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Original Research Article

Emergency obstetric hysterectomy in a tertiary referral centre: 10 years retrospective cross-sectional study

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ABSTRACT

Background: Emergency obstetric hysterectomy (OH) is the last resort opted to save life of a mother in critical obstetric conditions compromising her future reproductive potential but is a considered a lifesaving procedure in an emergency obstetric situation. We sought to study the socio-demographic factors, incidence, clinical risk factors, indications, complications and feto-maternal outcomes associated with emergency obstetric hysterectomy.
Methods: This was a retrospective study. All cases of emergency hysterectomy were reviewed from various medical record section for a period of 10 years conducted at North Eastern Indira Gandhi Regional Institute of Health and Medical Sciences, Shillong, Meghalaya, India.
Results: There were 23 cases of emergency obstetric hysterectomy. The incidence of the study was 0.18%. 43.4% were grand-multiparous. Most common associated risk factor was previous caesarean section and grand-multiparous patient. The most common indication associated with OH was found to be postpartum hemorrhage. Majority (91%) of the patient received one or more blood product. The most common maternal outcome was need of ICU care. Maternal mortality was noted to be 8.7%.
Conclusions: Adequate antenatal care, screening and counselling of high-risk pregnancies, avoidance of un-indicated caesarean section, counselling for family planning methods, anticipation and timely intervention are the key to prevent and reduce maternal/neonatal mortality and morbidity.

Keywords: Cesarean hysterectomy, Emergency hysterectomy, Grand-multiparous, Placental accreta spectrum, Post-partum hemorrhage, Post-partum hysterectomy, Uterine rupture

INTRODUCTION

Emergency obstetric hysterectomy (EOH) is a life-saving procedure and performed when all conservative measures fail to achieve haemostasis. It is defined as the removal of the uterus either at the time of cesarean section or following a vaginal delivery within the puerperium and is usually performed in the face of life-threatening obstetric hemorrhage.[1] The incidence in developing countries ranges from 2-6 per 1000 deliveries at present.[2]

Hemorrhage due to placental accreta spectrum (PAS) and uterine atony are still the causes of maternal death in developing countries.[3,4] Due to the increasing trend of cesarean delivery the global incidence of emergency obstetric hysterectomy is shown to rise.[5-7]

According to a systemic review by World Health Organization (WHO), about 73% of all maternal deaths were due to direct obstetric causes and hemorrhage account ted for 27.5% of all deaths.[8] WHO has classified obstetric hysterectomy as "maternal near miss" where a mother survives a life-threatening condition but in turn loses her uterus.[9]

EOH is one dilemma of choosing between saving a life and sacrificing the future fertility of a women. Currently poor antenatal care, patient ignorance are one of the major

hindrances of this life-threatening condition in developing countries. The risk and benefits of the procedure must be weighted, but undue delay in performing the procedure should be avoided that may contribute to the morbidity and mortality. Aside from the morbidity and mortality, premature removal of one's uterus impact psychologically giving rise to post traumatic stress disorder and depression.[10]

Most of the research studies on emergency hysterectomy were studied during the peripartum period. In our study, all cases of obstetric hysterectomy from conception till the end of the puerperium phase (42 days postpartum) was included, for a period of 10 years to estimate the incidence, risk factors, indications and outcome of mother and neonate at a tertiary referral centre in Meghalaya NEIGRHIMS, Shillong.

METHODS

This is a retrospective cross-sectional study conducted at the North Eastern Indira Gandhi Regional Institute of Health and Medical Sciences (NEIGRIHMS), Shillong Meghalaya, a major referral centre of Meghalaya from a period of March 2014 to March 2024. All pregnant women both booked/un-booked delivered within or outside the institute who underwent emergency obstetric hysterectomy were included in the study. The data were collected from medical record section, operation theatre registers, labour room registers and reviewed. The data collected were on socio-demographic characteristics (age, antenatal visits, referral status), obstetric history (parity), type of delivery (vaginal or cesarean), clinical indicators (uterine rupture, intractable postpartum hemorrhage, uterine atony) complications (blood products requirement, ureteric/bladder injury, anaemia, AKI. DIC, sepsis) and possible outcomes (ICU care, ventilatory support, maternal mortality, NICU requirement, neonatal mortality).

RESULTS

Twenty-three obstetric hysterectomies were done for the selected year of study. Total deliveries conducted was 12557, 52.36% had normal delivery and 47.6% had cesarean delivery. The incidence of obstetric hysterectomy was 0.18%. 30.4% of the patients were aged between 31-35 years. 43.4% were grand-multiparous patients. Of the 23 patients 78.2% were delivered after completing 37 weeks of pregnancy (Table 1). 39% of the patients undergoing OH was due to atony, 26% of the patient had placental accreta spectrum, 21.7% were due to rupture uterus and 8.6% of the patients were due to placenta previa (Table 2). Majority of the obstetric risk factor 26% were associated with previous cesarean section alone or previous cesarean section associated with placental accreta spectrum (PAS) and grand multiparous patient. In our study 17.3% of the population was associated with anaemia, 8.7% associated with pre-eclampsia and 4.3% associated with gestational diabetes (Figure 1).

