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Admission Pattern For Obstetrics And Gynaecology Patients In A Tertiary Hospital: A Two Year Review

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Abstract
Background
Emergencies arising from obstetric conditions are the highest causes of maternal mortality in the world, and most significantly in developing countries where illiteracy, poverty, absence of antenatal care and lack of equipment and staff, further encourage the menace. Patients with critical obstetric and gynaecological conditions pose a challenge to the obstetrician and gynaecologist and thus require extra management expertise.
Objectives
In this study, we investigated the incidence of cases, administered interventions and determined the mortality of admitted obstetrics and gynaecology patients.
Materials and methods
We conducted a retrospective study of all patients that were admitted at the obstetrics and gynaecology department from January 1st 2021 - December 31st 2022. Information was retrieved from the patients' case notes and appropriately recorded in prepared spreadsheet. Statistical analyses were done using statistical packages for social sciences (SPSS) version 22.
Results
A total of 4866 patients were admitted to the obstetrics and gynaecology department. Demography showed that 20-34 years was most frequent age (70.35%), parity range of 1-4 were most frequent (66.49%),while 85.39% of the patients were booked. Previous caesarean section at term (35.34%) and hypertensive disorders in pregnancy (15.46%) were most indicated for obstetrics admission. Previous caesarean sections (25.29%), hypertensive disorders in pregnancy (22.48%) and fetal distress in labour (16.03%) were the frequent obstetric emergencies. However, manual vacuum aspiration (27.46%) and abdominal myomectomy (18%) were the highest surgical intervention for gynaecology patients. Mortality rate for obstetric admissions was 34 deaths (0.98%), with eclampsia having 14 deaths, while post-partum haemorrhage and puerperal sepsis had 5 deaths each. Mortality rate for gynaecology admissions was 50 deaths (3.58%), with ovarian cancer having 29 deaths, while cervical cancer had 8 deaths.
Conclusion
The mortality rate in this study over the two years review period may appear low in comparison to other similar studies. However, obstetrics and gynaecology emergencies such as hypertensive disorder in pregnancy, post-partum haemorrhage, puerperal sepsis, ovarian and cervical cancers, pose a threat to survival of indicated patients. Hence, the need to further improve on the infrastructural deficiencies be hovering our facility.

Keywords: *admission pattern, obstetrics, gynaecology, mortality, caesarean section, eclampsia*

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I. Introduction

Patients with critical obstetric and gynaecological conditions pose a challenge to the obstetrician and gynaecologist and thus require extra management expertise[1]. Though pregnancy and giving birth are mostly without any disruptive events, however complications may occur in some women which results to morbidity and mortality[2]. Emergencies arising from obstetric conditions are the highest causes of maternal mortality in the world, and most significantly in developing countries where illiteracy, poverty, absence of antenatal care and lack of equipment and staff, further encourage the menace[3,4].

Despite huge efforts in reducing maternal mortality, the problem still remains a major concern in developing countries[5]. Major obstetric conditions leading to mortality include haemorrhage, preeclampsia/eclampsia and multiple organ failure[2]. Other severe conditions include obstructive labour, diabetes complications during pregnancy, pulmonary embolism, heart failure and also sickle cell disease[6].

Obstetrics patients remain a management challenge to obstetricians and other physicians because of physiological changes during pregnancy, fetal concerns and disorders encountered in these patients[7].

Among post-operated gynaecological patients, morbidity is about 10% while mortality rarely occurs[8]. The major cause of mortality among gynaecological patients is malignancy[9]. Other conditions such as dysfunctional uterine bleeding, post-operative complications and infections, further pose a mortality threat to gynaecological patients and thus even require intensive care[6].

Although studies about the patients admitted solely in the obstetrics and gynaecological wards in tertiary hospitals are few, several studies had investigated these patients when they were admitted to the Intensive Care Unit (ICU) of tertiary hospitals.

