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A Three Year Review of Maternal Mortality in a District Hospital on the West Coast in South India (April 2011-2014)

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Abstract:
Aim and Objective:

- *To study the causes behind maternal deaths in the 3 year review period.*
- *To analyze the trend of MMR over 3 years of study.*
- *To evaluate preventable causes and use the data to take measures to reduce MMR*

Materials And Methods: It is a retrospective study from April 2011 to April deaths 2014 that occurred at LGH during pregnancy and 42days of delivery of any cause. Maternal mortality cases were identified from the registry and the corresponding files were retrieved from the hospital medical records section. The details were recorded in the designed proforma &Influences of variables such as age, parity, gestation from at diagnosis, MMR is Calculated
Results: There were 26 cases of maternal mortality of the 18430deliveries in our hospital from April 2011 to April 2014 our MMR thereby being 135.6/ 100000 .Of the 26 deaths,7(26.9%) were due to PPH,5(19.5%)due to pre eclampsia,4(15.3%)due to sepsis,10(38.3%) due to medical disorders Anemia was seen in 17(65.3%)patients of 26 maternal deaths in this study severe anemia was seen in 5(19.2%)
Conclusion: In conclusion we would like to focus on anemia correction, educating the health
Care Providers to recognize complications of pregnancy and delivery, early referrals to Higher centres and use of primary measures to tackle atonic PPH.

1. Introduction

Maternal mortality continues to be one of the major public health problems especially our country. It is a vital index of the effectiveness of obstetric services prevailing in a country Preeclampsia, postpartum hemorrhage and sepsis are the most important direct causes of maternal death[1,2] Anemia and jaundice are the two important indirect causes.. The causes of maternal death in developing and developed countries are almost the same but there is a massive difference in women's chance of surviving the complications.

According to most recent censes 2, 87000 women die every year. More than 800 women die per day, more than 30 die every hour. More than 85% die in sub Saharan and south Asian regions.[3]

In order to encourage the international community to address this challenge, maternal mortality reduction was included as one of the Millennium Development Goals, MDG 5. The target of MDG 5 is to reduce maternal mortality ratio (MMR) by 75%, from 1990 to 2015[4]. The decline in MMR from 1990- 2010 is 47%(global scenario) and 60% (Indian scenario).Going by this pace we would achieve the MMR of 195 by the year 2012 and of 160 by 2015, far from the NRHM goal of 100 per 100,000 live births by 2012 or Millennium Development Goal of 109 per 100,

2. Aim and Objective:

- To study the causes behind maternal deaths in the 3 year review period.
- To analyze the trend of MMR over 3 years of study.
- To evaluate preventable causes and use the data to take measures to reduce MMR

3. Materials and Methods

It is a retrospective study from April 2011 to April deaths 2014 that occurred at LGH during pregnancy and 42days of delivery of any cause. Maternal mortality cases were identified from the registry and the corresponding files were retrieved from the hospital medical records section. The details were recorded in the designed proforma &Influences of variables such as age, parity, gestation from at diagnosis, MMR is Calculated000 live births by 2015.[5]

3.1. Inclusion Criteria

- All maternal deaths occurring during pregnancy and within 42 days of delivery
- Ectopic pregnancies
- Septic abortions
- Molar pregnancies

3.2. Exclusion Criteria

- All maternal deaths occurring after 42 days of termination of pregnancy
- Accidents

4. Results

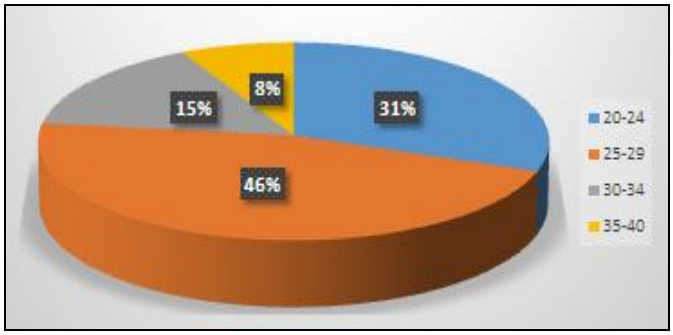
Out of 18430 deliveries over 3 years, the overall Maternal mortality ratio is135.6 was found to be with a gradually increasing trend from 2011 to 2014.

