Biological and Clinical Sciences Research Journal
eISSN: 2708-2261; pISSN: 2958-4728
www.bcsrj.com
DOI: https://doi.org/10.54112/bcsrj.v2024i1.747
*Biol. Clin. Sci. Res. J., Volume, **2024**: 747*
Original Research Article

FREQUENCY OF EMERGENCY PERIPARTUM HYSTERECTOMY AND FACTORS LEADING TO IT IN PREGNANT WOMEN AT TERTIARY CARE HOSPITAL

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(Received, 27th November 2023, Revised 24th January 2024, Published 11th March 2024)

Abstract: *The objective of this study was to determine the frequency and factors leading to emergency peripartum hysterectomy in pregnant women at a tertiary care hospital in Karachi. This cross-sectional study was conducted at the Department of Gynaecology & Obstetrics JPMC, Karachi, Pakistan, from August 11, 2021, to February 10, 2022. All patients who met the inclusion criteria and visited JPMC, Karachi, were included in the study after obtaining consent. The study noted the factors leading to the development of emergency peripartum hysterectomy, and patients were followed by the researcher for the development of this condition. All collected data were entered into a proforma and used electronically for research. The mean maternal age was 30.04±3.87 years. Emergency peripartum hysterectomy was found in 25 (14.9%) women. The factors leading to peripartum hysterectomy were noted as placenta accreta in 5 (20.0%) women, placenta increta in 3 (12.0%) women, and placenta percreta in 17 (68.0%) women. It can be concluded that peripartum hysterectomy is prevalent in pregnant women, with placenta percreta being the common factor leading to peripartum hysterectomy, followed by placenta accreta. Further large-scale work is recommended for the validation of the current findings.*

Keywords: Emergency Peripartum Hysterectomy, Factors, Pregnancy, Prevalence

Introduction

Peripartum hysterectomy, a surgical intervention performed either during delivery or in the immediate postpartum period, though rare, poses significant risks of morbidity and mortality (Van Den Akker et al., 2016). This complication is deemed one of the most severe in obstetrics, entailing substantial healthcare costs and adverse consequences for women aspiring to preserve their fertility (Whiteman et al., 2006). Major complications associated with emergency peripartum hysterectomy include transfusions, persistent bleeding necessitating re-exploration, febrile morbidity, major surgical complications, or maternal mortality (Awan et al., 2011).

Globally, the incidence of peripartum hysterectomy varies considerably. In high-income countries, fewer than one in 1000 deliveries is complicated by peripartum hysterectomy, whereas in Nigeria and Pakistan, the incidence rates stand at 4 and 11 per 1000 deliveries, respectively (Kayabasoglu et al., 2008; Sheiner et al., 2003). Such disparities can be attributed, in part, to variations in definitions of peripartum hysterectomy across studies, with some defining it within 24 hours of delivery and others within the same hospitalisation period (Rahman et al., 2008).

Previous studies have identified a strong association between peripartum hysterectomy and prior cesarean delivery (Wright et al., 2010). The increased risk of abnormal placentation, including placenta previa and placenta accreta, in subsequent pregnancies following cesarean delivery underscores the hypothesis that uterine scarring, particularly with multiple previous cesarean deliveries, elevates the risk of peripartum hysterectomy, even without placenta previa (Campbell et al., 2016; Sahin et al., 2014). While certain risk factors for peripartum hysterectomy, such as mode of delivery and multiple births, have been established, many reports lack adequate control for potential confounders (Omole-Ohonsi and Olayinka, 2012). Furthermore, most studies are constrained by small sample sizes, limiting the ability to measure the magnitude of associations (Khan et al., 2012). Additionally, the single-center nature of many studies undermines their generalizability. Factors such as inadequate infrastructure and delayed referral further contribute to the increasing trend of obstetric hysterectomy (Huque et al., 2018).

Kazi et al.'s study identified emergency peripartum hysterectomy in 0.4% of cases, with uterine rupture (15.6%), uterine atony causing primary postpartum haemorrhage (31.3%), adherent placenta (28.1%), placenta previa (18.7%), and secondary postpartum haemorrhage (6.2%) as contributing factors (Kazi, 2018).

The study aims to determine the frequency of emergency peripartum hysterectomy and the factors leading to it in pregnant women. Minimising the risk factors of emergency peripartum hysterectomy is a central goal and a significant challenge for obstetric services.

Methodology

This cross-sectional study was conducted at the Department of Gynaecology & Obstetrics JPMC, Karachi, Pakistan, from August 11, 2021, to February 10, 2022. A brief history

[Citation: Iftikhar, S., Naseeb, S., Kazi, S., Shaikh, S., Ali, B.B., Saba, S. (2024). Frequency of emergency peripartum hysterectomy and factors leading to it in pregnant women at tertiary care hospital. *Biol. Clin. Sci. Res. J.*, **2024***: 747*. doi: https://doi.org/10.54112/bcsrj.v2024i1.747]

of demographic information was taken from the patient at the time of admission. Factors leading to the development of emergency peripartum hysterectomy were noted in the patients. All pregnant women aged between 20 to 40 years presented at the Department of Obstetrics and Gynaecology, who delivered either vaginally or abdominally, with gestational age > 24 weeks (assessed by LMP and dating scan) till six weeks postpartum were included study. Patients with gestational age < 24 weeks of gestation and patients with preexisting medical disorders such as type II diabetes mellitus, thyroid disease, essential hypertension, thrombophilia, chronic liver disease and cardiac disease were excluded from this study.