A study by Ozumba et al[10] on obstetrics admissions to the ICU of a tertiary hospital showed that ruptured uterus (36%), eclampsia (22.5%) and obstetric hemorrhage (19.1%) were the highest indications for admissions and for which a maternal mortality rate of 13.5% was reported. Similarly, obstetric haemorrhage and pre-eclampsia/eclampsia with 42.3% and 27.2% respectively, accounted for the highest indication for obstetric admission into the ICU in a study conducted by John et al[2]. However, a study by Otokwala and John[11] showed that the main indications for obstetrics admissions into the ICU were postpartum haemorrhage (33.3%), complications of hypertensive disorders of pregnancy (30.9%) and sepsis (25.6%).

A study on gynaecology admission pattern by Ibrahim et al[9] at a tertiary facility in northern Nigeria showed that abortions, medical complications of early pregnancy and gynaeclogical malignancy had the highest indications for admissions with 23.1, 19 and 11.4% respectively, while malignancies with 71.4% accounted for all gynaecological mortalities.

Adelaiye et al[1] in his study on obstetric and gynaecological admission of patients at tertiary hospital reported total mortality of 43% in the studied patients, with obstetric cases accounting for 62.5% mortality, while gynaecological admissions had 37.5% mortality.

Similarly, Takai et al[6] also reported a mortality rate of 40.4% in his study, of which obstetrics and gynaecology cases accounted for 84.2% and 15.8% mortality respectively. Furthermore, hypertensive disorders in pregnancy with 46.3% were the most common indication for obstetric admission, while post-operative complications with 66.7% were the most common indication for gynaecology admission[6].

The department of Obstetrics and Gynaecology at the University of Port Harcourt Teaching Hospital (UPTH) runs a total of 5 clinic services which includes: Antenatal, Postnatal, Gynaecology, Anti-retroviral therapy (ART) and family planning clinics. This enables the tertiary facility to serve as a referral centre for patients in host River state, other South-South states like Bayelsa, Delta, Akwa Ibom and even neighbouring South-eastern states like Abia and Imo.

Therefore the objectives of this study were to investigate the incidence of obstetrics and gynaecological cases, report the administered interventions and determine the mortality of admitted obstetrics and gynaecology patients.

II. Materials And Methodology

Study area

The study was carried out at the University of Port Harcourt Teaching Hospital (UPTH) which is located at Port Harcourt, River state.

Study design

We conducted a retrospective study of all patients that were admitted at Obstetrics and Gynaecology department of University of Port Harcourt Teaching Hospital. It was a 2-years study from January 2021 to December 2022.

Study Population

All cases that were admitted into the department of obstetrics and gynaecology within the review period were included in this study.

Methods

This was a 2 year review of all the patients admitted at the obstetrics and gynaecology department from January 1st 2021- December 31st 2022. Required information were retrieved from the patients during admission or clinic visitations and appropriately recorded in a prepared spread sheet during the course of this study. Additionally, other supplementary patients' data were formally retrieved from the records department of the hospital by accessing the case files of the patients.

Statistical Analysis

Data captured included demography, incidence of cases, diagnosis, administered interventions and outcome. The data collected will be entered into spreadsheet (MS Excel). The data will be analyzed using Statistical Package for Social Sciences (SPSS) version 22. The demographic data and medical information will

be summarized using descriptive statistics (mean, median, frequency percentage and standard deviation) as appropriate.

III. Results

During the 2 years review period, a total of 4866 patients were admitted to the obstetrics and gynaecology department of the University of Port Harcourt Teaching Hospital (UPTH). Out of this figure, 3469 patients were for Obstetrics, while 1397 were for gynaecology admission. A total of 84 deaths were recorded and the overall mortality was 1.73%. The social demography such as age, parity and booking status of the obstetrics patients are shown in Table 1. The 20-34 years was most frequent with 70.35%, with ≥ 35 and ≤ 19 years having 28.44 and 1.21% respectively. Furthermore, the parity status of the pregnant women was also captured. Women with parity range of 1-4 were most frequent with 66.49%, while nulliparity and parity ≥5 had 30.95 and 2.56% respectively. The booking status revealed that 85.39% of the patients were booked at our facility, while 14.61% were not booked.