Incidence of maternal mortality was found to be more in multigravidas(76%), 25-29years(48%), period of gestation more than 37 weeks (76%), unbooked cases (88%),with Hb 7-10gm%(44%) and of the various causes of maternal mortality,

Of the 26 deaths,7(26.9%) were due to PPH,5(19.5%) due to pre eclampsia,4(15.3%) due to sepsis,10(38.3%) due to medical disorders Anemia was seen in 17(65.3%) patients of 26 maternal deaths in this study .severe anemia were seen in 5(19.2%)

Age	Frequency	Percentage
< 20	0	
20 – 24	8	30.7%
25- 29	12	46.1%
30 – 34	4	15.3%
35- 40	2	7.6%
>40	0	
Total	26	100%

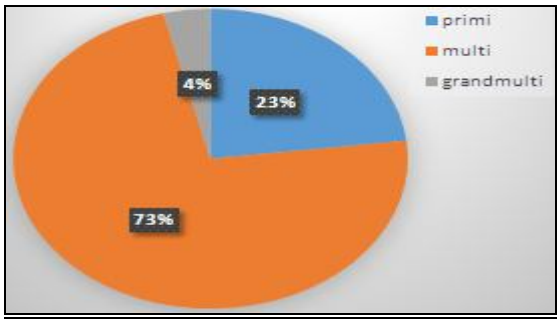
Table 1: MMR in relation with age



MMR minimum in 25-29 years (46%)

Parity	Number	Percentage
Primigravida	6	23.07%
Multigravida	19	73.07%
Grand multi	1	3.84%
Total	26	100%

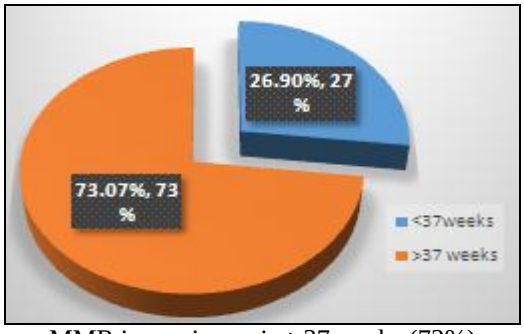
Table 2: MMR in relation to parity



MMR is maximum in multigravida (73%)

Gestational age	Number	Percentage
<37 weeks	7	26.9%
>37 weeks	19	73.07%
Total	26	100%

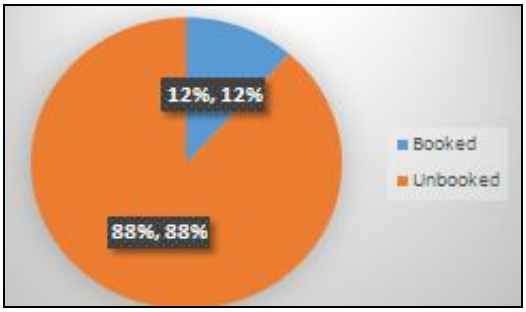
Table 3: MMR in relation to gestational age



MMR is maximum in >37 weeks (73%)

Booked/ Unbooked	Frequency	Percentage
Booked	3	11.5%
Unbooked	23	88.5%
Total	26	100%

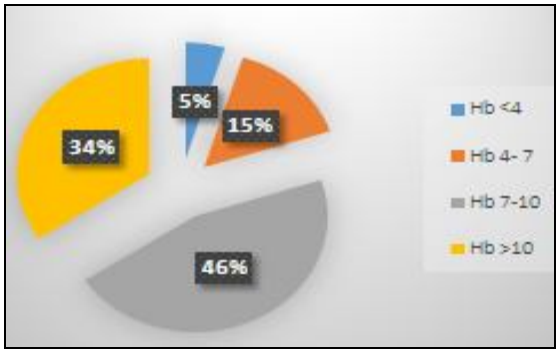
Table 4: MMR in relation with booked/ unbooked



