Original Research Article

Outcome of obstetric cases with acute severe illness admitted to intensive care unit in a tertiary referral hospital in south India

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Abstract

Background: To analyse the demographic, clinical parameters and outcome of patients with severe acute maternal illness, admitted Intensive care unit in a Tertiary referral Hospital in South India **Design:** Two-year retrospective analytical study. **Setting:** HSK Hospital attached to S N Medical college, Bagalkot, Karnataka, South India. **Methods:** where as A 'near-miss' describes a patient with an acute organ system dysfunction, which if not treated appropriately, could result in death. And SAMM cases are those in which women suffered from life threatening complications and who survived by good fortune and good hospital care. We took the term "acute severe maternal illness" as we came across maternal death also The case records of women satisfying this criteria were analysed and computed. **Outcome measure:** to determine the patient demography, clinical features, management protocols and outcome**. Results:** We had 27 cases acute severe maternal illness and 2 maternal deaths during our study. The reason for acute severe maternal ill ness were: Rupture uterus leading to shock (18%), PPH (18%), Eclampsia (7.4%) Rupture of ectopic pregnancy (14.8%)
Key words: Acute Severe Maternal Illness, SAMM, Near Miss Cases, Maternal Morbidity, Intesive Matrenal care Unit,

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Received Date: 03/04/2020 Revised Date: 12/05/2020 Accepted Date: 20/07/2020
DOI: https://doi.org/10.26611/10121535

Access this article online	
Quick Response Code:	Website: www.medpulse.in
	Accessed Date: 12 September 2020

INTRODUCTION

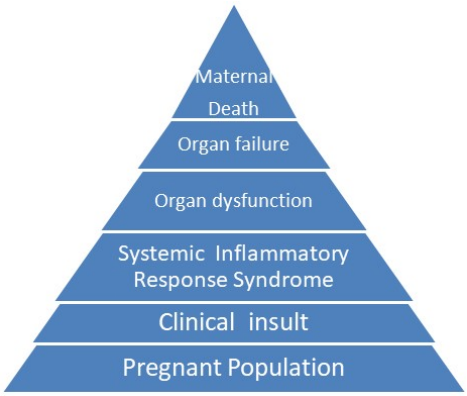
Though High risk obstetric cases are frequently admitted to high dependency (intensive care) units, how ever any case may turn out to be risky in the course of labour and post partum. Though the terms SAMM (severe acute maternal morbidity) and "Near miss" cases are used almost with same intention but they need to be defined.

SAMM: definition Severe acute maternal morbidity (SAMM) cases are those in which women suffered from life threatening complications and who survived by good fortune and good hospital care.[1]

Where as Maternal near miss case is defined as "a woman who nearly died but survived a complication that occurred during pregnancy, childbirth, or within 42 days of termination of pregnancy" [2] About 8% of the global burden of the disease in women of reproductive age group is attributed to pregnancy and childbirth related conditions in South-east Asian and African countries[3] Between 0.1 to 0.9% women develop complication of pregnancy require ICU admission About 0.43 of all ICU admissions are from obstetric field , of 0.24 % were deliveries [1] The frequency of severe postpartum maternal morbidity requiring tertiary hospital care was 4%.[1] Severe acute maternal morbidity

How to cite this article: Shivamurthy H M *et al*. Outcome of obstetric cases with acute severe illness admitted to intensive care unit in a tertiary referral hospital in south India. *MedPulse International Journal of Gynaecology.* September 2020; 15(3): 39-42. http://medpulse.in/Gynacology/index.php

identified as much as five times as many cases as maternal death [4] The stepwise progression of maternal condition to severe acute morbidity is explained by Gerald D *et al.* in a progressive pyramid



Figurr 1: Diagrammatic sequence of events from a normal healthy pregnancy to death in a pregnant population. [4]

Causes underlying these "near miss ' cases were PPH , Preeclampsia, sepsis and anemia were important in a study by Seema bibi *et al.* [1] Lack of proper antenatal care and delay in ICU referral are easily preventable factors that affect outcome 5 The patients demographic factors can operate at three levels leading to delay in getting appropriate treatment. [6]

- Delay in deciding to seek care (phase 1 delay).
- Delay in identifying and reaching care (phase 2 delay).
- Delay in receiving appropriate care in hospital (phase 3 delay).

