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Research Article

Impact of Janani Suraksha Yojana on institutional delivery rate, incidence of rupture uterus and feto-maternal outcome related to uterine rupture

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ABSTRACT

Background: To study the impact of janani suraksha yojana (JSY) on institutional delivery rate, incidence of rupture uterus in pregnant women, maternal and fetal mortality rate related to rupture uterus.
Methods: 33 cases of rupture uterus which occurred before -implementation of JSY in our hospital in one year duration i.e Jan 2007-Dec 2007 (group 1) were studied and compared with 41 cases which occurred after implentation of JSY in one year i.e. July 2014-Jun 2015 (group 2). This is a retrospective observational study. Information were collected regarding number of institutional deliveries, incidence of rupture uterus ,previous history of unscarred and scarred uterus, maternal and fetal mortality rate related to uterine rupture.
Results: there was 125% proportional increase in the institutional deliveries, significant decrease in the incidence of rupture uterus ($Z=2.5963$, $P<0.05$) and maternal mortatility (Chisquare at 1 df=4.326, $P<0.05$) after implementation of JSY.
Conclusions: JSY is working excellently and need to be extended until we achieve the goal of 100% institutional deliveries and 0 % maternal mortality rate related to rupture uterus.

Keywords: Rupture uterus, JSY, Institutional deliveries, Maternal mortality, Unscarred uterus, Scarred uterus, Fetal mortality

INTRODUCTION

Uterine rupture is one of the most serious obstetrical catastrophes and contributes significantly to maternal and perinatal morbidity and mortality. Despite greatly improved medical care in our country, the incidence of this dreaded complication especially in rural sector has marginally decreased. The most prominent reason being deliveries conducted by untrained personnel in rural parts of the country.

The government of India gave high priority to promote institutional deliveries to improve maternal survival as a part of national policy and also being a signatory of millennium development goal (India, Ministry of health and family welfare, 2002).[1] Therefore, a well-known scheme Janani suraksha yojana or JSY was launched in April 2005 under the umbrella of national rural health mission or NRHM of India. Ministry of health and family welfare 20062, Laharia C 2009.[3] But it was implemented in January 2008 in our hospital. The major objectives of JSY were to reduce maternal mortality ratio and infant mortality rate by encouraging institutional deliveries and focusing on institutional care among women, particularly those belonging to families below poverty line.

The present study was a retrospective observational study and were planned to assess the impact of JSY on institutional deliveries, incidence of rupture uterus, its various contributing factors and fetomaternal outcome related to it.

METHODS

The study was conducted in obstetrics and gynecology department of B R D Medical College, Gorakhpur. This is the biggest tertiary care hospital in this region and is main referral centre for 6-7 adjoining district of Uttar Pradesh, Bihar and neighbouring country Nepal also.

The data were collected retrospectively in two phases- Firstly for the period of one year duration from January 2007 to December 2007 i.e before the implementation of JSY (group 1) and secondly from July 2014 to June 2015 i.e after implementation of JSY (group 2).

Total 74 cases of rupture uterus were studied. 33 cases of rupture uterus which occurred before implementation of JSY in the selected period were included in group 1 and 41 cases which occurred after implementation of it were included in group 2.

Cases beyond 28 weeks of gestation presenting as rupture uterus including both scarred and unscarred at our hospital were included. Undiagnosed cases of rupture uterus with scar dehiscence (incomplete rupture) recognized during caesarean section were also included in the study.

This observational study collected information about the number of institutional deliveries, incidence of rupture uterus, contributing factors, previous obstetric history regarding scarred or unscarred uterus and feto maternal outcome.

RESULTS

Table 1 shows that the absolute number of delevries in group 1 and group 2 were 1597 and 3594 respectively, showing a 125% increase in the institutional deliveries after implementation of JSY. Absolute number of rupture uterus in group 1 and group 2 were 33 and 41 respectively. Thus the incidence of rupture uterus in group 1 and group 2 were 2.06% and 1.14% respectively, showing significant decrease (Z=2.5963, P<0.05) in the incidence of rupture uterus after implementation of JSY.

Table 1: Showing incidence of rapture uterus.

