

## OBSTETRICAL EMERGENCIES AND THEIR OUTCOME IN A PERIPHERAL HOSPITAL IN KHYBER PUKHTOONKHUA

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### ABSTRACT

**Objective:** To determine the magnitude of various types of maternal emergencies and neonatal outcomes in order to ascertain the impact of maternal presentation on perinatal mortality in a peripheral hospital in Khyber Pakhtun Khwa Province.

**Study Design:** Retrospective cross-sectional study.

**Place and Duration of Study:** This study was carried out in the Department of Anesthesiology and Gynecology & Obstetric Department, Combined Military Hospital Thal, from Oct 2016 to Mar 2017.

**Methodology:** Total 181 obstetric patients were included in the study. The patients' documents were evaluated retrospectively for adverse maternal and neonatal outcomes, the incidence of various obstetrical emergencies, average time before proceeding with the emergency surgery and average duration of stay in our hospital.

**Results:** The mean age of our study group was  $27.1 \pm 5.7$  years. The mean time to operative delivery  $57.0 \pm 49.1$  minutes. The mean length of hospital stay was  $2.0 \pm 0.50$  days. Most of the patients presented at night (51.2%), without any antenatal visits (67.4%) with obstructed labour (24.8%). There were 30 (16.6%) perinatal deaths. Perinatal was correlated to obstructed labour, maternal hemorrhagic disorder, fetal distress and hypertensive disorder and presentation at night;  $p < 0.05$ . However, it was not correlated to antenatal visit; mode of referral or transport.

**Conclusion:** Obstructed labour, fetal distress and maternal hemorrhagic were the most common of obstetric emergencies at our peripheral hospital; with a direct, significant correlation with the perinatal mortality.

**Keywords:** Antenatal visits, Emergency presentation, Mode of transport, Perinatal mortality.

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### INTRODUCTION

Maternal and perinatal mortality and morbidity is unacceptably high in the developing countries. According to WHO, 830 women die everyday from pregnancy or childbirth related complications. Majority of these deaths occurred in low-resource countries and sadly, most were preventable<sup>1</sup>. Hemorrhage was the most common cause of maternal death (27.7%) followed by hypertensive disorder (14.0%) and sepsis (10.7%)<sup>2</sup>. In addition, there are more than 7 million perinatal deaths every year worldwide<sup>3,4</sup>. This included both 3.5 stillbirths and 4 million early neonatal deaths. More than 99% of the perinatal deaths occur in low and middle income countries<sup>5</sup>. The perinatal mortality is multi-

factorial and perinatal mortality rate is an indicator that can be used as direct measure of maternal health as well as the risk of children during the gestational and early neonatal period<sup>6</sup>.

Pakistan is a developing country with an estimated maternal mortality of 160-673 in rural areas and estimated perinatal mortality rate of 75 per 1000 live births<sup>7,8</sup>. Limited resources, underdeveloped infrastructure, no perinatal care, illiteracy and various taboos attached to maternal or neonatal care are a few factors responsible for high maternal and perinatal mortality and morbidity. The religious beliefs and purdah (veil) observing females find it hard to get medical treatment in hospitals with male doctors and staff nor their men agree to it.

Combined Military Hospital Thal class CEE (100 bedded) hospital that is the only medical facility after Hangu District till Parachinar in a

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total area of 210 kilometers where gynecologist is available to look after the patients round the clock 24/7. As maternal and perinatal mortality can be reduced by imparting health education, training health care providers to identify high risk cases and early referral to better health care centers where multi disciplinary personnel are available to look after the patient<sup>9</sup>. Free medical camps were conducted by physician, obstetrician, pediatrician and surgeon to create awareness amongst the population about the significance of perinatal care. Furthermore, traditional birth attendants i.e. lady health visitors as well as local lady doctors were also briefed about facilities available in Combined Military Hospital Thal. Despite this, majority of the obstetric patients are referred by the local dais, lady health visitors (LHV) or lady doctors; only after their best to deliver baby by spontaneous vaginal delivery had failed. This results in obstetric patients presenting in critical condition including major obstetric hemorrhage, severe preeclampsia, eclampsia, and fetal distress, obstructed labour or even fetal demise (stillbirth). Timely management with immediate investigations along with resuscitation and timely intervention by the obstetrician is the backbone of the emergency care management and thus saving live of mother and baby<sup>10</sup>.