Supporting mothers during pregnancy, labour and puerperium will not only save mothers but likely will slash deaths of newborns.[7] Considerable morbidity is seen in these patients. In their study by Freda Richa *et al.* The maternal mortality in pts admitted to obstetric ICU was 33.3%.[8] Continuous psychosocial follow up of those survived is necessary as their longterm health-related quality of life is impaired.[9] Considering these factors, we took this study was undertaken to note the patients demographic factors, underlying obstetric condition , indications for admission to ICU and outcome .

MATERIALS AND METHODS

This retrospective study of 2 year done from May 2018 to May 2020, was based on all obstetric patients data, admitted to the Intensive Care Unit at HSK Hospital attached to S N Medical college, Bagalkot, Karnataka in south India , which is a tertiary referral Hospital. Data collected included Maternal age, Literacy, Socio economic status, Gestational age, Parity, any Medical comorbidities in the present pregnancy medical and obstetric history. Delivery data included type of delivery and any complications during delivery or post partum. We documented Indication for ICU transfer, antibiotics used, duration of ICU stay and outcome including maternal death (cause of death in case of death)

RESULTS

The results are depicted in the following tables

Table 1: Showing age distribution of patients

Sl no	Age in years	Nos	%
1	Up to 20	3	11.1
2	20 -25	10	37.0
3	25-30	12	44.4
3	More than 30	2	7.4

Table 2: showing Education Status

	Education	Nos	%
1	Illiterate	4	14.8
2	Up to 7^{th} std	8	29.6
3	7^{th}-10^{th} std	7	25.9
4	10^{th} to 12^{th}	5	18.5
5	Graduate	3	11.1

Table 3: Socio economic status

Sl no	Socio economic class	Nos	%
1	Class I	4	14.81
2	II	8	29.62
3	III	12	44.4
4	IV	3	11.1

Table 4: showing gravidity

Sl no	Age in years	Nos	%
1	1	10	37
2	2	9	33.3
3	3	2	7.4
3	4	4	14.8
5	5	-	
6	6	2	7.4

Table 5: showing parity

Sl no	Para	Nos	%
1	0	1	3.7
2	1	11	40.74
3	2	8	29.62
4	3	3	11.1
5	4	2	7.4
6	5	2	7.4

Table 6: showing diagnosis

Sl No	Diagnosis	No	%
1	Rupture uterus	5	18.5
2	Ruptured ectopic pregnancy	4	14.8
3	Traumatic pph	3	11.1
4	Atonic PPH	2	7.4

5	HELLP syndrome	2	7.4
6	Post partum eclampsia	2	7.4
7	Cardiac disease	2	7.4
8	Severe anaemia with thrombocytopenia	1	3.7
9	Multiple pregnancy with PPH	1	3.7
10	Secondary PPH	1	3.7
11	Uterine scar rupture	1	3.7
12	Third degree perineal tearwith PPH	1	3.7
13	Chorioamnionitis with septic shock	1	3.7
14	Small bowel abstruction with sepsis	1	3.7
15	Severe Respiratory infection (pneumonia)	1	3.7

Table 7: Showing indication for ICU admission

Sl no	Indication	Nos	%
1	Hypovolemic shock	19	70.3
2	Septic shock	3	11.1
3	HELLP syndrome	2	7.4
4	Severe anaemia with thrombocytopenia	1	3.7
5	Rhd with CCF	1	3.7

Table 8: showing antibiotics used

Sl no	Antibiotics used in ICU	No	%
1	Piperacillin with Metranidazole	14	51.85
2	Amoxycillin with Clavulanic acid and Metranidazole	9	33.3
3	Cefotaxime and Metranidazole	2	7.4
4	Cefotaxime and Ornidazole	1	3.7
5	Meropenam	1	3.7