The indications for obstetrics admission are presented in table 2. Previous Caesarean section at term was the most common indication with 35.34%, followed by hypertensive disorders in pregnancy with 15.46% and the least occurring indication was gastroenteritis with 0.40%. The mode of delivery among the obstetric patients was shown in table 3. The mode of delivery with the highest occurrence was Caesarean section with 52.39% while spontaneous vaginal delivery was 41.59%.among the patients. The Caesarean section interventions for obstetric emergencies are presented in table 4. The obstetric emergencies with highest occurrence were among patients with previous Caesarean sections (25.29%), hypertensive disorders in pregnancy (22.48%) and fetal distress in labour with 16.03%.

Fig 1 shows the mortality recorded among the obstetric patients. 34 deaths were recorded from a total of 3469 admitted obstetric patients, which shows 0.98% mortality. The most common cause of mortality was eclampsia with 14 deaths, while Post-partum haemorrhage and puerperal sepsis killed 5 patients each. Table 5 shows the surgical interventions for gynaecology patients. Manual vacuum aspiration was the most applied surgical intervention with an occurrence of 27.46%, while abdominal myomectomy with 18% was the second most applied intervention. The least applied intervention was secondary wound closure (0.26%) which was applied on 2 gynaecology patients. Fig 2 shows the mortality recorded for gynaecology patients. 50 deaths were recorded from a total of 1397 admitted gynaecology patients, which shows 3.58% mortality. The most common cause of mortality was ovarian cancer with 29 deaths, while second highest which was cervical cancer had 8 deaths.

Table 1: Social demography of expectant mothers (n=2307)

Demographic factor	Frequency(n)	Percentage (%)
Age range		
≤ 19	28	1.21
20-34	1623	70.35
≥ 35	656	28.44
Parity		
0	714	30.95
1-4	1534	66.49
≥5	59	2.56
Booking status		
Booked	1970	85.39
Unbooked	337	14.61

Table 2: Indications for obstetric admission (n=996)

SN	Clinical diagnosis	Frequency (n)	Percentage (%)
1	Previous CS at term	352	35.34
2	Prolonged pregnancy	79	7.93
3	Preterm rupture of membranes	35	3.51
4	Hypertensive disorders in pregnancy	154	15.46
5	Gestational diabetes mellitus	21	2.11
6	False labour	28	2.81
7	Febrile illnesses in pregnancy	72	7.23
8	Abnormal lies and presentation	41	4.12
9	Multiple pregnancy	53	5.32
10	Major degree placenta praevia	29	2.91
11	Previous myomectomy at term	19	1.91
12	Fetal congenital abnormalities	17	1.71
13	Intrauterine fetal death	12	1.20
14	Preterm contractions	18	1.81
15	Bad obstetric history	21	2.11

16	Fibroid degeneration in pregnancy	7	0.70
17	Pregnancy with coexisting uterine fibroid at term	10	1.00
18	Gastroenteritis	4	0.40
19	Oligohydramnios	10	1.00
20	Other medical diseases	14	1.41

Table 3: Mode of deliveries in obstetric patients (n=2306)

Mode of delivery	Booked deliveries	Unbooked deliveries	Total deliveries (%)
Singletons			
Spontaneous vaginal delivery	844	115	959 (41.59%)
Caesarean section	1022	186	1208 (52.39%)
Instrumental delivery	13	1	14 (0.61%)
Assisted Vaginal breech delivery	13	3	16 (0.60%)
Emergency exploratory laparotomy for uterine rupture	0	10	10 (0.43%)
Twin gestation			
Spontaneous vaginal delivery	16	10	26 (1.13%)
Caesarean section	55	11	66 (2.86%)
Triplet gestation			
Caesarean section	6	1	7 (0.30%)

