PATTERN OF SEVERE ACUTE MATERNAL MORBIDITY AT CMH QUETTA

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ABSTRACT

Objectives; To determine the pattern of severe acute maternal morbidity (SAMM) at Combined Military Hospital Quetta.

Study design; Descriptive Study.

Place and Duration of study; Department of Gynae Obs, Combined Military Hospital Quetta from March 07 to Sept 08.

Patients and Methods; One hundred admitted patients of severe acute maternal morbidity (SAMM) were identified through random sampling procedure. Thorough history, examination and laboratory investigation were considered to identify the pattern of SAMM that is; severe hemorrhage, hypertension, sepsis, pulmonary embolism, uterine rupture, inversion, ruptured ectopic pregnancy etc and to recognize patient features common in cases of SAMM like maternal age, parity, socio-economic/ educational status and level of antenatal care.

Results; Out of 100 patients of SAMM, 52% had severe obstetrical hemorrhage, 32% had hypertension, 10% had both severe pre-eclampsia and massive obstetrical hemorrhage, 4% had ruptured Ectopic pregnancies, 1% had septic induced abortion and 1(1%) had puerperal sepsis. These complications were greater in booked multi-gravidas of 20 to 40 years, para 3 to 5, under matric and with less than Rs.10,000/month income.

Conclusion; Massive Hemorrhage and uncontrolled hypertension are the major contributors of severe acute maternal morbidity. SAMM is more prevalent in women of 20 to 30 years (reproductive age), parity 3-5, under metric and with monthly income of less than Rs.10,000.

Keywords; Severe acute maternal morbidity, hemorrhage, hypertension

INTRODUCTION

Severe Acute Maternal Mordidity (SAMM) has been defined using Dr Mantel criteria[1]; "A woman with organ system dysfunction or failure who would usually die if inadequate/no treatment/support is given to her, i.e. the presence of one or more of the following end organ dysfunction; Acute Respiratory Distress Syndrome (ARDS), pulmonary edema or embolism, acute renal shut down, Disseminated[1] Intravascular Coagulopathy (DIC), HELLP syndrome, septicemia, cerebral stroke (CVA), severe hypovolemia, acute hepatic/cardiac failure. The pattern of SAMM includes; massive obstetrical hemorrhage, severe HTN, severe sepsis, thromboembolism, uterine inversion, rupture and ruptured ectopic pregnancy and hepatic and cardiopulmonary/ other major organ system dysfunction arising in pregnancy.

The importance of this study is that in spite of the advances made in the medical science, maternal mortality and morbidity are still very high. Over 300 million women in the developing world currently suffer from short-term or long-term illness brought about by pregnancy and childbirth[2]; 529,000 die each year (including 68,000 as a result of an unsafe abortion). The life time risk of a woman dying of pregnancy related causes in developed countries is 1:40 as compared to 1:3600 in the developing world[3].The statistics are not much different in our country.

In Pakistan each year over 5 million women become pregnant, out of these 0.7 million (15% of all pregnant women) are likely to experience some obstetrical and medical complication[4]. Maternal mortality rate (MMR) of Pakistan is 450/1000 live births. The major causes of maternal mortality[4] world over are hemorrhage, hypertensive disorders, sepsis, obstructed labor and abortions. It has been estimated that around 15% of women during child birth develop potentially life threatening

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complications and 1-13% will die in the absence of major surgical or medical intervention.

While a couple of years ago most of the research was focused on maternal mortality, now there is an evolving concept of SAMM as with new advances in health, mortality is a rarer event in developed world as is exemplified by UK confidential enquiries into maternal deaths[5]. According to a recent WHO systematic review, the global prevalence of SAMM varies from 0.01%-8.23%, with an inverse trend with the development status of the country[6]. There are approximately 118 life threatening events of 'near- miss mortality' or severe acute maternal morbidity (SAMM) for each maternal death.[7] It is suggested that SAMM on its own or as a ratio of SAMM mortality should be used as a quality indicator of maternity care[8]. SAMM can be used as a surrogate of analysis of maternal deaths to describe the pattern of severe maternal disease and identify risk factors related to it. As compared to SAMM maternal death is a rarer event, so by determining SAMM we will better be able to audit quality of health care.