MMR maximum in unbooked cases (88%)

Hb	Frequency	Percentage
<4	1	4.8%
4-7	4	15.3%
7-10	12	46.1%
>10	9	34.6%
Total	26	100%

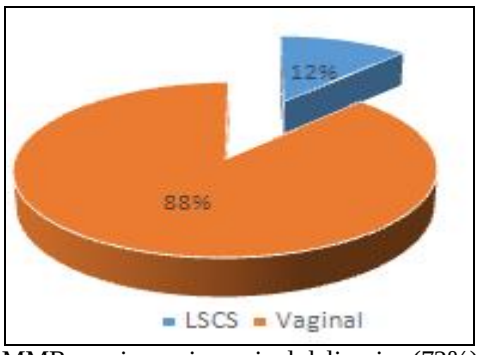
Table 5: MMR in relation with Hb



MMR maximum in patients with Hb (44%)

Mode of Delivery	Frequency	Percentage
Vaginal	18	72%
LSCS	8	28%
Total	26	100%

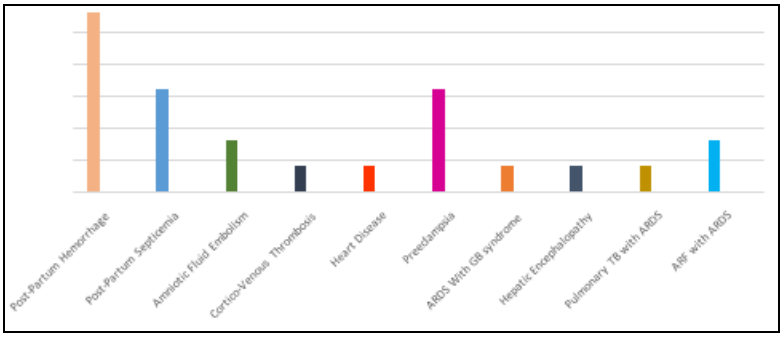
Table 6: MMR with mode of delivery



MMR maximum in vaginal deliveries (72%)

Causes of Death	Total	Percentage
Post-PartumHemorrhage	7	26.9%
Post-PartumSepticemia	4	15.3%
Amniotic Fluid Embolism	2	7%
Cortico-Venous Thrombosis	1	3.8%
Heart Disease	2	7%
Preeclampsia	5	19.2%
ARDS With GB syndrome	1	3.8%
Hepatic Encephalopathy	1	3.8%
Pulmonary TB with ARDS	1	3.8%
ARF withARDS	2	7%
Total	26	100%

Table 7: MMR in relation with causes of death



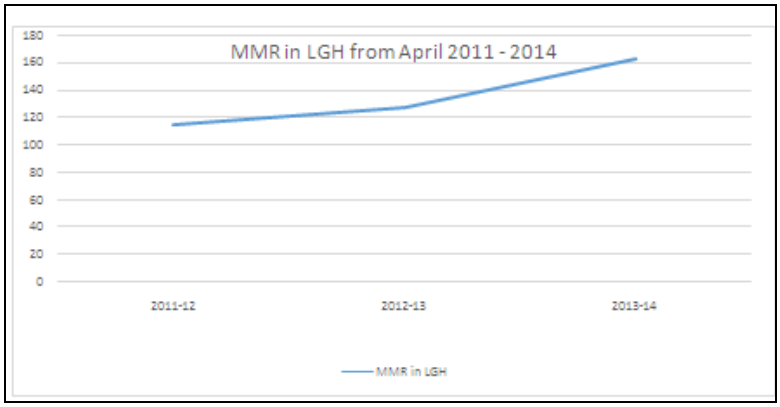
Maximum maternal deaths are due to PPH, 7 (26.9%)

