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Review Article

Outcome of obstetric patients admitted to the intensive care unit: a one year retrospective

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Abstract

Aim : To know the causes of ICU admissions of obstetrical and gynecological cases and their outcome in terms of survival and mortality.

Materials and methods: Study done retrospectively, in one year duration (June 2013- June 2014) among the ICU admissions of Banaras Hindu University, tertiary care centre. Total no. admitted 117 in one year duration from obstetrics and gynecology department .Among these 104 cases were obstetrical and 6 cases gynecological.

Results: Among 117 patients admitted in ICU 84 (71.7%) were age group between 20 to 30 yrs. Most common cause of admission among obstetrical cases was pregnancy associated hypertension 23 (19.6%). Maternal mortality of ICU admissions were 40(34.1%) and patient survived 70 (59.8%).

Conclusions: Pregnancy induced hypertension and hemorrhage including antepartum and postpartum, these are major cause of maternal mortality in our country. Although mortality is 34.1% among ICU admissions but 59.8% patients could be survived. This study is indicating, there is need of strong applications of health care delivery system at rural and urban population by which obstetrical complications can be reduced.

Key words: Pregnancy induced hypertension, hemorrhage, intensive care unit, maternal mortality.

Introduction:

Critically ill obstetric patients are a challenge to intensive care unit. Among these 84(71.1%) are age group of 20-30 yrs. Total ICU admissions in this

duration are 1283 and among them 117 were of Obs. and gynecology department. In spite of having MCH, RCH and NRHM programs maternal mortality in India is high in comparison to other developed countries. There is need of availability of

comprehensive antenatal, obstetrics, anesthetic and intensive care services to reduce the maternal mortality rate.

The primary objective for the study was to know the characteristics of the patients in our ICU, in the duration of this one year period, for both obstetrics and non-obstetric related causes. Secondary objectives were to study, the factors which are responsible for increased mortality and morbidity and what are the essential steps to be taken to prevent this.

Materials and methods:

This retrospective study conducted from June 2013 to June 2014, in 25 bedded ICU of Banaras Hindu University, among the admitted patients from obstetrics and gynecological department. Total no admitted in this duration was 117 in the ICU as there is no obstetrical ICU separately and total no admitted in wards were 4295, which is comprising

2.72% of the critically ill patients. The data collected includes, the primary diagnosis, associated complications, age group, booked or unbooked patients, mode of delivery, interventions done, mode of admissions and maternal outcome.

Results:

The total no of admissions were 4295 in the wards and labour room of obstetrics and gynecological department in this one year duration. Total no. ICU admissions were 117, among them 104 patients were obstetrical cases and 6 gynecological and 7 patients were LAMA. Thus 104 (88.8%) maximum no. of patients were obstetrical cases and required critical care. Maximum no. of patients were young 84(71.7%) of 20-30 age group and others between 30-45yrs (19.6%). Only 6 (5.12%) patients were from gynecological causes. Among the obstetrical cases 17 (16.34%) patients had associated medical disorders. Diagnoses leading to ICU admissions are given in table 1.

Table no.1 Primary diagnosis at the time of admission

Diagnosis	Number	Percentage
Hypertensive disease		
Eclampsia	24	23%
Preclamsia		
HELLP	3	2.88%
Hemorrhage	18	17.3%
Anemia	13	12.5%
Sepsis	11	10.57%
Ectopic	10	9.61%
Rupture	5	4.8%
Amniotic fluid embolism	3	2.88%

Table no.2 Associated medical disorders

Diagnosis	Number	Percentage
Heart disease	9	8.65%
Hepatitis b	2	1.92%
Diabetes mellitus	2	1.92%
HIV	2	1.92%
Pulmonary T.B.	1	0.96%
Respiratory disease	1	0.96%

The no. of gynecological patients were 6 , which of them admitted because of postoperative complications and no mortality occurred , all of them safely shifted to ward.

Out of 104 obstetrical cases, only 32(30.76%) were booked in anc OPD and rest 72(69.23%) came for

first time either directly in labour room emergency or in OPD. Among them 83(79.8%) patients were antenatal, 28(33.73%) cases went in spontaneous labour and delivered. Emergency casesarian section done for 55(66.26%). Patients mode of delivery is shown in table 3.

Table 3.