Table 4: Caesarean section intervention for obstetric emergencies (n=605)

SN	Emergencies	Frequency (n)	Percentage (%)
1	Fetal distress in labour	97	16.03
2	Hypertensive disorders in pregnancy	136	22.48
3	Cephalopelvic disproportion in labour	81	13.39
4	Previous Caesarean sections	153	25.29
5	Failed induction of labour	25	4.13
6	Abnormal lies and presentation	30	4.96
7	Antepartum hemorrhage	33	5.45
8	Multiple pregnancy	23	3.80
9	Prom with severe oligohydramnios	17	2.81
10	Previous myomectomy in labour	7	1.16
11	Previous uterine rupture	3	0.50

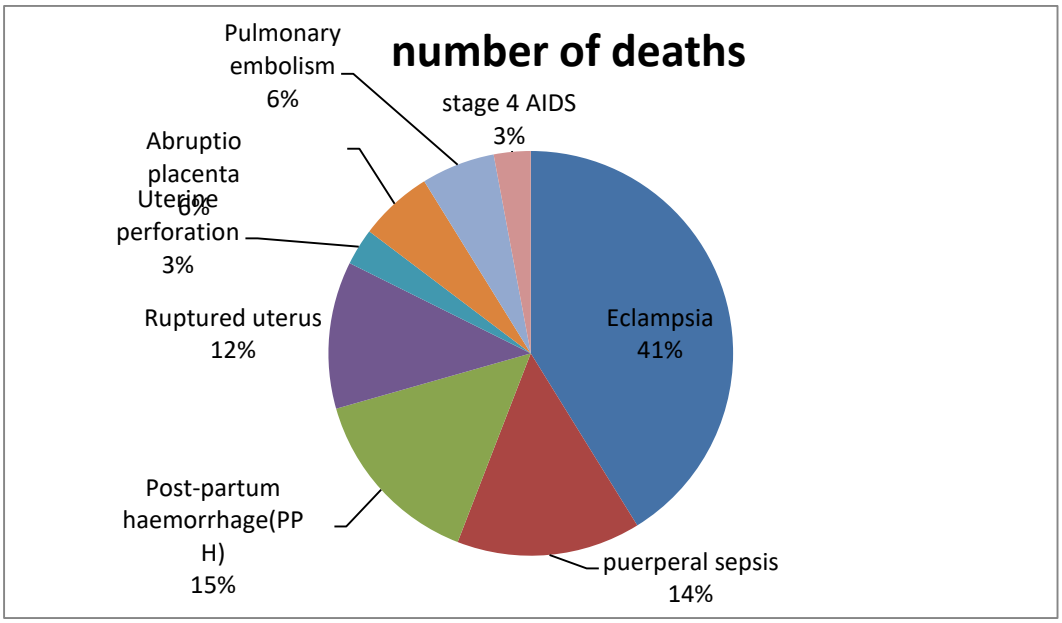

Fig 1: Indication of mortality in Obstetric patients (n=34)

Table 5: Surgical interventions for gynaecology patients (n=783)

SN	Intervention	Frequency (n)	Percentage (%)
1	Abdominal myomectomy	141	18.00
2	Exploratory laparotomy and salpingectomy	97	12.39
3	Total abdominal hysterectomy(TAH)	31	3.96
4	TAH + Bilateral Salpingo-Oophorectomy	30	3.83
5	Exploratory laparotomy and ovarian cystectomy	43	5.49
6	Staging laparotomy for ovarian carcinoma	13	1.66
7	Laparoscopic/hysteroscopic procedures	40	5.11
8	Exploratory laparotomy and drainage of abscess	3	0.38
9	Manual vacuum aspiration	215	27.46
10	Examination under anaesthesia and biopsy of the cervix	43	5.49
11	Cervical dilatation, adhesiolysis and Foley's catheter insertion/IUCD insertion	33	4.21
12	Cervical cerclage insertion	22	2.81
13	Suction evacuation for hydatidiform mole	11	1.40
14	Endometrial biopsy	19	2.43
15	Vaginal polypectomy	12	1.53
16	Medical evacuation for missed miscarriage	25	3.19
17	Secondary wound closure	2	0.26
18	Repair of urethral mucosa prolapse	3	0.38