The aim of this study was to determine the incidence of various types of maternal emergencies and neonatal outcomes in order to ascertain the impact of maternal presentation on perinatal mortality in a peripheral hospital in KPK. The results of our study could help to formulate a policy to improve the maternal and perinatal outcomes in this rural area.

## **METHODOLOGY**

This retrospective, cross-sectional study was conducted at Department of Anesthesia Combined Military Hospital Thal for duration of 6 months, from October 2016 to March 2017. After the approval of the hospital ethical committee, the parturient fulfilling our inclusion criteria (pregnant females who required emergency

lower section cesarean section under anesthesia) and exclusion criteria (pregnant patients presenting with abortion and non-obstetric emergencies) were selected for our study. The patients' documents were manually assessed by the researchers to obtain the data. A total of 188 obstetric patients who presented to the Department of Gynecology and Obstetrics Emergency, CMH Thal were included in our study by non-probability purposive sampling. The patients were assessed by as single classified obstetrician, who assessed the fetal and maternal well being as well as decide the urgency of surgery. The fluid resuscitation and surgery were performed in collaboration with the anesthetist. The immediate neonatal resuscitation after delivery was performed by a single, classified anesthetist. All the neonates were kept in Neonatal Intensive Care Unit under the care of a pediatrician. The data was collected on a pre-designed Performa. The demographic profile included age, mode of referral, transportation used and time to surgery. Our primary outcomes were perinatal mortality; the incidence of maternal obstetric emergencies like PIH, APH, eclampsia, obstructed labour, failure of progression of labour; fetal distress and the maternal mortality. Our secondary outcomes usage of neonatal oxygen hood and length of hospital stay. Fetal distress and maternal comorbidity were assessed by the obstetrician.

SPSS-20 was used for statistical analysis. The descriptive variables like age, time lapse between presentation and surgery, hospital stay were presented as mean and standard deviation. The qualitative data like mortality, morbidity, mode of referral and transport were presented as frequency and percentage. The effect modifier for maternal or perinatal mortality, like mode of referral and mode of transport to hospital were stratified and Chi square test was used. The *p*-value  $\leq 0.05$  were taken as significant.

## **RESULTS**

A total of 188 obstetric patients presented to Obstetrics and Gynecology Department in emergency. Seven patients were excluded from

study as they underwent emergency procedures for abortion. A total of 181 patients were included in the final analysis. The mean age of our study group was  $27.1 \pm 5.7$  years. The mean time to operative delivery  $57.0 \pm 49.1$  minutes. The

**Table-I: Demographic profile and maternal presentation (n=181).**

Variable	n (%)	
Maternal Morbidity / indication for LSCS	Obstructed labor	45 (24.9)
	Hemorrhagic disorders	26 (14.4)
	Fetal distress	27 (14.9)
	Miscellaneous indications	25 (13.8)
	HTN disorders	23 (12.7)
	Malpresentation	21 (11.6)
	Previous LSCS in labor	14 (7.7)
Time of presentation	Day (0800-1400 hours)	19 (10.5)
	Evening (1400-2000 hrs)	69 (38.1)
	Night (2000-0800 hrs)	93 (51.4)
Mode of referral	Doctor	64 (35.4)
	Dai	66 (36.5)
	Lady Health worker	40 (22.1)
	CMH (self)	11 (6.1)
Mode of transport	Ambulance	59 (32.6)
	Personal	53 (29.3)
	Public	69 (38.1)
Antenatal visits	Yes	11 (6.1)
	No	170 (93.9)
Perinatal Mortality	30 (16.5)	
Neonatal oxygen requirement	Yes	9 (5)
	No	172 (95)

minimum time was 20 minutes to maximum of 300 minutes, mode 30 and median time 40 minutes. The mean length of hospital stay was  $2.0 \pm 0.50$  days.