INDIAN SCENARIO

INDIAN STATES	MMR (2007-2009)
Uttar Pradesh	359
Rajasthan	318
Madhya Pradesh	269
Bihar	261
Odisha	258
KARNATAKA	178
Kerala	81
TOTAL	1724

SRS DATA 2011

MMR IN LGH



There is a gradual rise in MMR from April 2011-2014. MMR in 2011-115, 2012-127, 2014-163

5. Discussion

During this study period from April 2011 to April 2014, 25 maternal deaths have occurred among 18,430 live-births. Our hospital is a major tertiary referral centre which caters to more than 88% of unbooked high risk cases. In this study maternal mortality with regard to age, obstetric score, booked vs unbooked, socio economic states, mode of delivery and causes of death were critically analyzed

Majority of maternal deaths have occurred in the age group of 25-29 years and this does not correlates with Surendranath Panda et al (2000)[8] and Nikhil Purandare et al (2007).[9] Most of the maternal deaths were in unbooked cases and was consistent with Verma Ashok et al (2008)[10]

In our 3 year review we found that atleast 14 deaths were preventable had they been referred early. Out of the 3 patients who died of atonic pph precious time was wasted in shifting patients from their respective PHC or HOSPITALS to our centre more than 100 km away.2 patients died within an hour of arrival, one was brought dead. The rest

6 patients died of sepsis which is also an avoidable cause of death if proper aseptic precautions are employed. Of these one had abruption, one had severe anemia, one had PROM and another patient reported to medicine department with breathlessness and chest pain at 28 weeks gestation. She died within 6 hours of admission. These were the 4 unregistered cases who died of sepsis.2 of our registered cases succumbed to sepsis. One was a patient with GDM who died on post natal day 7.another patient with no known medical complications ante or post natal period died on post op day 9within four hours of admission for c/0 fever, head ache and altered sensorium.

The 4 patients who died of severe preeclampsia were not registered with us. They came to us after jaundice or eclampsia occurred. These were probably avoidable deaths if pregnancy was terminated early. Early referral to a higher centre would have helped these patients.

The other deaths were in patients with known medical disorders. Pulm. TB 1,Eisenmenger,s 1,HIV1,akd 1.the other 3 deaths were due to jaundice(leptospira), pulm, embolism, amniotic fluid embolism,GBS1

In our study, anaemia is the leading indirect cause of maternal mortality which correlates with the results from Surendranath Panda et al (2000)[8] and Verma Ashok et al (2008)[10]

"Whose faces are behind the numbers? What were their stories? What were their dreams? They left behind children and families. They also left behind clues as to why their lives ended so early"

6. Conclusion

In conclusion we would like to focus on anemia, educating the health care providers to recognize complications of pregnancy and delivery, early referrals to higher centres and use of primary measures to tackle atonic PPH.

Primary management of atonic PPH and its anticipation should be made known to HC providers through education..They must go through atonic PPh medical management, .the use of condom tamponade till they reach the nearest higher centre. They must be made aware of going to the nearest centre with blood bank facility in case of PPH as precious time is lost when they go to a centre > 100km away. Phone calls to these centres must be made in advance so that blood or its components can be arranged .

Collectively taken measures as recognition of complications and timely referral of high risk patients, anemia correction and timely management of PPH will go a long way in bringing down the MMR by atleast 60%.

As medical professionals we should keep good records and evaluate the possible cause in the event of maternal death. Lack of consent for an autopsy leaves us without a proper cause of death. When possible, a consent for autopsy must be obtained and the findings entered in the case sheet.

If we implement the above measures we can bring down the MMR to 109, near the MDG. We all can collectively move towards safe motherhood with simple measures. It is concluded that majority of the maternal deaths can be averted by' proper and timely intervention of 3E s i.e., emergency obstetric care, early risk screening and efficient obstetric services

- Safe Motherhood Is The Right Of Every Woman.

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