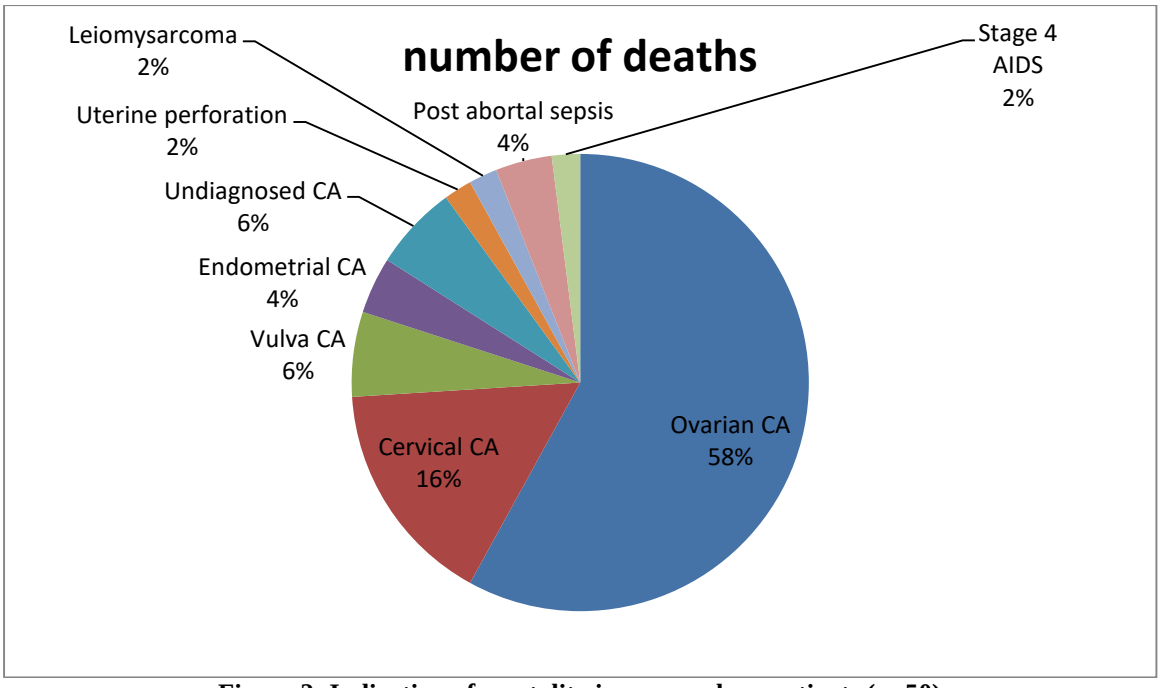

Figure 2: Indication of mortality in gynaecology patients (n=50)

IV. Discussion

The demography of some of the sampled obstetrics patients at our facility in the course of this study showed that the 1970 women were booked which translated to 85.39%, while 337 (16.61%) expectant mothers were admitted in the unbooked wards. Furthermore, the age of these expectant mothers was quite young, with 1623 (70.35%) of the expectant mothers falling in the age bracket of 20-34 years. Based on number of parity, 1534 of the expectant mothers constituting 66.49% fell in the range of 1-4, while women with no parity (nulliparous) were 714 (30.95%). However, it had been revealed by several studies that the number of pregnancy complications occurs more frequently in unbooked women, than their booked counterpart[2,12], which is also reflected in our study.