The incidence of maternal presentations/indications; time of day presentation; mode of referral and transport is given as table-I. The perinatal mortality rate at our institute was 165/1,000 live births. The effect of time of presentation; mode of referral and transport and antenatal visits of perinatal mortality is shown as table-II. The effect of maternal morbidity and

indication for emergency LSCS on the perinatal outcome (table-III).

## DISCUSSION

Pregnancy may be complicated by hypertensive disorder of pregnancy complicates 5-8%, eclampsia 1.4%, PPH 1.2%, major obstetric hemorrhage; obstructed and prolonged labour and malpresentation<sup>11-14</sup>. Similar results have been reported by us where obstructed labour, fetal distress and hemorrhagic disorders were the most common cause of emergency LSCS. The maternal mortality has been reported to be as high 178 per 100,000 live births. However, we were able to prevent maternal mortality at our institute, despite critically ill parturient presenting at our emergency. We can credit this to a multidisciplinary approach with timely diagnosis, resuscitation and management with surgical intervention in a timely manner. Our mean time from presentation to surgery being  $57.0 \pm 49.1$  minutes, with minimum of 20 minutes. As the maternal care and health is directly related to positive neonatal outcome. Our study has shown majority of our pregnant ladies (93.9%) didn't have any antenatal visit to a hospital. This correlates to the general perception in our population that antenatal are too unnecessary and too expensive. In addition, according to a study by Farrukh *et al*<sup>15</sup>, 51% of the delivery were performed at home by either untrained dais or trained lady health visitors. Multiple studies have shown that high maternal and perinatal mortality are due to multi-factorial including lack of health facilities; lack of road and infrastructure; low socioeconomic status, poor maternal hygiene and nutritional status, multiparity and social beliefs of the locality<sup>16-18</sup>. These finding correlate with our study that showed 106 (58.5%) of the patients were managed primarily by lady health workers or dais. Similarly, only 60 (33.8%) of the pregnant ladies were brought to the hospital by ambulance versus 121 (67.2) who were brought by either car or public transport. At the same time 91 (50.3%) were brought to the emergency department at night time.

Perinatal mortality rate (PMR) is being used to assess the maternal health and peripartum care. We have reported a perinatal mortality of 30 (16.5%) and a PMR of 165/1000 live births. Parturient presenting to emergency at night was significantly associated with perinatal deaths,

care are mostly prone to poor obstetrical outcome<sup>20</sup>. Other reasons may have been a delay in presenting to hospital, congenital abnormalities, preterm fetus, and rural location of our study institute amongst other causes. However, we didn't study these parameters. A study by

**Table-II: Effect of variables on Neonatal mortality.**

Variable		Perinatal mortality		p-value
		Yes (n=30)	No (n=151)	
Time of presentation	Morning	-	19 (10.4%)	<0.001
	Evening	5 (2.7%)	64 (35.3%)	
	Night	25 (13.8%)	68 (39.6%)	
Mode of referral	Doctor	12 (6.6%)	52 (28.7%)	0.46
	Dai	12 (6.6%)	54 (29.8%)	
	Lady health worker	6 (3.3%)	34 (18.7%)	
	Combined Military Hospital	-	11 (6.0%)	
Mode of transport	Ambulance	13 (7.2%)	46 (25.6%)	0.372
	Self	8 (4.4%)	45 (24.8%)	
	Public	9 (4.9%)	60 (33.1%)	
Antenatal	Yes	-	11 (6.01%)	0.22
	No	30 (16.5%)	140 (77.3%)	

**Table-III: Effect of maternal morbidity and indication for emergency long section C-section on the perinatal outcome.**