Table 1: different demographic and obstetric parameters.

Parameter studied	Number of cases (%)
Age of the mother (in years)	
21-25	2 (8.7)
26-30	6 (26)
31-35	7 (30.4)
36-40	6 (26)
41-45	2 (8.7)
Parity	
Primipara	3 (13)
Multipara	10 (43.5)
Grand-multipara	10 (43.5)
Booking status	
Booked	6 (26)
Un-booked	17 (74)
Gestational age	
Term (>37 weeks)	18 (78.2)
Preterm (<37 weeks)	5 (22)
Mode of delivery	
Normal delivery (6575)	9 (0.14)
Cesarean delivery (12557)	14 (0.23)

Table 2: Indications of obstetric hysterectomy.

Indication	Number	Percentage
Atony PPH (primary+ secondary)	8+1	39
Septic abortion	1	4.3
Placenta previa	2	8.6
PAS	6	26
Rupture uterus	5	21.7

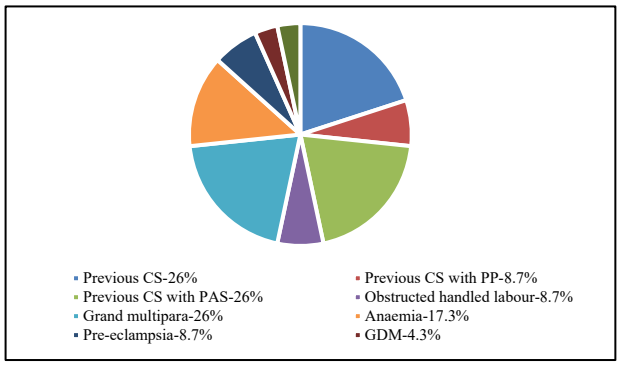

Figure 1: Associated obstetric risks.

Table 3: Maternal complications.

Complications	Number	Percentage
Blood products	21	91.3
Ureteric/bladder injury	2	8.7
Wound infection	1	4.3
AKI	1	4.3
DIC	2	8.7
Sepsis	2	8.7

91.3% of the OH patients had requirements of blood products either in the form of packed RBC's, platelets, fresh frozen plasma or cryoprecipitate. 8.7% of the patients had sequelae complications in the form of DIC and sepsis. 4.3% had AKI but was resolved with no requirement of dialysis and was successfully discharged. 56% of the study population required intensive care unit requiring vasopressors or inotropes with 2% of the postpartum women requiring ventilatory support (Table 3). Out of the 23 patients 2 (8.7%) had mortality due to atony with excessive blood loss complicated with DIC and sepsis. 17% babies were admitted in NICU and there were 17% cases of intrauterine fetal death (Figure 2).

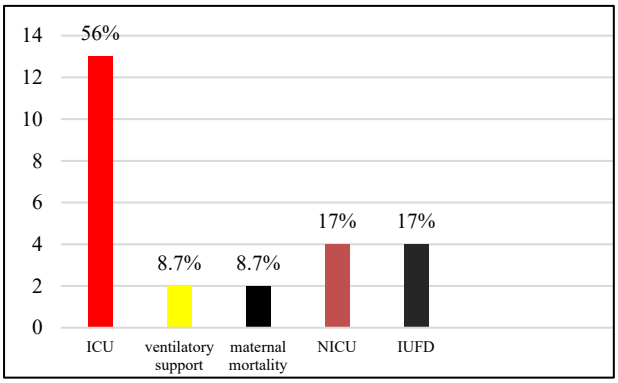

Figure 2: Maternal/neonatal outcome.

DISCUSSION

Obstetric hysterectomy has always been a nightmare for an obstetrician though a lifesaving procedure. This procedure of obstetric hysterectomy is the end road of fertility for a reproductive woman and is considered as the last resort to prevent maternal morbidity and mortality. Considering the parity of a patient, hysterectomy for a multiparous patient was far easier than a primiparous patient as it is the end road for future fertility hence the decision should be clear and vivid before undergoing the procedure.

There is considerable variability in the incidence of emergency obstetrics hysterectomy in different countries and even among institutions. The overall incidence of our study was 0.18% which was comparable with the study conducted by Kore of 0.18%.[11] This was lower than reported by Statia and More and Kamble and Jamdade of 0.4%.[12,13]

Most of our patients 30.4% were aged between 31-35 years which was comparable with study of 29.4% conducted by Kamble and Jamdade.[13] In our study out of 23 patients 43.4% were found to be grand-multiparous. High association of hysterectomy with multiparity were also noted by Najam et al, Bhat et al, and Singh et al.[14-16] Out of 23 patients, 3 were primipara who has cesarean delivery. High risk of OH was noted to increase with each successive cesarean section delivery by Silver et al.[17] This was confirmed by a recent systemic study conducted by Cruz et al with 2 patients having placenta previa in current pregnancy along with pregnancy induced hypertension in one of the patients and PAS in the other, delivered prematurely at 30 weeks of gestation.[18] In our study the risk of OH with preterm gestation was found to be 21.7%. this high rate association with preterm was studied.[12,18]

Our hospital being the only tertiary referral hospital majority of the patient 74% were documented to be un-booked patient with 26% booked with adequate antenatal check-ups.