The incidence of obstetrics cases in our study were mainly due to the complications arising during pregnancy. In this study, about 352 patients (35%) were admitted at our facility due to their history of having had previous caesarean section at term. Admitting obstetric patients with previous caesarean section at term had been a precautionary intervention to forestall any further crisis during pregnancy. Hypertensive disorders during pregnancy accounted for 15% of the obstetric patients with a total of 154 patients admitted. Of this number, pregnancy induced hypertension (PIH) was 48% while eclampsia was 24%. The third most common incidence of obstetric admission was prolonged pregnancy (7.9%) with 79 patients admitted at our facility.

The findings in our study also correlated with the work of Adelaja and Taiwo[12] who also reported prolonged pregnancy (17%), pregnancy-induced hypertension (8.8%) and eclampsia (8%) in their findings at Olabisi Onabanjo University Teaching Hospital (OOUTH), however the frequencies of PIH and eclampsia were lower than those recorded in our study. Furthermore, our result findings is similar to that of Takai et al[6] who reported 46% of hypertensive disorders in pregnancy, as the most incident cases of obstetrics admission in Aminu Kano Teaching Hospital, although this findings was higher than the 15% documented in our study.

The pattern of deliveries among the booked and unbooked patients showed that caesarean section was constant across singleton, twins and triplets deliveries. It accounted for 55% of all deliveries while spontaneous vaginal delivery had 42%. Meanwhile, instrumental delivery, assisted vaginal breech and emergency exploratory laparotomy for uterine rupture, had a combined 1.6% frequency among the patients. The rate of caesarean section in this study is similar to the 54% by Awoyesuku and MacPepple[13]; 55% by Sorbye et al[14] and 55% by Takai et al[6]. However, the rate is higher than the 41% and 42% reported by John et al[2] and Sabale et al[15] respectively. Similarly to incidence of obstetric admission, previous caesarean section (25%) and hypertensive disorder in pregnancy (22%) still accounted for the emergencies that warranted caesarean section, while fetal distress in labour (16%) and cephalopelvic disproportion in labour (13%) were the other frequently occurring emergencies. The high rate of caesarean section in this study could be as a result of booking status, poor antenatal care and referral cases.

Manual vacuum aspiration (27%), abdominal myomectomy (18%) and exploratory laparotomy and salpingectomy (12%) were the most frequently used interventions for the gynaecology patients admitted at our facility. Manual vacuum aspiration was indicated in patients that had retained fetal membrane after delivery or miscarriage situation. Abdominal myomectomy was the commonest gynaecological surgery for all uterine indicated surgeries, while exploratory laparotomy and salpingectomy was indicated in patients with acute abdominal emergencies arising from ruptured fallopian tubes.

Mortality rates in this study were 1.73% as only 84 deaths were recorded. 34 (0.98%) deaths were attributed to obstetric cases with eclampsia, post-partum haemorrhage and puerperal sepsis having resulted in 14 deaths (41%), 5 deaths (15%) and 5 deaths (15%) respectively. Eclampsia and post-partum haemorrhage as major indicators of maternal mortality had also been reported independently by Otokwala and John[11] and Ozumba et al[10]. This reveals the need to further pay close attention to those indications, as they sometimes requires multidisciplinary interventions. Furthermore, 50 (3.58%) mortality were recorded in gynaecology cases with ovarian cancer and cervical cancer accounting for 58% and 16% mortality respectively. This is similar to the study of Ibrahim et al[16] who reported that cervical and ovarian cancer had 33% and 28% respectively. Thus our study further reveals the scourge of malignancies in the outcome of gynaecology patients.

V. Conclusion

The mortality rate in this study over the two years review period may appear low in comparison to other similar studies but recognition of reduced patient load post covid era including the establishment and functioning of various private and state owned tertiary institutions in the state is noted. However, obstetrics and gynaecology emergencies such as hypertensive disorder in pregnancy, post-partum haemorrhage, puerperal sepsis, ovarian and cervical cancers, pose a threat to survival of indicated patients. Therefore, there is every need to further improve on the infrastructural deficiencies be hovering our facility and also intensify efforts in increasing awareness on the early report and detection of cancer associated there in.

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