The data were analysed using SPSS version 22. Mean and standard deviation were calculated for quantitative age. Frequencies and percentages were calculated for qualitative variables like parity, mode of delivery, socioeconomic status, educational status, emergency peripartum hysterectomy (yes/no), and factors leading to the development of emergency peripartum hysterectomy to see their impact on the outcome.

Results

Among 168 patients in the study, the Mean maternal age was 30.04±3.87 years. Gestational age showed 28 to31+6 weeks in 2 (1.2%) women, 32 to 36+6 weeks was noted in 42 (25.0%), 37 to 38+6 weeks in 82(48.8%) while 39 to 40+6 weeks was noted in 42 (25.0%) women. Parity, 0 to 1 was noted in 68 (40.5%) women, 2 to 4 in 89 (53.0%) while > 4 parity was noted in 11 (6.5%) women. The majority of patients plan for cesarean section in 110 (65.5%) women. Almost half of the patients were in primary education, which was noted in 46 (27.4%), secondary education was noted in 70 (41.7%), and higher education was noted in 23 (13.7%) women. Primarily, patients with lower middle income were noted at 74 (44.0%), and middle-income patients were at 76 (45.2%). Emergency peripartum hysterectomy was found in 25 (14.9%) cases (Table No.1 and 2).

Factors leading to peripartum hysterectomy were placenta accreta was noted in 5 (20.0%) women, placenta increta in 3 (12.0%) Cases, while placenta percreta was found in 17 (68.0%) women (Table No.1 and 2).

Table No.1 Demographic variable of the study population

VARIABLE	STATISTICS
PARITY	
• 0 – 1	68(40.5%)
• 2 – 4	89(53%)
• >4	11(6.5%)
GESTATIONAL AGE	
• 28-31+6weeks	2(1.2%)
• 32-36+6weeks	42(25%)
• 37-38+6weeks	82(48.8%)
• 39-40+6weeks	42(25%)
Education status	
• Illiterate	29(17.3%)
• Primary	46(27.4%)
• Secondary	70(41.7%)
• Higher	23(13.7%)
MODE OF DELIVERY	
• Vaginal	47(28%)
• Instrumental	11(6.5%)
• Caesarean	110(65.5%)
FAMILY HISTORY OF DIABETES	
• Yes	137(55%)
• No	113(45%)
PRACTICE OF THE PARTICIPANTS TOWARDS THEIR FEET INSPECTION	
• Yes	100(40%)
• No	150(60%)
SOCIOECONOMIC STATUS	
• Lower Income Group	9(5.4%)
• Lower Middle-Income Group	74(44.0%)
• Middle Income Group	76(45.2%)
• Upper Middle-Income Group	6(3.6%)
• Upper Income Group	3(1.8%)
FREQUENCY OF EMERGENCY PERIPARTUM HYSTERECTOMY	
• Yes	25(14.9%)
• No	143(85.1%)
FREQUENCY OF FACTORS LEADING TO PERIPARTUM HYSTERECTOMY(n=25)	
• Placenta Accreta	5(20%)
• Placenta Increta	3(12%)
• Placenta Percreta	17(68%)

TABLE NO.2 FACTORS LEADING TO EMERGENCY PERIPARTUM HYSTERECTOMY TO DIFFERENT VARIABLE

VARIABLE	FACTORS			*p*-VALUE
	Placenta Accreta	Placenta Increta	Placenta Percreta	
MATERNAL AGE [years]				
• 20 – 30	1(4%)	0	7(28%)	0.301
• >30	4(16%)	3(12%)	10(40%)	
GESTATIONAL AGE [weeks]				
• 28-31+6weeks	0	1(4%)	0	0.040
• 32-36+6weeks	5(20%)	1(4%)	1(4%)	

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• 37-38+6weeks	0	12(48%)	5(20%)	
PARITY				
• 2 – 4	5(20%)	3(12%)	16(64%)	0.783
• >4	0	0	1(4%)	
MODE OF DELIVERY				
• Vaginal	0	0	0	0.331
• Instrumental	0	0	0	
• Caesarean	5(20%)	3(12%)	17(68%)	
EDUCATIONAL STATUS				
• Illiterate	0	0	1(4%)	0.896
• Primary	2(8%)	1(4%)	4(16%)	
• Secondary	2(8%)	2(8%)	7(28%)	
• Higher	1(4%)	0	5(20%)	

Discussion

Emergency obstetric hysterectomy (EOH) stands as a crucial intervention for cases of severe intra- or postpartum haemorrhage (PPH), a leading cause of maternal morbidity and mortality worldwide, particularly in resource-constrained regions such as Pakistan (Shah et al., 2009). Despite its inception over two centuries ago, obstetric hysterectomy is pivotal in managing PPH, especially in settings where interventional radiology services are limited (Kayabasoglu et al., 2008). Challenges like inadequate infrastructure and delayed referrals exacerbate the rising trend of obstetric hysterectomy.

