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Early Triage and Emergency Obstetric Care in High-Risk Pregnancies and Impact on Their Outcome; A Cross-Sectional Study

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ABSTRACT

Objective: To assess the role of early triage and emergency obstetric care for high-risk pregnancies and their outcome.
Study Design: Cross-sectional study.
Place and Duration of Study: Combined Military Hospital, Bahawalpur Pakistan, from Jan 2021 to Jun 2022.
Methodology: Women with high-risk pregnancies, aged 18-40 years, gestational age >28 weeks, were included. Emergency obstetric care was provided to participants of the study. Maternal outcome was assessed regarding their hospital stay duration, morbidity, mortality and mode of delivery. The fetal outcome was in terms of intra-uterine death (IUD), Early neonatal death (ENND), and live births.
Results: The mean age of patients was 28.1±3.49 years. Most of the patients belonged to high-order cesarean section and hypertensive disorders of pregnancy. 94.3% were delivered by cesarean section due to obstetric reasons, and hospital stay was an average of> 72 hours in 57.7 %. Maternal mortality and morbidity were not observed. 99.9% of babies were live births, 0.7% ended into ENND, and one received an IUD.
Conclusion: Early triage followed by the provision of emergency obstetric emergency care is recommended in high-risk pregnancies for optimum feto-maternal outcome.

Keywords: Emergency obstetric care (EmOC), High-risk pregnancy, Intra uterine death, Level III maternal care.

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INTRODUCTION

High-risk pregnancy (HRP) is defined as pregnancy which is complicated by one or more factors that have adverse effects on maternal and fetal outcomes. About 20-30% of pregnancies belong to this category.[1] HRP includes high order cesarean section, twin pregnancy, antepartum and Postpartum haemorrhage, impending Eclampsia, Placenta accrete spectrum, Acute fatty liver of pregnancy, Severe anaemia, gestational diabetes, heart disease.[2]

These pregnancies need vigilant monitoring and provision of emergency obstetric care. Emergency obstetric care includes consultant-led care for triage and assessment of high-risk pregnancies. It includes an MDT multidisciplinary team, including a paediatrician, gynaecologist, pathologist, Intensivist, and radiologist.[3] Emergency obstetric care (EmOC) is defined as care provided in pregnancy and childbearing age while managing potentially life-threatening complications .[4]

High-risk pregnancies are associated with more than two maternal or fetal risk factors, so this can cause increased financial and physical consumption of NICU resources and lead to an increase in parental anxiety.[5] Among these risk factors, maternal age has a great impact, so awareness regarding avoiding conceptions at extreme ages should be promoted.[6] To get the best outcome, MDT involvement is also emphasised.[7] If not identified timely with no definite care plan documented, these pregnancies can end up in more maternal and neonatal morbidity and mortality.[8,9] Regular antenatal care and effective counselling with compliance are required for the control and prevention of comorbid like diabetes, hypertensive disorders, and anaemia.[10] The study emphasised the role of early triage to highlight the importance of providing emergency obstetric care to high-risk pregnancies and to see its impact on their outcome.

METHODOLOGY

The cross-sectional study was conducted at the Department of Gynaecology and Obstetrics, Combined Military Hospital, Bahawalpur Pakistan, from Jan 2021 to Jun 2022 after permission from the Hospital Ethical Committee (EC13-2022). The sample size was calculated using the WHO Sample size calculator, taking the reported prevalence of emergency obstetrics up to 14.4%.[7]

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Inclusion Criteria: Women with high-risk pregnancies in the age group(18-40 years), gestation >28 weeks, with two or more risk factors (like high order caesarean section, twin pregnancy, APH, Placenta previa and accrete spectrum PAS, and postpartum haemorrhage, sepsis, acute fatty liver of pregnancy) were included. Pregnancies complicated by medical comorbidities were also included.

Exclusion Criteria: All low-risk pregnancies and women who did not consent to participating in the study were excluded.

