0.38 | 77.20 | | 3.50 | 19.3 | 75.40 |
| 7 | Akintayo *et al* 2016 | Ado- Ekiti | 0.26 | 44.10 | 37.30 | 17.60 | 11.80 | 55.90 |
| 8 | Singh *et al* 2014 | India | 0.54 | 59.04 | 18.09 | 14.28 | 5.71 | 85.71 |
| 9 | Korejo *et al* 2012 | Pakistan | 0.27 | 47.10 | 28.90 | 17.40 | 9.00 | 53.70 |
| 10 | Kant *et al* 2005 | Faridabad(India) | 0.26 | 36.58 | 12.20 | 41.46 | 9.70 | 46.34 |
| 11 | Baskett *et al* 2004 | Canada | 0.053 | - | 32.80 | 50.00 | 0.00 | - |
| 12 | This study 2017 | Sagamu | 0.55 | 40.00 | 32.00 | 20.00 | 8.000 | 58.30 |

Advances in the management of PPH with the use of less invasive surgical approaches such as uterine tamponade, B-Lynch suture, and uterine artery/internal iliac artery ligation, have led to a dramatic fall in the use of EOH in the management of uterine atony. [1]

Various intra-operative/postoperative complications encountered in this study had

earlier been reported by similar studies in Nigeria, [1,10] India, [6,18] and Pakistan. [12] The type and severity of complications depend on the time of presentation, booking status, promptness of treatment, the skill of operating surgeon and availability of laboratory services and good anaesthetic backup. The most frequent interventions in this study included massive blood transfusion and Intensive Care Unit (ICU) admission. These were in agreement with findings from other studies. [1, 8,18] This is because the major indication for EOH in this environment is ruptured uterus[13,15], which usually follows prolonged obstructed labour. Two patients had repeat exploratory laparotomy, which may not be unconnected with the skills of the personnel who performed the EOH. Nwobodo *et al*. [1] observed in their study that there were remarkably higher complications following procedures performed by the senior residents compared to those performed by the consultants. In a study by Chawla *et al*., [18] in India, 3.6% reportedly had repeat laparotomy to arrest haemorrhage compared to 19.6% reported by Knight *et al*. [19] in the United Kingdom.

One of the unpleasant complications of EOH is maternal mortality. In the present study, two maternal mortalities were recorded representing 8.0%, and this is low compared to 12.1%, [1] 12.5%,[10] 11.60%, [20] and 17.9% [18] reported by other workers but higher than 5.71% reported by Singh *et al*. [6] Baskett *et al*. reported no mortality in their series. [13] This could be due to differences in the total deliveries reported. The high case fatality rate may be due to delay in carrying out life-saving hysterectomy as other conservative measures will usually be attempted first before resorting to hysterectomy. [8] Moreso, most of the patients were typically unbooked and also present in the hospital in a moribund state. The analysis of the complications in relation to the time interval from presentation to EOH would have been beneficial. Oladapo *et al*. have shown in a nationwide Nigerian study that, the severe maternal outcome is associated with late hospital presentation. [21]

Perinatal mortality in this study was 58.3%. This is low compared to 73.30% reported in Kano, [8] 64.30% reported in Lagos, [22] 75.40% reported in Nnewi [23] and 85.71% reported in India [6] by other workers. However, the perinatal mortality rate was higher compared to 44.80% reported in Ado-Ekiti, [24] 46.34% reported in Faridabad [11] and 53.70% reported in Pakistan. [12] These prevalence rates may be affected by the different study population sizes. Most of the perinatal mortality in our study resulted from cases of late-presenting uterine rupture.

The main limitation of this study was our inability to retrieve all the case notes necessary for data extraction leading to the high attrition rate recorded in our study. This very high attrition rate, most likely due to poor record keeping, will be minimal in subsequent studies due to computerization of the hospital records keeping system.

## Conclusion

EOH is still relatively common in this centre, and uterine rupture is undoubtedly the leading indication. The acquisition of the necessary skills needed to offer this life-saving procedure is critical. It is recommended that effort should be made to increase the proportion of deliveries attended to by skilled personnel and also, improve the capacity of lower level hospitals for comprehensive emergency obstetric care.

**Authors' Contributions:** JOE conceived the research idea and designed the study. NGV drafted the manuscripts and performed data analysis. AKA participated in data collection and analysis. JOE and AKA revised the draft manuscript for intellectual contents. All the authors approved the final version of the manuscript.
**Conflict of Interest:** None.
**Funding:** Self-funded.

**Publication History:** Submitted 05 January 2019; Revised 08 April 2019; Accepted 28 April 2019.

**References**


1. Nwobodo EI, Nnadi DC. Emergency Obstetric Hysterectomy in a tertiary hospital in Sokoto, Nigeria. Ann Med Health Sci Res 2012; 2(1): 37-40.

2. World Health Organisation. Evaluating the Quality of Care for Severe Pregnancy Complications: The WHO Near-Miss Approach for Maternal Health. Geneva: WHO, 2011.