Conservative measures for managing PPH, including prostaglandins, balloon tamponade, and compression sutures, have led to a decline in the incidence of EOH. However, in developed countries with advanced modalities like uterine artery embolisation, EOH remains a cornerstone for managing refractory haemorrhage (Rahman et al., 2008; Zeteroglu et al., 2005). Despite widespread contraceptive availability and smaller family sizes globally, escalating rates of cesarean deliveries contribute to complications such as abnormal placentation and uterine rupture, thus heightening the relevance of obstetric hysterectomy in modern obstetric practice (Sharma et al., 2016).

Although EOH is often life-saving, it carries a significant post-operative burden. Common surgical complications, including urinary tract injury, underscore the importance of comprehensive surgical training or multi-specialist involvement, incorporating urological or general surgeons. Additionally, vascular surgeons should be engaged, and significant haemorrhage protocols activated.

EOH entails the removal of the uterus during or immediately following cesarean section, vaginal delivery, or in the puerperium period to preserve maternal life (McNulty, 1984). While in developed nations, obstetric hysterectomy is primarily performed for gynaecological indications such as sterilisation or leiomyoma, in developing countries, it is typically a last resort when conservative measures fail to control haemorrhage (Barclay et al., 1976; Pletsch and Sandberg, 1963). Historically, haemorrhage and uterine rupture were the primary indications for obstetric hysterectomy (CHESTNUT et al., 1985). However, contemporary data reveal abnormal placental adherents, particularly placenta previa, as the predominant indication, primarily attributed to the surge in cesarean deliveries over recent decades (CHESTNUT et al., 1985; Stanco et al., 1993). As cesarean section rates rise, so do scarred uteri, heightening risks of uterine rupture, placenta previa, and accreta, consequently increasing the incidence of EOH.

Emergency obstetric hysterectomy carries significant risks, including severe blood loss, intra-operative complications, and substantial post-operative maternal mortality and morbidity, particularly prevalent in developing countries (Rahman et al., 2008). While obstetric hysterectomy can save maternal lives, its execution demands sound judgment and skill due to the life-threatening nature of obstetric hemorrhage, which remains a significant cause of maternal mortality worldwide. Despite advancements in conservative medical and surgical treatments for obstetric haemorrhage, emergency peripartum hysterectomy remains a vital intervention for managing intractable haemorrhage unresponsive to conservative measures, often necessitated during cesarean section or following vaginal delivery.

Our study's findings are consistent with several global studies. Our cohort's mean maternal age was 30.04±3.87 years, comparable to findings reported elsewhere (13, 24). Emergency peripartum hysterectomy was observed in 25 (14.9%) women in our study, with factors such as placenta accreta, increta, and percreta noted as leading causes. Similar studies by Kazi et al. and Korejo et al. identified various factors leading to emergency peripartum hysterectomy, including uterine rupture, uterine atony, adherent placenta, placenta previa, and secondary postpartum haemorrhage (Kazi, 2018; Korejo et al., 2012). Korejo et al. further evaluated the prevalence of emergency peripartum hysterectomy and associated factors, including uterine rupture, uterine atony, c-section scar dehiscence, adherent placenta, and placenta previa. Similarly, Fawad et al. identified emergency peripartum hysterectomy and its contributing factors, including uterine rupture, uterine atony, c-section scar dehiscence, chorioamnionitis, and placenta previa (Fawad et al., 2015).

In this study, stratification of confounders/effect modifiers with respect to factors leading to emergency peripartum hysterectomy noted insignificant differences in maternal age (P=0.301), parity (P=0.783), educational age (P=0.896), and socioeconomic status (P=0.817), whereas a significant difference was found in gestational age (P=0.040).

Conclusion

It is to be concluded that peripartum hysterectomy is prevalent in pregnant women, while placenta percreta was

noted as a common factor leading to peripartum hysterectomy followed by placenta accreta. Further large-scale work is recommended for the validation of current findings.

Declarations

Data Availability statement
All data generated or analyzed during the study are included in the manuscript.
Ethics approval and consent to participate
Approved by the department Concerned.
Consent for publication
Approved
Funding
Not applicable

Conflict of interest

The authors declared absence of conflict of interest.

Author Contribution

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[Citation: Iftikhar, S., Naseeb, S., Kazi, S., Shaikh, S., Ali, B.B., Saba, S. (2024). Frequency of emergency peripartum hysterectomy and factors leading to it in pregnant women at tertiary care hospital. *Biol. Clin. Sci. Res. J.*, **2024***: 747*. doi: https://doi.org/10.54112/bcsrj.v2024i1.747]

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