One hundred eighty women reporting in the Gynaecology Emergency Department CMH Bahawalpur were included. Written informed consent was taken from study participants. The purpose and benefit of the study were explained to patients, and confidentiality was maintained. Among selected patients, detailed history and examination were carried out to highlight the risk factors and involve the MDT after admission and before making a delivery plan.

Information, including patient particulars, all maternal and fetal complications, maternal and fetal outcomes, and admission to the NICU, was mentioned in the data collection sheet and attached to each patient's case notes.

After admission, a detailed history regarding the patient's age, obstetrical (risk factors) and gynaecological background was taken. Patients were asked about gestational age, fetal movement, vaginal bleeding and any history of dai handling. A detailed examination was done for blood pressure, pulse, lymph nodes, thyroid, and body mass index. The obstetrical examination included fundal height, fetal heart sound, lie and presentation. Bishop scoring was done. Baseline investigations like complete blood picture, Random blood sugar, blood group and Rh factor, and hepatitis screening were offered. Fetal well-being was confirmed with CTG and umbilical artery Doppler ultrasound. Patients were shifted to the ICU after surgery for monitoring.

Statistical Package for Social Sciences (SPSS) version 23.0 was used for the data analysis. Quantitative variables were expressed as Mean±SD and qualitative variables were expressed as frequency and percentages.

RESULTS

The total number of women registered in the study was 1180. Results showed that women in the age group 20-30 years were 46.1% with a mean age of 28.1+3.49 years. Table-I shows 752(63.7%) women with more than two risk factors belonging to the peripheral area and 428(36.2%) women from the local city. High-order caesarean section was the highest risk factor found in the study, seen in 930(78.8%) women, shown in Table-II, followed by diabetes and hyper-tension. One (0.08%) case of acute fatty liver of pregnancy was reported with received intrauterine death. Cesarean section was the mode of delivery among the highest no. of patients, 1113(94.3%), followed by normal vaginal delivery seen in 5.2%(62) women, shown in Table-III.

Table -I: Referral distribution (n=1180)

Area	n (%)
Local (Bahawalpur)	428(36.2%)
Peripheral	752(63.7%)
Total	1180(100%)

Table -II: High risk factors observed in study (n=1180)

Risk Factors	n(%)
High order cesarean	930(78.8%)
Uterine ruptures	14(1.1%)
Antepartum Haemorrhage-Placenta Previa	26(2.2%)
Post partum Haemorrhage (Obstetric Hysterectomy)	40(3.3%)
Hypertensive Disorder/Eclampsia	54(4.5%)
Diabetes	88(7.2%)
Twins	20(1.6%)
Sepsis	7(.5%)
Acute Fatty Liver of Pregnancy	1(.08%)
Placenta Accreta Spectrum (PAS)	28(2.3%)

Table–III: Mode of Delivery and Length of Hospital Stay (n=1180)

Mode of Delivery	n(%)
Normal	62(5.2%)
Operative	1113(94.3%)
Instrumental	5(.4%)
Hospital stay	n(%)
<72 hours	499(42.2%)
>72 hours	681(57.7%)

The fetal outcome was also analysed it showed 1119(99.9%) babies were born alive, with 9(0.7%) babies ending up in early neonatal death. (Table IV).

Table-IV: Fetal Outcomes (n=1200)

Fetal Outcomes	n(%)
Live Births	1199(99%)
Admitted in Neonatal ICU	1113(94%)
Early neonatal death	9(0.7%)
Intrauterine Demise	1(.08%)

DISCUSSION

High-risk pregnancy is associated with a high incidence of maternal morbidity and mortality. In addition, it increases the hospital's financial burden in terms of resource consumption by providing prolonged neonatal intensive care.[6] Our study emphasised that early triage and provision of EmOC are important in high-risk pregnancies to get good maternal and fetal outcomes. In this study, the mean age was 28.1±3.49 years. Most patients presented in the age group 20-30 years; this was also summarised in a study conducted in South Rajasthan, showing a mean age of 24.7 years.[7]