Variable		Perinatal Mortality		p-value
		Yes	No	
Maternal morbidity and indication for long section C-section	Obstructed labour	11 (6.0%)	34 (18%)	0.046
	Hemorrhagic disorders	7 (3.8%)	19 (10.4%)	
	Fetal distress	5 (2.7%)	22 (12.1%)	
	Misc indications	2 (1.1%)	23 (12.7%)	
	Hypertension disorders	5 (2.7%)	18 (9.9%)	
	Malpresentation	-	21 (11.6%)	
	Previous long section C-section in labour	-	14 (7.7%)	

$p < 0.05$ . Obstructed labour 11 (36.6%) followed by hemorrhagic disorders 7 (23.3%) were the major causes of perinatal deaths. A systemic review of perinatal mortality rate in Ethiopia showed obstructed labour the most common cause (27%), followed by miscellaneous (20%), unexplained (18%) and hypertensive disorders<sup>19</sup>. However, we didn't find mode of referral and transport or antenatal visits to our institute as significant causes of perinatal mortality,  $p > 0.05$ . This does not correlate with a study by Bangal *et al* who showed that multiparous women with low socio economic status and not receiving any antenatal

Donna *et al* found placenta, cord and membrane complications to account for 28%; whereas maternal pregnancy related complication as 14% of cause of fetal deaths<sup>21</sup>.

## RECOMMENDATION

To reduce the maternal morbidity and mortality and perinatal mortality, a comprehensive program is required. It should include the education and awareness about maternal and neonatal health encompassing antenatal care, early recognition of high risk pregnancy, timely and appropriate management of complications; optimization of healthcare infrastructure and



provision of healthcare at far-flung rural areas. A timely reporting by the patient and timely intervention by a multi-disciplinary approach can help reduce maternal and perinatal mortality and morbidity. It not only results in the preservation of life but also the health, sexual function and fertility of the woman<sup>22</sup>. The trained lady health care visitor can be trained and use to educate the rural parturient to get their antenatal check up done on regular basis<sup>23</sup>. In addition; the local practices, attitudes and limited knowledge of community plays pivotal role in determining maternal and child mortality<sup>24</sup>. The local khateebes and religious scholars be educated enough to teach men to take their wives to regional women and child health centers.

## CONCLUSION

Obstructed labour, fetal distress and maternal hemorrhage were the most common of obstetric emergency at our peripheral hospital; with a direct, significant correlation with the perinatal mortality. Timely intervention by a dedicated multi-disciplinary team helped prevent maternal mortality. The perinatal mortality was due to the fact that most parturient were being primarily treated by dai or trained lady health workers; with only a minority who have ever had an antenatal visit. Consolidated efforts to improve maternal and neonatal outcomes are need of the hour, with focus on the antenatal care, improvement of health infrastructure and social awareness.

## CONFLICT OF INTEREST

This study has no conflict of interest to be declared by any author.

