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**Research Article**

# Study of Critically ill Patients with Obstetric Complications at Intensive Respiratory Care Unit, King George Hospital, Visakhapatnam

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**Abstract: Aim:** Obstetric emergencies are a unique challenge particularly because of its unpredictability. This study is to analyze the obstetric admissions to IRCU. Outcome in these patients is assessed. Risk stratification was done. **Methods:** This is a prospective study conducted over period of 1year, from January 2019-December 2019, King George Hospital, Visakhapatnam. All pregnant women and up to 42 days of postpartum who were admitted to IRCU were included. It is a tertiary care hospital with IRCU facilities not only to its own patients but also to the referrals from peripheries and other districts. **Results:** There were 142 obstetric admissions to IRCU accounting for 1.8% of total deliveries. 52.8% were in the age group of 20-25 years. 46.47% were in their first pregnancy. A majority of patients were admitted during postpartum period (69.71%). The leading obstetric indications for ICU admission were hypertensive disorders of pregnancy accounts for 44.3%. 12.67% of cases underwent emergency hysterectomy and 5.63% underwent emergency laparotomy. 57.04% need mechanical ventilation, 56.33 % need inotropic support. 57.7 % of individuals improved after treatment. In this study mortality was 42% of which 95% were referred from peripheries and surrounding districts in a severe morbid condition. Among the 142 obstetric admission to IRCU 85.9% were referrals. **Conclusion:** Common risk factors for ICU admissions are hypertensive disorders of pregnancy and obstetric hemorrhage. Other risk factors are severe anemia, heart disease, sepsis. It conclude that close follow up, early referrals of high risk pregnancies and optimal stabilization of their condition, safe transport, better education, before interventions improved the outcome of these patients.

**Keywords**: Intensive respiratory care unit, High risk pregnancy, maternal mortality.

## Introduction

Obstetric emergencies are a challenge to the obstetrician because of the unique nature of obstetric medicine. The altered physiology, the presence of the fetus, the rapid deterioration of maternal and fetal condition in case of complications, and simultaneous management of two live births with different physiology are a challenge[1]. These admissions require special care and attention by the multidisciplinary team[2].The percentage of admissions in developed countries is 0.08 to 0.76%[3] whereas in developing countries is 0.13 to 4.6% [4, 5].

Maternal obstetric morbidity refers to the morbidity arising from pregnancy or aggravated by the pregnancy or its management not from accidental or incidental causes[6]. Major causes of maternal mortality are haemorrhage, sepsis, hypertensive disorders of pregnancy, unsafe abortion. The present

study aims to analyse the incidence, clinical profile and outcome of obstetric patients requiring admissions to intensive respiratory care unit, King George Hospital, Visakhapatnam.

**Study Design:** Prospective study

**Study Period:** January 2019–December 2019.

**Methodology**

It was conducted in the Department of Obstetrics and Gynaecology, King George Hospital, Visakhapatnam, Andhra Pradesh, India. King George Hospital is a tertiary care hospital with IRCU facilities, not only to its own patients but also to the patients from peripheries and other districts. The IRCU has facilities of ventilator support, non-invasive cardiovascular monitoring and dialysis [peritoneal]. The patients included are who are admitted to IRCU during pregnancy or within 42 days from delivery. Data collected includes age, parity, obstetric history, and vital signs at the time of admission, ventilator support, blood and blood product transfusions, haemodialysis, outcome of such patients.

**Results**

A Total of 7568 deliveries occurred during this period. Incidence of obstetric admissions to IRCU was 1.8% of total deliveries.

**Age Distribution**

Majority of women were in the age group between 20-25 years.

**Table 1. Age Distribution**

| Age in Years | N = 142 | Percentage |
|---|---|---|
| <20 | 07 | 4.9% |
| 20-25 | 75 | 52.8% |
| 25-30 | 41 | 28.8% |
| >30 | 19 | 13.38% |

**Table 2. Obstetric Index on Admission**

| Gravidity/Parity | N = 142 | Percentage |
|---|---|---|
| G1/P1 | 66 | 46.47% |
| G2/P2 | 54 | 38.02% |
| G3/P3 | 17 | 11.9% |
| G4/P4 | 02 | 1.40% |
| G5/P5 | 01 | 0.70% |
| G6/P6 | 02 | 1.40% |

46.47 % of pregnant women were in their first pregnancy. 38.02 percent of individuals were in their second pregnancy.

**Table 3. Timing of Admission to IRCU**

| Time | N = 142 | Percentage |
|---|---|---|
| Antepartum | 33 | 23.23% |
| Postpartum | 99 | 69.71% |
| Ectopic | 06 | 4.22% |
| Abortion | 04 | 2.81% |
| Molar | 00 | 00% |

Majority of cases were admitted during their puerperium period to IRCU accounting for 69.71%.