We emphasised early triage of high-risk pregnancies by providing them consultant-led care, and the results were satisfactory, with no maternal morbidity and mortality as compared to the study by Sun et al. who correlated high maternal mortality with high-risk pregnancies.[8] Live birth rate in our study was up to 99.9% with only one received intrauterine demise. A similar study conducted in 2016 showed 98.3% live births against 1.7% stillborn, which was high as compared to our study.[7]

The main risk factor in our study was high-order cesarean section, contributing up to 78.8%. It was found to be the cause of Placenta accrete spectrum and uterine rupture so, increasing maternal morbidity and mortality along with prolonging ICU stay; another study also showed the same findings.[9]

Another observation made by our study was that there was an increased number of patients presenting with comorbid, like severe hypertensive disorder (eclampsia), 4.5% and uncontrolled diabetes 7.4%. Another study revealed that 14.08% of women with uncontrolled diabetes and gestational hypertension were observed in 35.21% of women.[10] In our study, 94.4% of patients were delivered by caesarean and 5.2%% by spontaneous vaginal delivery and 0.4% by instrumental delivery. In a study conducted by Majella et al., 54% of patients delivered by LSCS, followed by 44.5% by normal vaginal delivery and instrument delivery was observed in 1.5%.[10]

The hospital stay was more than 72 hours in 57.7% of women. In our study,63.7% of patients belonged to the peripheral area, and most of them were un-booked in current pregnancy and had comorbid like anaemia and high-order caesareans. In another study, it was noted that 90.5% of patients were from a rural background and 9.5% were from urban area.[11]

In our study, all the patients were managed under MDT, level III maternal care. Previous studies showed the importance of liaison with MDT and Level III maternal care to improve maternal outcomes. One study concluded that there is a need for early pregnancy triage into low-risk and high-risk groups.[12] The effort is required to initiate skill drills in EmOC in our obstetric setups, especially at peripheral setups, as it will increase the knowledge and skills of healthcare providers.[13,14] There is evidence that public awareness for seeking health care along with the provision of EmOC and effective triage will result in good maternal and perinatal health outcomes.[15,16] It was also highlighted in this study that most of the cases were high-order caesarean section, which are indirectly causing repeat caesarean, risk of PAS and uterine ruptures and had major contribution to maternal morbidity and mortality so patients with one caesarean section should be counselled for vaginal birth after caesarean (VBAC).[17] Compliance towards regular antenatal is recommended to get good outcome.[18]

LIMITATIONS OF STUDY

In this study, 63.7% patients were from peripheral areas, so evaluation of their social status contributing to their risk factors, especially in groups of high-order caesarean section, was limited.

CONCLUSION

Early triage followed by the provision of emergency obstetric emergency care is recommended in high-risk pregnancies for optimum feto-maternal outcome.

Conflict of Interest: None.

Authors' Contribution

Following authors have made substantial contributions to the manuscript as under:

VA & RS: Data acquisition, data analysis, drafting the manuscript, critical review, approval of the final version to be published.

NF & SR: Study design, data interpretation, drafting the manuscript, critical review, approval of the final version to be published.

NH & AM: Conception, data acquisition, drafting the manuscript, approval of the final version to be published.

Authors agree to be accountable for all aspects of the work in ensuring that questions related to the accuracy or integrity of any part of the work are appropriately investigated and resolved.

REFERENCES

1. Dutta DC, Text book of Obstetrics. New Central book Agency (P) Ltd, Calcutta, India; 2015. https://paramountbooks.com.pk/pro/textbook-of-obstetrics/
2. Say L, Chou D, Gemmill A, Tunçalp Ö, Moller AB, Daniels J, et al. Global causes of maternal death: a WHO systematic analysis. Lancet Glob Health 2014; 2(6): e323-333. https://doi.org/10.1016/S2214-109X(14)70227-X.