PATIENTS AND METHODS

This descriptive study was carried out at Combined Military Hospital Quetta which is a tertiary care centre from March 07 to September 08. One hundred admitted cases of SAMM were included using non probability convenience sampling; meeting the following criteria; All patients with severe ante partum or post partum hemorrhage who needed 3 or more red cell concentrate transfusion, developed ARDS, acute renal shut down, DIC, or needed ventilator support or needed an obstetrical hysterectomy, all cases having severe HTN who developed; eclampsia, HELLP syndrome, cerebral stroke, acute renal shut down, pulmonary edema, Pregnancy related sepsis where there's renal shut down, septicemia, others causes; ruptured ectopic pregnancy leading to circulatory collapse, uterine inversion/rupture and pulmonary embolism, all cases labeled SIL (seriously ill) or VSIL (very seriously ill)and patients shifted to main intensive care unit for expert care.

Patients with preexisting medical diseases leading to maternal morbidity like heart and lung diseases and systemic infections with other than genital source, surgical problems and patients who eventually died were excluded from the study. These patients of SAMM were diagnosed on the basis of clinical examination and relevant investigation. Proforma was made which included patient particulars, socioeconomic and educational status, obstetrical history, presenting complaints and pattern of SAMM. Patients of SAMM were enrolled from OPD, high-risk maternity ward, labor room, intensive care unit, post operation ward and emergency reception centre. Daily update of these high risk areas was done to identify the cases.

Statistical analysis was done using statistical software package SPSS. Descriptive Statistics was used to calculate mean and standard deviation for age, height, and weight and body mass index. Frequencies (%age) were calculated for pattern of SAMM.

RESULTS

Mean age of SAMM in our study was 28±6 years, mean height 62±1.3 meters, mean weight was 69±7kg. BMI was 27±3). In 100 patients of SAMM, the pattern of SAMM is given in table 1.
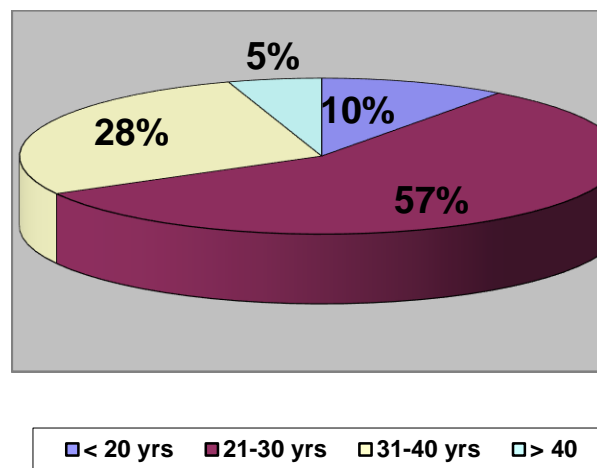
DISCUSSION

SAMM is a new concept in epidimeology

Figure: Distribution of SAMM patients according to maternal age

Table 1; Pattern of SAMM (n=100)

Pattern of SAMM	No of Cases	%age
HAEMORRHAGE	52	52%
APH	24	
PPH	20	
APH+PPH	06	
Uterine Rupture	02	
HTN	32	32%
HELLP	06	
Eclampsia	08	
Severe preeclampsia	18	
HTN AND HEMORRHAGE	10	10%
Ruptured Ectopic Pregnancy	04	4%
SEPSIS	02	2%
PUERPERAL SEPSIS	01	
Septic induced abortion	01	

Table 2; Description of personal and material history of patients (n=100)

Booking Status	Frequency	Percent
Un booked	11	11.0
Upto 2 Visits	52	52.0
More than 3 Visits	37	37.0
Education status		
Under metric	80	80
Over metric	20	20
Socioeconomic status		
Monthly income less than Rs 10000	60	60
Monthly income more than Rs 10000	40	40
Parity		
PG	20	20
Para 2	25	25
Para 3-5	30	30
Para 6-8	20	20
Para >8	5	5

based on the fact that the sequence from good health to death in a pregnant woman is a clinical insult, followed by systemic inflammatory response syndrome and finally death .Few severely ill pregnant women die but they have the same organ system failure or dysfunction as those women that die[9]. Researchers and epidimeologists have studied different aspects of SAMM like Fielepi et al[10] who focussed on SAMM to maternal mortality ratio in South Africa in a multicentric study and found it to be 15:1 while Weeks et al [11] in Ugenda and Pattinson[4] in South Africa

researched on standards of care in cases of SAMM, our study has not been centred around these issues as due to skilled care, adherence to strict protocols and easy availability of blood products quality of care is not compromised. Some studies address one or more adverse events like PPH as was done by Lu et al in California[12] and Cameron et al in Australlia[12], we have included all major obstetrical categories and excluded preexisting medical disorders.

