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Original Research Article

To study the changes in the trends of maternal mortality before and after Janani Suraksha Yojana (JSY) in M.Y. Hospital, Indore during period (2000-2019)

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ABSTRACT

Background: The World Health Organization (WHO) defines a maternal death as "the death of a woman while pregnant or within 42 days of termination of pregnancy, irrespective of the duration and the site of the pregnancy, from any cause related to or aggravated by the pregnancy or its management but not from accidental or incidental causes. India alone has 22% of the global total.

Materials and Methods: This study was performed in Department of Obstetrics & Gynaecology, M.Y. Hospital & M.Y. Hospital, Indore from January 2000 to September 2019. In year 2005, with the goal of reducing the numbers of maternal and neonatal deaths, the Government of India launched Janani Suraksha Yojana (JSY). This study was planned to assess the effect of JSY on maternal mortality and also on other maternal health parameters by observing the pre and post JSY data from January 2000 to September 2019. Data were analyzed for 04 years (2000-2004) before the implementation of JSY and compared with 15 years (2005-2019) following implementation of JSY.

All the cases of maternal mortality during this period were studied, causes of these maternal mortalities were evaluated, various socio-demographic factors associated with the maternal death analyzed, and changing trends in maternal mortality pre and post JSY was analyzed. Focus was on all causes of maternal mortality particularly direct causes of maternal mortality for which management usually involves maternity care professional.

Study Designed: Observational study.

Result: Total Maternal Death during study period 2000 to 2019 was 903. Maximum maternal Death is recorded in the age group 21-30 yrs (68%). Maternal Mortality is more in Primi Patients, i.e. 337 out of 903 (37.32%) of Maternal Death.

Conclusion: According to this study, after the implementation of JSY institutional admission and deliveries increased.MMRin pre JSY i.e,2000-2004 was 545.40,and in post JSY PeriodMMRin 2005-2009 was 523.82, MMRin 2010-2014 was 472.90, MMR in 2015-2019 was 389.28 (post JSY). Hence after the introduction of JSY in year 2005 we found that MMR showed continuous decreasing trend.

1. Introduction

The World Health Organization (WHO) defines a maternal death as "the death of a woman while pregnant or within 42 days of termination of pregnancy, irrespective of the duration and the site of the pregnancy, from any cause related to or aggravated by the pregnancy or its management but not from accidental or incidental causes Every year, more than 500,000 (More than half a million) (UNICEF (2008)). Women die during pregnancy or childbirth every year, and many millions suffer from inadequately treated complications.[1] About half of these deaths occur in sub-Saharan Africa and about one third occur in South Asia–the two regions together account for about 85 per cent of all maternal deaths. In sub-Saharan Africa, a woman's risk of maternal death is 1 in 22, compared with 1 in 8.000 in developed country. India alone has 22% of the global total.

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One of the three health-related UN Millennium Development Goals (MDGs) seeks to see a 75% reduction in maternal mortality worldwide by the year 2015.

Maternal Mortality Ratio is the ratio of the number of maternal deaths per 100,000 live births. The MMR is used as a measure of the quality of a health care system. Sierra Leone has the highest maternal death rate at 2,000, and Afghanistan has the second highest maternal death rate at 1900 maternal deaths per 100,000 live births, reported by the UN based on 2000 figures. According to the Central Asia Health Review, Afghanistan's maternal mortality rate was 1,600 in 2007.[2] Lowest rates included Ireland at 0 per 100,000 and Austria at 4 per 100,000. In the United States, the maternal death rate was 11 maternal deaths per 100,000 live births in 2005.[3] This rose to 13.3 per 100,000 in 2006. "Lifetime risk of maternal death" accounts for number of pregnancies and risk. In sub-Saharan Africa the lifetime risk of maternal death is 1 in 16, for developed nations only 1 in 2,800.

Most maternal deaths are related to obstetric complications- including post-partum haemorrhage, infections, eclampsia and prolonged or obstructed labor. In 2005, with the goal of reducing the numbers of maternal and neonatal deaths, the Government of India launched Janani Suraksha Yojana (JSY), a conditional cash transfer scheme, to incentivize women to give birth in a health facility So, by delivering a baby in a medical facility, under the supervision of a skilled medical professional can make a significant dent in the instances of maternal and neo-natal mortality. We independently assessed the effect of JSY on intervention coverage and health outcomes.[4]

2. Materials and Methods

The study was performed in Department of Obstetrics & Gynaecology, M.Y. Hospital & M.Y. Hospital, Indore from January 2000 to September 2019. In year 2005, with the goal of reducing the numbers of maternal and neonatal deaths, the Government of India launched Janani Suraksha Yojana (JSY). This study was planned to assess the effect of JSY on maternal mortality and also other maternal health parameters.

1. All the cases of maternal mortality during this period were studied, causes of these maternal mortalities were evaluated, various socio-demographic factors associated with the maternal death analyzed, and changing trends in maternal mortality analyzed.
2. In this study selected definition, which were clinically based and routinely measurable were taken and they did not include management process.
3. This study focused on all causes of maternal mortality particularly direct causes of maternal mortality for which management usually involves maternity care professional.

Following are the details of condition investigated and their definition in the study.

