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STUDY OF OBSTETRIC ADMISSIONS TO THE INTENSIVE CARE UNIT OF A TERTIARY CARE HOSPITAL

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Abstract

Aim: To determine the causes of the obstetric admission to the intensive care unit and to identify the risk factors responsible for intensive care admission

Methods and materials: Obstetrics ICU admissions over the past 3 months from September 2019 to November 2019 at government medical college, Bhavnagar

Results: During the study period about 150 patients are admitted to the intensive care unit.53.3% of the cases are in 20-25 year ,followed by30.6% of the patients are in age of 26-30 year ,46.6% of women were in their first pregnancy followed by 31.3%of women who were in their second pregnancy . Majority of the patients are in 37-40 weeks of gestational age followed by 35-36 weeks of gestation .Majority of patient admitted in ICU were postpartum admission(as those requiring delivery were first managed and then shifted to ICU) accounting for 86.6% of cases and 4% are below 20 weeks. The rest of the cases are ectopic, abortion and molar pregnancy which accounts for 4.6%, 2%, 2.6%. The different condition diagnosed on admission to hospital ranged from common condition like preeclampsia to rare disorder like meningitis. About 46.6% patients went in to surgical procedure and most common surgical procedure is caesarean section which accounts for 24% followed by laprotomy which accounts for 6% .

Conclusion: Commonest risk factors for ICU admission are obstetrics haemorrhage and hypertensive disorder of pregnancy Other major risk factors are severe anaemia, heart disease, sepsis, rupture uterus etc .

Keywords: obstetric admissions, intensive care unit, tertiary care hospital

Introduction

Care of critically ill obstetric woman at an intensive care unit (ICU) is a unique challenge in obstetrics, both for the obstetrician and the ICU physician. Hypertensive disorder, haemorrhage, anemia and septicemia are the common causes of morbidity and mortality in these patients [1]. About 0.1-0.9% of parturient require ICU admission[2-5].In developed countries, obstetric patients only account for a small proportion (<2%) of ICU admissions, whereas the figure is up to 7% in India .According to the World Health Organization (WHO), "There is a story behind every maternal death or life-threatening complication. Understanding the lessons to be learnt can help to avoid such outcomes". The primary objective of the present study was to review the characteristics of the obstetric patients admitted to our ICU , for both obstetric-related and non–obstetric-related causes, timing of admission, medical condition requiring admission and surgical procedures done and causes of maternal mortality and impact of antenatal care on ICU admission

Material and Methods:

It is a retrospective study of obstetric cases [pregnant and postpartum (<42 days)] admitted to the intensive care unit over a period of 3 months at government medical college, Bhavnagar**.** The parameters noted were the age, parity, diagnosis on admission, associated medical and surgical condition, surgical procedure performed and details of treatment**.** The ICU of the hospital is a six bedded obstetric ICU managed by the anaesthetist and obstetrician and blood bank facilities are available. All the services for pregnant women and women in puerperium including ICU admission and investigations are free of cost

Results:

Table 1: During the study period about 150 patients are admitted to the intensive care unit.53.3% of the cases are in 20-25 year, followed by30.6% of the patients are in age of 26-30 year(Table 1) indicating that even young females can developed complications in pregnancy

Age distribution	N=150	Percentage
<20 year	09	6%
20-25 year	80	53.3%
26-30 year	46	30.6%
31-35 year	9	6%
36-40 year	3	2%
>40 year	1	0.6%

Table 2: Women were in 46.6%of their first pregnancy followed by 31.3%of women who were in their second pregnancy (Table2) suggesting that complications can develop in first or even in second pregnancy**.**

Parity	N=150	Percentage
P1	70	46.6
P2	47	31.3
P3	12	8
P4	8	5.3
P5	8	5.3
P6	2	1.3
>p6	3	2

Table 3: Majority of the patients are in 37-40 weeks of gestational age followed by 35-36 weeks of gestation (Table 3)

Gestational age at time of admission	N=150	Percentage
<14 week	10	6.6
15-28	9	6
29-34	23	15.3
35-36	26	17.3
37-40	60	40
41-42	3	2
Pueperium	19	12.6

Table 4: Majority of patient admitted in ICU were postpartum admission accounting for 86.6% of cases and 4% are below 20 weeks.