3. Ameh CA, Mdegela M, White S, van den Broek N. The effectiveness of training in emergency obstetric care: a systematic literature review. Health Policy Plan 2019; 34(4): 257-270. https://doi.org/10.1093/heapol/czz028.
4. Sajjad R, Ashraf V, Ali CA. Review of Level Iii Maternal Care in the Patients of Placenta Previa and its Optimal Outcome: One-Year Experience at Combined Military Hospital Lahore. Pak Armed Forces Med J 2022; 72(1): 105-107. https://doi.org/10.51253/pafmj.v72i1.3178.
5. Farajnezhad F, Shaahmadi F, Fashi Z. Prevalence of high risk pregnancy and some relevant factors in referred women to health centers. J Sci Achieve 2017; 2(12): 4-7.
6. Soleimani Z, Danesh A, Basri N, Abaszadeh A, Arab M. Assessment of high-risk pregnancy in Bam Mahdieh maternity hospital. Shahrekord Uni Med Sci 2001; 6(2): 67-73
7. Kulshreshtha S, Babel M. A prospective study of causes and outcome of high risk pregnancies in referred patients in a tertiary health care centre of southern Rajasthan. J Obstet Gynecol 2019: 5(3); 141-146.
8. Sun L, Yue H, Sun B, Han L, Tian Z, Qi M, et al; Huai'an Perinatal-Neonatal Study Group. Estimation of high risk pregnancy contributing to perinatal morbidity and mortality from a birth population-based regional survey in 2010 in China. BMC Pregnancy Childbirth 2014; 14: 338. https://doi.org/10.1186/1471-2393-14-338.
9. Jnaneswari K, Manjubala D. Perinatal outcome in high risk pregnancies. Int Res J Med Sci 2016; 4(4): 1-4.
10. Majella MG, Sarveswaran G, Krishnamoorthy Y, Sivaranjini K, Arikrishnan K, Kumar SG. A longitudinal study on high risk pregnancy and its outcome among antenatal women attending rural primary health centre in Puducherry, South India. J Educ Health Promot 2019; 8(1): 12-14. https://doi.org/10.4103/jehp.jehp_144_18.
11. Mehta B, Vijay K, Amamdeep K, Sumit C. Prevalence and correlates of high risk pregnancy in rural Haryana: A community based study. Int J Basic Appl Med Sci 2013; 3(2): 212-217
12. Bari A, Mazhar B . Maternal and perinatal outcomes of high risk versus low risk pregnancies in tertiary care settings. Rawal Medical Journal 2012; 37(3): 304-308.
13. Zareen N, Naqvi S, Majid N, Fatima H. Perinatal outcome in high risk pregnancies. J Coll Physicians Surg Pak 2009; 19(7): 432-435.
14. Tahir N, Adil M, Afzal B. Definite management of morbidly adherent placenta: analysis of maternal outcome. Pak Armed Forces Med J 2018; 68(5): 1156-1160
15. Society of Gynecologic Oncology; American College of Obstetricians and Gynecologists and the Society for Maternal–Fetal Medicine; Cahill AG, Beigi R, Heine RP, Silver RM, Wax JR. Placenta Accreta Spectrum. Am J Obstet Gynecol 2018; 219(6): B2-B16. https://doi.org/10.1016/j.ajog.2018.09.042.
16. Jadhao AR, Gawade MD, Ughade SN. Outcome of pregnancy among high risk pregnancies in rural area of Nagpur, Central India. Int J Commun Med Public Health 2017; 4 (3): 628-633.
17. Fitzpatrick KE, Sellers S, Spark P, Kurinczuk JJ, Brocklehurst P, Knight M. Incidence and risk factors for placenta accreta/increta/percreta in the UK: a national case-control study. PLoS One 2012; 7(12): e52893. https://doi.org/10.1371/journal.pone.0052893.
18. Chaman R, Naieni KH, Golestan B, Yunesian M. Neonatal mortality risk factors in a rural part of Iran: a nested case-control study. Iran J Public Health 2009; 38(1): 48-52.