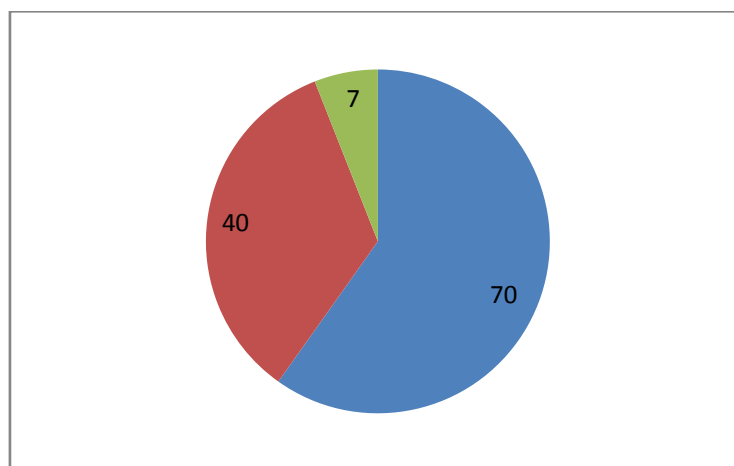
Mode of delivery	Number	Percentage
Spontaneous vaginal delivery	28	33.73
Emergency casesarian section	55	66.26

Total 117 pateints admitted in icu , 25 (21.36%) were admitted on elective basis and 92(78.6%) on emergency basis.

Total 117 pateints admitted in ICU, 25 (21.36%) were admitted on elective basis and 92(78.6%) on emergency basis.

Table 4. ICU interventions:

Survival	Mortality	Lama
70(59.8%)	40(34.1%)	7(5.9%)



These 70 (59.8%) patients could be saved because of the different ICU interventions like mechanical ventilation, transfusion of blood and blood products, use of ionotrops, use of antihypertensive and anticonvulsants. In spite of this critical care 40 (34.1%) patients could not be saved.

Most common diagnosis was hypertensive disorder including both eclampsia and preclampsia 24 (23%)

patients. Most common cause of death was obstretic hemorrhage 13 (32.5%) patients. Hypovolemic shock was the most common cause of death 17(42.5%).

Majority of the patients 70(59.8%) improved. The ICU maternal mortality rate 40 (34.1%). Most of the patients were admitted on emergency basis, referred from peripheral hospitals.

Table 5. Causes of maternal death in 40 pateints.

Primary cause of death	Number of deaths (%)	Primary diagnosis	Number of deaths
Hypovolemic shock	17 42.5%	Obstretical hemorrhage	13
Multiorgan dysfunction	10 25%	Eclampsia	10
Respiratory failure	8 20%	sepsis	4
Cardiac failure	5 12.5%	heart disease	3
		amniotic fluid embolism	2
		Ectopic	3
		Rupture	1
		Anemia	4

Discussion

Most women complete pregnancy uneventfully, but a few of them develop complications that may require ICU admissions. During a one year study period, obstetric admissions to the ICU represented 2.72% of all deliveries. This is comparable with other studies (0.1%-10%). [1,2,3,4,5]. This wide variation in admissions is because of different level of health facility available at different parts. Majority of the patients are due to obstetrical 104(88.8%) as compare to non-obstetrical cases 6(5.12%). This is similar to the study reported by Poornima B et al (2013) and Vasquez et al (2007) [1,6].

Pregnancy induced hypertension including eclampsia, pre-eclampsia and HELLP includes 27 (25.96%) and obstetrical hemorrhage 13(32.5%), these are as similar other studies done by NYW Leung et al (2010) and others [7,8,9,10,11,12,13]. These days most of the hemorrhage cases can be managed conservatively due to availability of drugs, but few cases may need hysterectomy to control bleeding. Arterial embolisation is advanced method for the same purpose, it is widely used in developed countries but in our country use is limited to few higher centres.

Pregnancy induced hypertension is another cause of ICU admissions ,similar studies are showing the same findings Richa F et al (2008).[14] and other studies showing similar results[7,8,9,10 ,11,12]. Maternal ethnicity is known to be related to the expression of pre-esia.

Use of antihypertensive medicines, magnesium sulphate and color Doppler in high risk cases although improved management of such cases but in peripheral and rural areas still lots of patients are not managed properly.

Anemia 4 (25%) and sepsis 4(25%) are other causes of ICU admission. Urinary tract infection is relatively common in pregnant female, and may lead to pyelonephritis. Other series showing similar results values of 3 to 7% [15,16].

hypovolemic shock 17(42.5%) and multiorgan dysfunction 10 (25%) are the two primary causes of death in comparison with MOD and intracranial hemorrhage [6]. Mortality among patients is 34.1% is much higher than other studies 3.4%-21% [6,17,18]. Out of 104 obstetrical cases 72 (69.23%) came directly to labour room, this is representing higher referral rate from periphery. Lack of awareness about the disease severity, delay in transportation and delay in initiation of treatment

are the causes responsible for high mortality. Mortality can be reduced by health education, training the peripheral health care workers about the symptoms of severe diseases, giving primary medical aid at PHCs and health centres and by early referral to higher centres.

Conclusion:

Hemorrhage and pregnancy related hypertension with its associated complications are the two common indications of ICU admissions in this study. Increasing the number of high risk dependent units in the wards can reduce the no of patients in ICU directly. As these both the causes can be prevented or reduced to such an optimum level, by providing antenatal care at grass root level, starting from villages ,district hospitals and state hospitals . A comprehensive approach towards mother and child health, strictly monitored MCH and RCH programmes, early detection of high risk cases and better management at each level, can reduce the maternal mortality and morbidity.

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