3. Rossi AC, Lee RH, Chmait RH. Emergency postpartum hysterectomy for uncontrolled postpartum bleeding: a systematic review. Obstet Gynaecol 2010; 115(3): 637-644.

4. Kastner ES, Figueroa R, Garry D, Naulik D. Emergency peripartum hysterectomy; experience at a community teaching hospital. Obstet Gynaecol 2002; 99: 971-975.

5. Adesiyun AG, Eseigbe E, Ameh CA. Inevitable peripartum hysterectomy in a tropical hospital: indications and maternal outcome. Pak J Med Sci 2008; 24: 122-126.

6. Singh N, Pandey K, Gupta R, Agarwal S, Chaudhary A, Ani. Obstetric hysterectomy, still a life-saving tool in modern day obstetrics: a five year study. Int J Reprod Contracept Obstet Gynaecol 2014; 3: 540-543.

7. Smith J, Mousa HA. Peripartum hysterectomy for primary postpartum haemorrhage: Incidence and maternal morbidity. J Obstet Gynaecol 2007; 27(1): 44-47.

8. Omole-Ohonsi A, Olayinka HT. Emergency Peripartum Hysterectomy in a Developing country. J Obstet Gynaecol Can 2012; 34(10): 954-960.

9. Olusanya O, Okpere EE, Ezimokhai M. The importance of socio-economic class in voluntary fertility in developing countries. West Afr Med J 1985; 4: 205–207.

10. Okogbenin SA, Gharoro EP, Otoide VO, Okonta PI. Obstetric hysterectomy: fifteen years' experience in a Nigerian tertiary centre. J Obstet Gynaecol 2003; 23: 356-359.

11. Kant A, Wadhwani K. Emergency obstetric hysterectomy. J Obstet Gynaecol India 2005; 55(2): 132-134.

12. Korejo R, Nasir A, Yasmin H, Bhutta S. Emergency Obstetric Hysterectomy. J Pak Med Assoc 2012: 62(12): 1322-1325.

13. Olatunji AO, Sule-Odu AO, Adefuye PO. Ruptured uterus at Sagamu, Nigeria. The Niger Postgrad Med J 2002; 9: 235-239.

14. Abasiattai AM, Udoma EJ. The unbooked pregnant woman: experience from a rural tertiary hospital in South-South, Nigeria. Global J Com Med. 2009; 2: 61-64.

15. Omole-Ohonsi A, Ashimi OA. Rupture uterus in Kano Nigeria – study of risk factors. Niger Hosp Pract 2008; 2(3): 65-69.

16. Daskalakis G, Anastasakis E, Papantoniou N, Mesogitis S, Theodara M, Antsaklis A. Emergency Obstetric hysterectomy. Acta Obstet Gynecol Scand 2007; 86(2): 223-227.

17. Zorlu CG, Turan C, Isik AZ, Danisman N, Mungan T, Gokmen O. Emergency hysterectomy in modern obstetric practice, changing clinical perspective in time. Acta Obstet Gynecol Scand 1998; 77(2): 186-190.

18. Knight M; UKOSS. Peripartum hysterectomy in the UK: management and outcomes of the associated haemorrhage. BJOG 2007; 114(11): 1380-1387.

19. Rahman J, Al –Ali M, Qutub HO, Al-Suleiman SS, Al-Jama FE, Rahman MS. Emergency Obstetric hysterectomy in a university hospital: A 25-year review. J Obstet Gynecol 2008; 28 (1): 69-72.

20. Abassiattai AM, Umoiyabo AJ, Utuk NM, Iyang –Etoh EC, Asuquo OP. Emergency peripartum hysterectomy is a tertiary hospital in southern Nigeria. Pan Afr Med J 2013; 15: 60-67.

21. Oladapo OT, Adetoro OO, Ekele BA, Chama C, Etuk SJ, Aboyeji AP, *et al*. Nigeria Near-miss and Maternal Death Surveillance Network. When getting there is not enough: a nationwide cross-sectional study of 998 maternal deaths and 1451 near-misses in public tertiary hospitals in a low-income country. BJOG 2016; 123: 928–938.

22. Rabiu KA, Akinlusi FM, Adewunmi AA, Akinola O.I. Emergency peripartum hysterectomy in a tertiary hospital in Lagos, Nigeria: a five – year review. Trop Doct 2010; 40(1): 1-4.

23. Obiechina NJA, Eleje GU, Ezebialu IU, Okeke CAF, Mbamara SU. Emergency peripartum hysterectomy in Nnewi, Nigeria: A 10-year review. Niger J Clin Pract 2012; 15(2): 168–171.

24. Akintayo AA, Olagbuji BN, Aderoba AK, Akadri O, Olofinbiyi BA, Bakare B. Emergency peripartum Hysterectomy: A multicenter study of incidence, indications and outcomes in southwestern Nigeria. Matern Child Health J 2016; 20:1230.