**Table 4. IRCU Cases**

| Case | N = 142 | Percentage |
|---|---|---|
| Referral from outside | 122 | 85.91% |
| Institutional case | 20 | 14.08% |

Majority of the cases were referred from outside accounting for 85.91 % of admissions. Most of them were late referrals. It may be due to lack of education, low socioeconomic status, remote areas and transportation facilities.

**Table 5. Indications for IRCU Admission**

| Indication | N = 142 | Percentage |
|---|---|---|
| Obstetric Haemorrhage | 46 | 32.39% |
| a) Ectopic pregnancy | 06 | 4.22% |
| b) Rupture uterus | 05 | 3.52% |
| c) Antepartum haemorrhage | 20 | 14.08% |
| d) Postpartum haemorrhage | 15 | 10.56% |
| Hypertensive disorders of pregnancy | 63 | 44.36% |
| a) Preeclampsia | 24 | 16.9% |
| b) antepartum eclampsia | 32 | 22.53% |
| c) HELLP | 7 | 4.9% |
| Anaemia | 15 | 10.56% |
| Heart disease | 10 | 7.04% |
| Sepsis | 09 | 6.33% |
| Fever | 05 | 3.52% |
| Pulmonary Thromboembolism | 04 | 2.81% |
| Systemic Lupus Erythematous | 01 | 0.70% |
| Status Epilepticus | 01 | 0.70% |
| Post MTP complication | 03 | 2.11% |
| Jaundice | 06 | 4.22% |
| Post Tubectomy | 02 | 1.40% |

Majority of patients have more than one complication during admission for which intensive care is needed. Hypertensive disorders of pregnancy is the leading cause for IRCU admission as well as for mortality accounting for 44.36% of IRCU admissions followed by obstetric haemorrhage accounts for 32.39%, anaemia (10.56%), heart disease (7.04%) .

**Table 6. Duration of IRCU Stay**

| Duration of Stay | Survived | Percentage | Mortality | Percentage |
|---|---|---|---|---|
| < 6 hours (11) | 00 | 00% | 11 | 100% |
| 7 hours to 2 days (60) | 26 | 43.3% | 34 | 56.6% |
| 2-4 days (31) | 26 | 83.8% | 5 | 16.1% |
| 4-7 days (25) | 18 | 72% | 07 | 28% |
| 7-10 days (12) | 10 | 83.3% | 02 | 16.6% |
| > 10 days (3) | 02 | 66.6% | 01 | 33.3% |

100% mortality is seen in patients whose IRCU stay is less than 6 hours, as they were referred from peripheries in severe morbid condition. Among the 60 patients who stayed for 2 days, mortality observed was 56% and 43% individuals survived.

**Table 7. Therapy in IRCU**

| Therapy | N = 142 | Percentage |
|---|---|---|
| Antibiotics | 142 | 100% |
| Oxygen supplementation | 142 | 100% |
| Blood and blood product transfusion | 89 | 62.67% |
| Mechanical ventilation | 81 | 57.04% |
| Haemodialysis | 10 | 7.04% |
| Inotropes | 80 | 56.33% |

All individuals kept on antibiotics during their IRCU stay. 62% of patients needed blood and blood product transfusion. 57.04% individuals needed mechanical ventilation. Ionotropic support given to 56.33% individuals.

**Table 8. Surgical Procedures**

| Surgical Procedure | N = 142 | Percentage |
|---|---|---|
| Peripartum hysterectomy | 18 | 12.67% |
| Cesarean section | 35 | 24.64% |
| Vaginal delivery | 25 | 17.60% |
| Laparotomy | 08 | 5.63% |
| Hysterotomy | 02 | 1.40% |
| Manual removal of placenta | 01 | 0.70% |

24.64% individuals underwent caesarean section, 12.67% individual underwent Peripartum hysterectomy. 88 % of individuals belong to low socio economic status. 71% individuals were illiterates.

**Table 9. Outcome of Patients**

| Outcome | N = 142 | Percentage |
|---|---|---|
| Mortality | 60 | 42.25% |
| Shift to ward | 79 | 55.63% |
| Shift to other wards | 03 | 2.11% |

57.74% individuals who are admitted to IRCU were survived .60 Out of 142 patients had mortality which accounted for 42.25%

**Table 10. Causes of Maternal Mortality**

| Cause | N = 60 | Percentage |
|---|---|---|
| Hypertensive disorder of pregnancy | 22 | 36.66% |
| Obstetric Haemorrhage | 11 | 18.33% |
| Sepsis | 04 | 6.66% |
| Embolism | 04 | 6.66% |
| Dengue | 05 | 8.33% |
| Anaemia | 04 | 6.66% |
| Heart disease | 01 | 1.66% |
| Jaundice | 02 | 3.33% |
| Others | 07 | 11.66% |

Hypertensive disorders of pregnancy is the leading cause of maternal mortality which account for 36.66% followed by Obstetric Haemorrhage which accounts for 18.33%.others include Sepsis, Embolism, Dengue, Anaemeia, Jaundice and others.

