

EDITORIAL

Maternal intensive care: Near-Miss mortality in obstetrics



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A Near-miss mortality describes a patient with an acute organ system dysfunction which if not treated appropriately could result in death and is defined as morbidity directly or indirectly due to pregnancy, arising in pregnancy or within 42 days of delivery necessitating transfer to intensive care unit, later representing only a third of all severe acute maternal morbidity (SAMM) cases.^{1,2}

Three categories are adhered to Near-Miss Mortality: disease specific (specified criteria for common conditions eg: pre eclampsia, haemorrhage, sepsis), management specific (specific criteria related to response to disease eg: Hysterectomy or admission to ICU) and organ failure or dysfunction based (specified criteria for dysfunction or failure related to each organ system).

The prevalence rate of Near-miss mortality vary according to the criteria adopted whether it is disease specific, organ system specific or management based representing 0.80 % - 8.23 %, 0.38%-1.09% and 0.019 - 2.99 % respectively.³

The studies show that the use of organ-system based criteria allows for identifying all severe morbidities and then investigating the primary cause, thus does not discard any particular condition. However it is the most labour-intensive for identifying cases, hence criteria for inclusion on near-miss must be strict. Studies suggest that the use of disease specific criteria in identifying real severe acute maternal morbidity cases is less specific. But the use of disease specific criteria is easy to interpret, cases can be identified retrospectively and the quality of care for that particular disease can be assessed. However identification of cases is likely to be less accurate when the diagnosis depends on clinical estimates. Use of management

specific criteria is advantageous in that it is simple to identify the cases but the approach does not include all severe morbidity cases.

Brief result of maternal mortality and near miss mortality conducted by the Nepal Society of Obstetricians and Gynecologists in the year 2006 in six different medical institutions, Kathmandu University of Medical Science, TU Teaching Hospital, Maternity Hospital, Kathmandu Medical College and Nepal Medical College under the leadership of Prof CD Chowla, Prof A Rana, Dr A Vaidya, Dr C Karki and myself Prof P Pradhan is illustrated in table 1.

Criteria for near miss were critical care received in ICU, CCU, SICU (Surgical intensive care unit) and ICCU (Intermediate Coronary Care Unit) and Dialysis Unit. For an example, only those cases of eclampsia were enrolled as near miss if they were cared in the specialized care units or if they had nearly fatal complications like HELLP syndrome (haemolysis, elevated liver enzymes and low platelet). All the serious cases of infective hepatitis, Hepatic encephalopathy and jaundice care and surgery like two surgeries at one time (caesarean and surgical intervention) emergency obstetric hysterectomy, re-laparotomy for surgical complication, double anesthesia exposure within a single hospital stay or any anaphylactic shock. The result obtained 28 maternal deaths and 75 near miss mortality.

Of the recorded maternal mortality, there were equal number (13) of direct and indirect obstetric deaths and two non maternal deaths. Main causes of direct maternal deaths were PPH (6), sepsis 5 [septic abortion (2), puerperal sepsis (2) and sepsis in pregnancy (1)] and eclampsia (2). Whereas infective hepatitis (10), heart disease (2) and tuberculosis (1) were the leading

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causes of indirect obstetric deaths. Similarly, two non maternal mortalities occurred from anaphylaxis and burn.

Seventy five near miss cases saved from dying formed twice (2.6) as much the number of maternal mortality. These were formed by PPH 20, hypertensive disorder of pregnancy 15 [eclampsia (9) and severe pre-eclampsia (6)]; infection 11 [induced abortion (4); Infection 7 during pregnancy (2) postpartum (5)], ruptured uterus 8; ectopic 5, heart disease 5, diarrhea (2). There was a case each of anesthetic complication during CS, infective hepatitis, cirrhosis diagnosed after the primary management of PPH, anemia with CCF, tuberculosis, anaphylactic shock from insect bite, drug allergy, burn and homicide.

In short, infective hepatitis was an epidemic in 2006 and killed 10 out of 11 women infected with infective hepatitis. On the other hand there was clean save from ectopic pregnancy and ruptured uterus. Of the morbidity, a case of diarrhea and acinetobacter induced chorioamnionitis which lead to chronic renal failure needed renal transplant. Multiple bowel injuries, a complication of induced abortion which was resected in major bulk, persistently gave rise to dyselectrolytemia from short bowel syndrome.

To wrap up the findings, our study is in the agreement with other studies showing the primary obstetric causes

of severe maternal morbidities to be obstetric haemorrhage, sepsis, hypertensive disorder of pregnancy and obstructed labor with averted deaths at the same time by the quality of care that was provided.^{4,5} This is true of any institution.

“Mortality Index – MI “which is defined as the ratio of maternal deaths among near-miss cases to the sum of maternal deaths and near-miss cases, indicates the proportion of women who are Near-miss cases and subsequently die.⁶

The term “conversion rate” is expressed as the number of maternal death divided by SAMM + maternal death X 100 is an indication treatment of a particular complication, a low conversion rate thus being a representation of a successful treatment.

Let me conclude by saying that the **Nepal society of Obstetricians and Gynaecologists** has been taking initiative in reducing maternal mortality of our country which is now expressed as 281 /100000 births (2006). NESOG has gone door to door in various part of the country for PPH prevention with agendas like AMTSL (active management of third stage of labor). Currently this society is involved in the training of skilled birth attendant (SBA) which aims at effective reduction of maternal mortality to meet the Millennium Development Goal 5.

Table I. Maternal mortality and near miss.

Conditions	Mortality	Near miss
Direct Causes		
PPH	6 PPH	20
-	Ectopic	5
SIA	2 SIA	4
P sepsis	1 P sepsis	5
Sepsis	2 Antepartum sepsis	2
Eclampsia	2 Eclampsia	9
	Pre eclampsia	6
	Ruptured uterus	8
	Anaesthesia complication at CS	1
Indirect Causes		
Hepatitis	10 Hepatitis	1
	Cirrhosis (treated for PPH)	1
Heart disease	2 Heart disease	5
	Diarrhea [CRF (1)]	2
	Severe anemia with CCF	1
TB	1 TB	1
Non maternal events		
Burn	1 Burn	1
Anaphylaxis	1 Anaphylactic shock from insect bite	1
	Drug allergy	1
	Homicide	1

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