Hemorrhage followed by HTN were major contributors of SAMM in our study. Antepartum hemorrhage due to placental abruption was most prevelant due to the fact that strict adherence to PPH management protocols and routine active management of third stage of labor prevents PPH in patients delivered at our hospital. Our results are consistent with international research which also implicate hemorrhage as most common pattern of severe morbidity occurring in 2-7 per 1000 pregnancies[13]. Prural et al reported the incidence of SAMM in a longitudinal multicentric study in West Africa to be 3-9% with hemorrhage implicated in 40-50% of the cases [14].

In a Scottish study[15] (which excluded pulmonary embolism) SAMM was 3.83/1000 with 30% having more than one contributor while in our study 10% cases had both HTN & hemorrhage. A research at Military hospital Rawalpindi[16] on comparison of causes of SAMM and mortality showed the most frequent four contributors of SAMM to be HTN 32%, Hemorrhage 29%, anemia 14% and sepsis 10%. A study was conducted to find out whether SAMM can be used as a surrogate of an analysis of maternal deaths in rural and urban areas of South Africa[17]. The causes of SAMM were complications of HTN (27.2%), post partum hemorrhage (18%), ante partum hemorrhage (12.8%) and abortion (11.3%). Another study conducted to analyze actual and near miss maternal deaths at Liaquat medical college[18] hospital from showed. that the main cause of maternal death was sepsis (55%) followed by eclampsia (53%), uterine rupture

and obstructed labor (38%), ante partum hemorrhage (22%), post partum haemorrhage (16%), medical causes (17%) and abortions (15%). While a lot of research has been done in West on type of intervention and rate of obstetrical hysterectomy in PPH[19,20] we did not focus on this aspect.

Sepsis or septic induced abortion are rather rare in our hospital due to routine use of intrapartum and peroperative antibiotics and easy accessibility to family planning facilities in the out patient department. Two patients in our study had ruptured uterus. These unbooked patients were from interior Balochistan with prolonged obstructed labor. Uterine rupture is prevented at CMH Qta by carefully selected patients for trial of scar and very vigilant fetomaternal monitoring, active labor management and timely resort to abdominal delivery.

Since most gravidas were of age between 20-40 years hence SAMM was also more frequent in this group. The trend towards early marriage and close birth spacing in our country explains the fact that most women have completed their families at an early stage and are prone to suffer from pregnancy related complications during their reproductive period i.e. 20-40 years. This is a little different from developed world statistics where now there s a trend towards late marriage and child bearing hence rising complication rate seen in older women. Massive obstetrical hemorrhage occurs in 1.5% of those under 37 years compared with 3% of those over 37years[21, 22].

As medical facilities are free for the families of officers and soldiers and family planning services are conveniently available in our outpatient department at very low cost no doubt the frequency of grand multiparity and advanced maternal age is low in our study population.Since the families of officers and soldiers are entitled at CMH, so most of the patients were booked.

The incidence of SAMM was greater in women bearing 3 to 5 children and in women of poor educational and socioeconomic status because these are the group of women who neglect their health due to lack of awareness as well as resources. Another study of maternal mortality and SAMM conducted in five districts of North Western Frontier Province of Pakistan states that 500 maternal deaths occur per 100,000 liver births each year in Pakistan the major causes of maternal mortality and morbidity are hemorrhage, hypertensive disorders, sepsis, and obstructed labor and unsafe abortion[23]. The main reasons for such high rate of maternal mortality and SAMM there again were poor socio-economic status, illiteracy and ignorance.

CONCLUSION

Massive Hemorrhage and uncontrolled hypertension are the major contributors of severe acute maternal morbidity. SAMM is more prevalent in women of 20 to 30 years (reproductive age), parity 3-5, under matric and with monthly income of less than Rs.10,000.

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