## Discussion

Goals in the management of critically ill obstetric patients involve intensive monitoring and physiologic support for patients with life threatening but potentially reversible conditions. A total of 7568 deliveries were occurred during the study period. The incidence of IRCU admissions was 1.8% of total deliveries. American academic of family physicians had mentioned 0.4% of the total deliveries admitted to ICU[7]. Marbie et al. reported that 1% of women delivered at the University of Tennessee were admitted to obstetrical IRCU[8].

Niyaz et al. reported obstetric patients accounts for 0.41% of all IRCU admissions[9]. The variations might be due to differences in defining major morbidity criteria for IRCU admissions and availability of high dependency unit. We had 99 cases (69.7%) admitted to IRCU during their postpartum period. In a study by Kilpatrick et al. 66% of the women admitted to IRCU were postpartum[10].

This high rate of postpartum admissions compare to antepartum may be due to significant hemodynamic changes in postpartum cases. In our study the pre-existing medical conditions which necessitate IRCU admission were severe anaemia, heart disease and jaundice accounts for 21.8%. Majority of admissions were due to obstetric causes. This is similar to the study reported by Vasquez et al. in 2007[1]. Hypertensive disorders in pregnancy was the major cause for IRCU admission. This is comparable with Aldawood et al. study that hypertensive disorders of pregnancy was the most common obstetric indication for IRCU admission followed by obstetric haemorrhage[11]. In contrary to this Munench et al. showed that haemorrhage is major cause[12].

The maternal mortality was highest with hypertensive group (36.66%) as compared to haemorrhage group (18.33%). Vasquez et al. reported as high as 41% of patients requiring mechanical ventilation. The most common indications for mechanical ventilation were acute respiratory failure, hemodynamic instability and more over the patients with sepsis were usually more ill and all of them require mechanical ventilation[1].

## Conclusion

The typical physiological changes of pregnancy, the pharmacokinetics of the drugs administered and the course of the diseases that commonly complicate pregnancy necessitates an essentially high quality care. Maternal mortality ratio can be reduced with early referrals from peripheries. Socioeconomic status and education played a major role in recovery from the conditions and mortality.

Pattern is same all over the India hypertensive disorders of pregnancy and obstetric haemorrhage are the most common obstetric reason for morbid conditions. It also concludes that a close follow-up ,early referral of high risk pregnancies and optimal stabilisation of their condition before interventions improved the outcome of these patients, safe transport with appropriate organ support ex: oxygen support, IV fluids may minimise the end organ damage.

**Conflicts of interest**: None declared.

## References

1. Vasquez DN, Estenssoro E, Canales HS, Reina R, Saenz MG, Neves AV, Toro MA, Loudet CI. Clinical characteristics and outcomes of obstetric patients requiring ICU admission. Chest. 2007;131(3):718-24.
2. Gaffney A. Critical care in pregnancy-Is it different?. Semi Perinatol. 2014;38(6): 329-340.
3. Sadler LC, Austin DM, Masson VL, McArthur CJ, McLintock C, Rhodes SP, Farquhar CM. Review of contributory factors in maternity admissions to intensive care at a New Zealand tertiary hospital. Am J Obstet Gynecol. 2013;209(6): 549.e1-549.e7.

4. Ibrahim IA, Rayis DA, Alsammani MA, Adam I. Obstetric and gynecologic admissions to the intensive care unit at Khartoum Hospital, Sudan. Int J Gynecol Obstet. 2015;129(1):84-89.
5. Rios FG, Risso-Vázquez A, Alvarez J, Vinzio M, Falbo P, Rondinelli N, Bienzobas DH. Clinical characteristics and outcomes of obstetric patients admitted to the intensive care unit. Int J Gynecol Obstet. 2012;119(2):136-40.
6. Special report on maternal mortality in India 2014-2016. National institution for transforming India, Government of India.
7. Reason for ICU admission in obstetric patients–ICU Tips from other journals 1992, American Academy of family physician. Available from http://www.drplace.com/Reasons for ICU admission in obstetric patients.
8. Mabie WC, Barton JR, Sibai BM. Septic shock in pregnancy. Obstet Gynecol. 1997;90(4):553-61.
9. Ashraf N, Mishra S, Kundra P, Veena P, Soundaraghavan S, Habeebullah S. Anesthesiology Research and Practice. 2014;2014:1.
10. Kilpatrick SJ, Matthay MA. Obstetric patients requiring critical care: a five-year review. Chest. 1992;101(5):1407-12.
11. Aldawood A. Clinical characteristics and outcomes of critically ill obstetric patients: a ten-year review. Ann Saudi Med. 2011;31(5):518-22.
12. Muench MV, Baschat AA, Malinow AM, Mighty HE. Analysis of disease in the obstetric intensive care unit at a university referral center: a 24-month review of prospective data. J Reprod Med. 2008;53(12):914-20.

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