Table 9: procedure done in ICU

Sl no	Procedure done	no
1	Laparotomy for ruptured uterus	2
2	Laparotomy for ectopic pregnancy	1
3	Laparotomy followed by end to end small bowel anastomosis	1

Table 10: showing no of days of stay in ICU

Sl no	No of days of stay in ICU	Nos	%
1	1-3 days	8	29.6
2	4-6 days	14	51.85%
3	7-10 days	4	14.81%
4	> 10 days	1	3.7%

Table 11: showing outcome of admission to ICU

Slno	Outcome	no
1	Recovered	25
2	Deaths	2

Table 12: showing cause of maternal death

Sl no	Cause of Maternal death	no
1	Severe sepsis in a case of acute small bowel obstruction	1
2	Septic shock with septic abortion	1

DISCUSSION

We had total of 27 admissions to ICU out of 6752 obtetric admissions in 2 years giving an incidence of 0.39%. This is in accordance with study by Fredrich *et al.* In our study, majority (44.4%) patients were in the age group 25 to 30 years. also we had 3 patients below 20 years, which shows teen age marriage is still practiced in our location which needs to be discouraged for better obstetric outcomes. The most common age-groups of 21-25 years shows that comparatively younger age groups are involved.[10] Eight (29.6%) were educated up to 7th std only and only 3 were graduates. This insists on women education which has bearing on matherhood. Interestingly 12 (44.4%) were in the socio economic class 3, which reflects better to do status which supports these expectant mothers nutritional status as only 3 mothers had anaemia .There were 10 (37%) primigravida in our study which warns us that maternal severe acute illness was common in primigaraviae and calls for due care. So also 11(40.7%) were Para1, showing patients in their early parahood are at risk of developing acute maternal illness. The obsteric pathology, which led to acute maternal illness, 5(18.5%) cases had Ruptured uterus,4 (14.5%) had ruptured Ectopic pregnancy,5(18.5%) had Post partum Haemarrhages, 2 had HELLP Syndrome and 2 had Eclampsia.

Compare and comment.

There were 4 medical co-morbidities, 2 cardiac,1 diabetes mellitus and 1 Respiratory severe infection. Presence of comorbidities will affect the maternal outcome drastically.

Compare and comment.

We had 19 (70.3%) cases had hypovolemic shock, followed by 3cases septic shock, which underlines the proper management of obstetric conditions which result in these two important maternal killers.

Compare and comment

Our patients were given Piperacillin 4.5 Gms twice a day and Metronidazole 500mg 8th hourly both by i v route in 14(51.8%) of cases with excellent results. The other common combination was Amoxycillin 1gm twice a day by iv and Metranidazole in 9 (33.3%). In one case there was need to switchover of antibiotic from Amoxycillin plus Clavulanic acid to Meropenam but unfortunately this patient succumbed due to severe sepsis. We had 14 (51.8%) patients who stayed in ICU for 4-6 days. How ever 8 (29.6%) cases stayed only for 3 days in ICU. This is in accordance with the study by Freda Richa *et al.* where the mean duration of ICU stay was 7±5days[5] There were two laparotomies done during ICU admissions. One for ruptured ectopic pregnancy and one where intestinal end to end anastomosis was done. These two patients were shifted to ICU directly on admission itself, as there condition was critical at demission only. Usually obstetric patients will be shifted to ICU after managing the case in obstetric arena.

There were two maternal deaths in ICU inspite all possible measures giving an incidence of 7.4%. We had 2 maternal deaths out of 27, giving an incidence of 7.4 %. There was 33.3% of maternal mortality as per the study by J Med Liban *et al*. This depends on the underlying pathology, associated maternal comorbidities and the level of multispeciality medical care available in ICU. This way our ICU care was reasonably good.

Limitation for this study

This study include cases for only 2 years and had 27 cases and these observations may not apply for larger population and calls for study in a larger population.

CONCLUSION

There is a need for maternal intensive care in all Obstetrics practicing setps where these patients freup in severe catastrophy .Early admission and management of critically ill obstetric patients in the ICU may decrease maternal mortality and morbidity.

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Source of Support: None Declared
Conflict of Interest: None Declared