## REFERENCES

1. Alkema L, Chou D, Hogan D, Zhang S, Moller AB, Gemmill A, et al. *Lancet* 2016; 387(10017): 462-74.
2. Say L, Chou D, Gemmill A, Tunçalp O, Moller AB, Daniels J, et al. Global causes of maternal deaths: a WHO systemic analysis. *Lancet Glob Health* 2014; 2(6): e323-33.
3. Lawn JE, Kerber K, Enweronu-Laryea C, Cousens S, Stat DM. 3.6 Million Neonatal Deaths-What Is Progressing and What Is Not?. *Semin Perinatol* 2010; 34(1): 371-86.
4. Lawn JE, Cousens S, Zupan J. 4 million deaths: When Where Why, *The Lancet* 2005; 365(9462): 891-900.
5. WHO. Perinatal and Neonatal Mortality for the Year 2000: Country, Regional and Global Estimates. Geneva: WHO; 2006.
6. Measurement of overall and cause specific mortality in infants and children: memorandum from a WHO/ UNICEF meeting. *Bull World Health Organ* 1994; 72(5): 707-13.
7. Jafarey SN. Maternal mortality in Pakistan- Compilation of available data. *J Pak Med Assoc* 2002; 52(1): 539-44.
8. Maternal and perinatal health profile: W.H.O; 2014. Available from: [http://www.who.int/maternal\\_child\\_adolescent/epidemiology/profiles/maternal/ken.pdf](http://www.who.int/maternal_child_adolescent/epidemiology/profiles/maternal/ken.pdf)
9. Ramachandra Bhat PB, Navada MH, Rao SV, Nagarathna G. Evaluation of obstetric admissions to intensive care unit of a tertiary referral center in coastal India. *Indian J Crit Care Med* 2013; 17(1): 34-37.
10. Fawad A, Islam A, Naz H, Nelofar T, Abbasi UN. Emergency peripartum hysterectomy-a life saving procedure. *J Ayub Med Coll Abbot* 2015; 27(1): 143-45.
11. Pokharel HP, Dahal P, Rai R, Budhathoki SS. Surgical emergencies in obstetrics and gynaecology in a tertiary care hospital. *JNMA J Nepal Med Assoc* 2013; 52(189): 213-16.
12. Abalos E, Cuesta C, Grosso AL, Chou D, Say L. "Global and regional estimates of preeclampsia and eclampsia: a systematic review". *Euro J Obste Gynecol Reproduc Biol* 2013; 170(1): 1-7.
13. Eeks A. "The prevention and treatment of postpartum haemorrhage: what do we know, and where do we go to next?". *BJOG : An Inter J Obste Gynaeco* 2015; 122(2): 202-10.
14. "Maternal mortality ratio [Internet] (modeled estimate, per 100,000 live births) | Data". Retrieved 2018-06-27.
15. Farrukh MJ, Tariq MH, Shah KU. Maternal and Perinatal Health Challenge. *J Phar Commun Medi* 2017; 3(2): 76-77.
16. Najam R, Gupta S, Chowdhury H. Pattern of obstetrical emergencies and fetal outcomes in a tertiary care center. *Acta Med Int* 2015; 2(1): 105-10.
17. Kodla CS. A study of prevalence, causes, risk factors and outcome of severe obstetrics haemorrhage. *J Scie Innova Rese* 2015; 4(2): 83-87.
18. RamachandraBhat P, Navada M, Rao S. Evaluation of obstetric admissions to intensive care unit of a tertiary referral center in coastal India. *Ind J Crit Care Med* 2013; 17(1): 34-37.
19. Berhan Y, Berhan A. Perinatal mortality trends in Ethiopia. *Ethiop J Health Sci* 2014; 24(0 suppl): 29-40.
20. Bangal VB, Borawake SK, ChandaliyaRM. Review of maternal and fetal outcome in obstetric emergencies reported to tertiary care institution in western India. *Inter J Biome Advance Rese* 2012; 3(6): 486-89.
21. Donna LH, Elizabeth CW. Causes of fetal deaths: Data from the Fetal death. *National Vital Statistics Reports* 2016; 65(7): 325-33.
22. Pokharel HP, Dahal P, Rai R, Budhathoki SS. Surgical emergencies in obstetrics and gynaecology in a tertiary care hospital. *J Nepal Med Assoc* 2013; 52(189): 213-16.
23. Turab A, Ariff S, Habib MA, Ahmed I, Hussain M, Rashid A, et al. Improved accessibility of emergency obstetrics and newborn care (EmONC) services for maternal and newborn health: a community based project. *BMC Pregn Child* 2013; 13(1): 136-44.
24. Baloch R, Jakhrani NK, Zeb E, Hafeez S, Abassi M, Abassi FN. Pattern and outcome of obstetric admissions to the surgical intensive care unit-a ten years study. *J Surg Pak (Inter)* 2010; 15(4): 171-76.