Despite in the advances of medicine, postpartum hemorrhage remains one of the leading causes of maternal mortality and morbidity. Most common indication of obstetric hysterectomy in our study was 39% due to atony which is almost comparable with the study conducted by Stanco et al showing 43% and Kamble and Jamdade showing 41.2%.[13,19] Abnormal placentation, 34.7% contributed as the second most frequent indication in our study which was comparable with the study conducted by Statia and More and Stanco et a.l[12,19] 26% of the patients accounted due to PAS. Similar findings were reported by Kamble and Jamdad and Bhat et al.[13,20] Danger combination of previous CS with PAS was found to be 21.7% in our study which was found to be higher with the study conducted by Kamble et al and Bhat et al accounting to 17% in their study.[13,20] 4.3% was found to be due to septic abortion. A study conducted by Archana and Bala also found 1.2% who underwent hysterectomy due to septic abortion.[30] The high rate of percentage in my study may probably due to the religious belief which is prevailing in the community of the study group hence the fear to safely go for aseptic procedures giving rise to high rate of septic abortion.

26% of the obstetric risk were associated with cesarean section alone or cesarean section with placental accreta spectrum and grand multiparous patient. Studies have been reported about the rising incidence of OH with cesarean section by Silver et al and systemic study review by Cruz et al.[17,18] The trend of increasing abnormal placentation with previous cesarean section has been reported and multiparity as an independent risk factor for OH was also studied by Machado.[21,22]

Obstetric hysterectomy has always been associated with a high rate of complications poor outcome if poorly managed. The need for requirement of multiple blood products, injury of the urinary tract, disseminated intravascular coagulopathy, sepsis, need for prolong ICU care and ventilatory support or the need for re-exploration in view of uncontrolled bleeding, contribute to the increased rate of morbidity and mortality. Conditions that are associated with any co-morbidities are known to be coexisting risk factor for maternal morbidity and mortality. In our study out of 23, 5 (17%) presented with anemia, 8.7% had hypertension in pregnancy, 4.3% had gestational diabetes and another 4.3% presented in shock. The rate of requirement for blood and its components was found to be highest as 92.3% which was also found to be consistent

with the study conducted by Satia and More.[12] A similar study was also conducted by Hota and Swain where >98% of the patients was found to be requiring blood and its components.[23] The post operative complications such as AKI (4.3%), sepsis (8.7%) wound infection (4.3%) were found consistent with the study conducted by Verma et al.[29] However, DIC was found to be comparatively less with our study (8.7%) to that of the study conducted by Verma et al (19.6%), this low percentage in our study could probably because of the immediate and quick action of intervention in the form of immediate replacement of blood and blood products.[29] The need of intensive care monitoring showed significant percent of 56%. As our hospital being the only tertiary referral centre the rate of receiving high risk critical un-booked patient contributed high percentage of 74% hence the need for intensive critical care was found to be high. This high rate of ICU care was also observed by a study conducted by Kamble and Jamdade.[13] Though the rate for need of blood transfusion and ICU remains high, the maternal mortality however was shown to be consistent as 8.6% with the mortality reported in various Indian studies (0 to17.7%).[24-27] Our low mortality rate compared may be related to an optimal obstetric intervention in the cases of OH in our department.

Fetal complications observed were neonates requiring NICU care. The percentage observed was 17% which was because of the maternal antepartum hemorrhage in preterm labor, low birth weight and grand multiparous with early ruptured uterus. Neonatal moratilty observed in our study was 17%, this high rate of mortality was attributed due to the rupture of uterus. Similarly, high rate of neonatal mortality was also observed by study conducted at different Indian study medical colleges.[24-27]

To the best of our knowledge this is one first study carried out in north eastern region part of India bringing out the incidence, indication, risk factors and complications resulting to the maternal morbidity and mortality and its outcome. This study also highlighted the importance of ANC care and counselling family planning for pregnant woman residing in underprivileged areas as most woman requiring OH in our study was noted to be with un booked, under-privileged and multiparous woman. However, the weakness of our study was a retrospective study design with sole concentration on a single institute.

CONCLUSION

OH is an unwanted but an emergency life-saving procedure and curtails the further fertility of a reproductive woman. Majority of the complication are attributed due to its indication and underlying disease rather than the surgical procedure. Outmost measure to reduce the incidence of cesarean section rates must be considered in every hospital. Counselling and educating the patient about family planning should be inculcated in day today clinical practice from her first antenatal visit and awareness of the complication should be created. All peripheral centres with poor infrastructure should detect all high risk and complicated pregnancy so as to timely refer the patient and hence decrease the incidence, morbidity and mortality.

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