1. Postpartum hemorrhage: Any amount of bleeding from or into genital tract following birth of the baby upto the end of puerperium which adversely affects the general condition of the patient evidenced by rise in pulse rate and falling in blood pressure.
2. Ruptured ectopic pregnancy: Intraperitoneal rupture of ectopic pregnancy, uterine or extra uterine leading to blood pressure <80 mmHg and emergency exploratory laparotomy.
3. Severe preeclampsia: Blood pressure 170/100 mmHg on 2 occasions 4 hours apart or > 170/100 mmHg once plus >0.3 gms in 24 hours proteinuria or >2+on dipstick or diastolic blood pressure >90 mmHg plus proteinuria on one occasion plus one of the following signs or symptoms - Oliguria <30 ml/hrs for 2 hours, visual disturbances (flashing light or blurred vision) epigastric pain or tenderness, thrombocytopenia < 100 x 109/L, pulmonary edema.
4. Uterine rupture: Acute dehiscence of uterus leading to emergency delivery of infant.

3. Results

Total maternal death during study period 2000 to 2019 was 903. Maximum maternal death is recorded in the age group 21-30 yrs.

Maternal mortality is more in primi patients, i.e. 337 out of 903.

3% maternal death occurred in primi patients out of 903 cases of Maternal death.

4. Discussion

The death rate for women giving birth plummeted in the 20th century. Every minute a woman dies as a result of pregnancy or childbirth. The loss per annum of 500,000 women[5] is mind boggling. A maternal death is the outcome of a chain of events and disadvantages throughout a woman's life. Every time a woman in the third world becomes pregnant, her risk of dying is 200 times higher than the risk run by a woman in the developed world.

The present study extended from the period of January 2000-2019 September in the department of Obs & Gynae, MYH, Indore.

During study period total obstetric admissions were 103621. Total no of Labour during study period were 80759. Total Maternal Deaths during study period were 903.

MMR according to this is 517.58 per lakh live births current study focused on various causes of maternal death particularly direct causes which account for 80% of maternal deaths in developing countries.[6]

Total admissions before JSY were 37251 and total admission after JSY were 226452. This clearly indicates that

Table 1: Age wise mortality per year from 2000 to 2019

Year	Total Mortality	Age Wise Mortality		
		15-20	21-30	31-40
2000-2004	151	42	96	13
2005-2009	234	61	152	21
2010-2014	276	64	168	44
2015-19	242	62	160	20
Total	903	229	576	98

Table 2: Showing percentage of maternal death age wise

Age Group (Yrs)	Number of Mortality	% of Total Mortality
15-20	229	25%
21-30	576	68%
31-40	98	11%

Table 3: Parity wise mortality per Year from 2000 to 2019

Year	Total	P_o	P_1	P_2	P_3	P_4	P_5	P_6	PNC
2000-2004	151	54	29	21	16	7	3	0	21
2005-2009	234	91	41	31	16	11	4	4	36
2010-2014	276	100	56	28	18	18	5	2	49
2015-2019	242	92	45	26	18	12	6	0	43
Total	903	337	171	106	68	48	18	8	148

Table 4: Showing percentage of maternal death parity wise

Parity	Number of Mortality	% of Total Mortality
P_0	337	37.3%
P_1	171	19%
P_2	106	12%
P_3	68	7.5%
P_4	48	5.30%
P_5	78	2%
P_6	08	0.8%
PNC	148	16.3%

Table 5: Comparison of maternal death mortality 5 year before and after JSY

Year	Total Admission	Labour	Death	MMR
2000-2004	37251	27686	151	545.40
2005-2009	56287	44671	234	523.82
2010-2014	77763	58363	276	472.90
2015-2019	92402	62166	242	389.28

there were more obstetric admission after implementation of JSY.

Total no. of Labour before JSY were 27686 and total Labour after JSY were 165200, which clearly indicates that total no. of Labour also increased after implementation of JSY.

Most of the cases of maternal death occurred in age group 21-30 yrs, i.e. 68% and 25% occurred in teenage 15-20 yrs. Teenagers more likely to be anemic, so any type of obstetric hemorrhage gets aggravated. There are increases risk of Hypertensive disorders in pregnancy, PTL, IUGR in babies, thus have greater calorie requirement then older women.[7]

5. Conclusion

According to this study, after the implementation of JSY institutional admission and deliveries increased. Total number of obstetrics admission during study period January

2000 to Sept 2019 were 263703, total no. of labour in that period were 192886, total number of maternal death was 903 and therefore, the MMR of MYH from January 2000 to September 2019 was 517.58/lakh live birth, age wise mortality was more in 21-30 yrs, i.e. 68% followed by teenage 15-20 yrs mortality 25%. Parity wise maternal death was mostly in primi, i.e. 37.30% of total maternal deaths. MMRin pre JSY i.e, 2000-2004 was 545.40,and in post JSY PeriodMMRin 2005-2009 was 523.82, MMRin 2010-2014 was 472.90, MMR in 2015-2019 was 389.28 (post JSY). Hence after the introduction of JSY in year 2005 we found that MMR showed continuous decreasing trend. From this study we can say that the JSY scheme has successful impact on maternal mortality and overall maternal and neonatal parameters outcome. It caused increased institutional delivery of high risk pregnant patients, which further reduced maternal morbidity and mortality, improve child survival, and ensure equity in maternal healthcare in India.

6. Source of Funding

None.

7. Conflict of Interest

None.

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