Timing of admission	N= 150	Percentage
Antepartum(>20 weeks)	6	4
Postpartum	130	86.6
Ectopic	7	4.6
Abortion	3	2
Molar	4	2.6

Table 5: The different condition diagnosed on admission to hospital ranged from common condition like preeclampsia to rare disorder like meningitis (table 5)

Major obstetrics and medical condition requiring admission	N = 150	Percentage
Hypertensive disorder	82	54.6
Obstetrics haemorrhage	29	19.3
Severe anaemia	28	18.6
Eclampsia	15	10
Atonic pph	3	2
Heart disease	3	2
Sepsis	3	2
Dengue fever	2	1.3
Rectovaginal fistula	1	0.6
Rupture uterus	1	0.6
Pelvic haematoma	1	0.6
Bronchial asthma	1	0.6
Complete perineal tear	1	0.6
Meningitis	1	0.6

Table 6: About 46.6% patients went in to surgical procedure and most common surgical procedure is caesarean section which accounts for 24% followed by laprotomy which accounts for 6%(Table 6)

Surgical procedure	N=150	Percentage
Casarean delivery	36	24
Laprotomy	9	6
Uterine artery ligation	5	3.3
Uterine packing	4	2.6
Hysterotomy	3	0.2
B-lynch suture	3	2
Cervical tear suture	3	2
Obs. Hysterectomy	2	1.3%
Internal iliac artery ligation	2	1.3
Manual removal of placenta	2	1.3
Rupture uterus repair	1	0.6

Table 7: Majority of the maternal deaths were due to DIC and multiorgan failure following severe pre-eclampsia

Case number	Icu admission diagnosis	Cause of death
1	8 month of amenorrhea with jaundice with severe anaemia with HELLP syndrome	Flavivirus encephalitis with septicaemia with HELLP syndrome with DIC with multiorgan failure
2	P3L3 with second postpartum day of PPTL with aspiration pneumonitis	Aspiration pneumonitis
3	ECLAMPSIA	ARDS+multiorgan failure viral hepatitis+septicaemia+DIC

Table 8: Among ICU admissions 2.6% patient needs ventilator support and 68.6% needs blood transfusion and 1.3% patients need dialysis

Therapy	N-150	Percentage
Ventilator support	4	2.6
Iontropic support	6	4
Blood transfusion	103	68.6
Blood component	35	23.3
Dialysis	2	1.3

Discussion:

Although the pregnancy and the delivery are physiological processes, any sort of morbidity that might be encounter during these time courses might lead to mortal consequences regarding not only the foetus but mother as well. An indicator of pronounced maternal morbidity is intensive care unit admissions of obstetrics patients. Critical ill obstetrics patients require ICU admission constituted 0.6% of all deliveries in our hospital. The rate is higher was explained by it being a tertiary referral centre .Of all the admissions 12 % were completely unbooked and uninvestigated during the whole antenatal period,85% were registered/booked at other hospital and 3% were booked in our hospital. Lack of antenatal care emphasizes

the fact that proper care during antenatal care plays a major role in averting, and if present, then early detection of antenatal complication. Timely referral to a tertiary medical facility is an important predictor for the morbidity and mortality of patients admitted in ICU for further management and stabilization. GESTATIONAL AGE: The commonest gestational age was term gestational age indicating that complications are common at term. The mean gestational age in other studies ranged from 31 weeks to 36 weeks [6-9] The 12.6 % of women were admitted to our hospital in puerperium..These were the cases which delivered in outside hospitals. This can be used as an indicator of care in peripheral hospitals for the nurses and junior doctors in active management of third stage of labour and also to identify at risk cases and for timely referral.

Postpartum admissions.

Accounted for 86.6% of admission. Post operative admission were not because of surgical complications but due to antenatal complications like APH, severe pre-eclampsia, HELLP syndrome, DIC, medical disorders etc. and PPH.

Antenatal admission:

were 4% These patients were either severely ill or remote from term gestation. These patients were who were ill and required delivery were shifted to the labour room and shifted to ICU after delivery. Some studies reported a majority of ante partum admission (10,11) and delivery admissions.

Previous cesarean delivery:

There were 36 cases with previous caesarean accounting for 24% of all cases. Among them 20 cases had associated obstetrics and medical risk factors. Scar on the uterus adds to the risk for ICU admission.. Minimizing primary caesarean section will reduce the ICU admissions and the morbidity

Major risk factors:

Hypertensive disorder (54.6%) was the commonest condition requiring ICU admission followed by obstetrics haemorrhage. The other causes were severe anaemia (18.6%)

Ventilatory support:

When primary indications for ICU admissions were analyzed, haemodynamic instability was the most common and significant cause of ICU admission as compared to respiratory insufficiency. Other causes are respiratory insufficiency and electrolyte disturbance. These two cases were primary indications in other studies also.

Conclusion:

Hypertensive disorder of pregnancy is the leading cause of ICU admission, secondary to obstetric haemorrhage in the developing countries. Severe anaemia, cardiac disease, sepsis, need for a caesarean delivery, more than one diagnosis at time of admission are other risk factors for ICU admissions. Awareness should be created among the population regarding importance of adequate antenatal care, detection of danger signs of various obstetrics complications and need for contacting medical facility at the earliest in case of emergency situations. Early detection and prompt referral to tertiary centre with intensive care facilities should be promoted to reduce the incidence of maternal mortality. Commonest cause of maternal mortality was haemorrhagic shock and multiorgan failure.

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