	No. of deliveries	No. of rupture uterus	Incidence of rupture uterus
Group 1	1597	33	(2.06%)
Group 2	3594	41	(1.14%)

Z = 2.5963, P<0.05, significant

Table 2 shows that in group 1, 19 patients (57.57%) had unscarred uterus which ruptured spontaneously after prolong trial of labour following obstructive pathology and 14 patients (42.42%) had scarred uterus, due to previous caesarean section, hyterotomy, myomectomy, septoplasty and dilatation and evacuation. In group-2, 21 (51.21%) patients had unscarred and 20 (48.78%) had scarred uterus. This shows comparative decrease in rupture in unscarred uterus while increase in scarred uterus after implementation of JSY But this is not statistically significant (Chi-square at 2df=0.146, P>0.05)

Table 2: Distribution of cases regarding scarred or unscarred uterus.

	Patients with scarred uterus	Patients with unscarred uterus
Group 1	14 (42.42%)	19 (57.57%)
Group 2	20 (48.78%)	21 (51.21%)

Chi square at 2DF = 0.146, P > 0.05, not significant

Table 3 shows that out of 33 patients in group 1, we saved 25 (75.75%), however not able to do so in 8 (24.24%) patients. While in group 2, out of 41 patients, 39 (95.12%) were saved and 2 expired. This shows a significant decrease in maternal mortality after JSY implementation (Chi-square at 1DF= 4.326, P<0.05)

Table 3: Distribution of cases according to maternal outcome.

	No. of deliveries	Maternal mortality	Maternal survival
Group 1	33	8 (24.24%)	25 (75.75%)
Group 2	41	2 (4.88%)	39 (95.12%)

Chi square at 1DF = 4.326, P<0.05, significant

Table 4: Distribution of cases according to fetal outcome.

	No. of deliveries	Fetal mortality	Fetal survival
Group 1	33	31 (93.93%)	2 (6.06%)
Group 2	41	39 (95.12%)	2 (4.87%)

Table 4 shows that out of 33 babies in group 1, 31 (93.93) fetuses were died in utero, only 2 (6.06%) babies were survived, while out of 41 fetuses in group 2, 39 (95.12%) babies were died and 2 (4.87%) were saved. This shows no significant difference between two groups regarding fetal mortality related to rupture uterus (Chi-square at 1 DF=0.050, P>0.05). This means that there is no significant impact of this national policy over fetal outcome as patients had already dead fetuses in their abdominal cavity. Only those foetuses were survived whose mothers had scar dehiscence or incomplete rupture after trial of VBAC in our institution.

Table 5 as per observation we found that only 16 (39.02%) patients were accompanied by ASHA. Rest 25 (60.97%) patient were not accompanied by them.

Table 5: Attendance of ASHA with patients at the time of delivery in post JSY period.

Total no of patients in post JSY period	No. of patients accompanied by ASHA	No. of patients not accompanied by ASHA
41	16 (39.02%)	25 (60.97%)

DISCUSSION

We observed that institutional deliveries have increased 125% after implementation of JSY. Similar results were observed in other studies indicating that the benefits of this scheme are being availed by a wider portion of the population (Gupta S K et al, Sharma MP et al, 2009, Iyenger SD et al 2009).[4-6] There was significant decrease in the incidence of rupture uterus in post JSY period. JSY has motivated patients to conduct institutional deliveries, thereby avoided prolong trial of labour by untrained personnel leading to rupture uterus.

Offcourse, there is a significant decrease in the incidence of rupture uterus ($Z=2.5963$, $P<0.05$) after implementation of JSY. But this remaining incidence 1.14% is still very high in comparison to other countries as 0.02% in UK (Fitzpatrick et al), 0.0521% in China (Xiaoxia B et al), 0.67% in Pakistan (Nousheen et al), 0.85% in northern Nigeria (Akaba GO et al), 0.225% in Tanzania (Kidanto HL et al), 1.46% in southern Nigeria (Kelechi et al) and even other parts of India also as 0.07% in Mumbai (Nagarkatti RS et al).[7-12]

We have observed that rupture uterus occurred much more frequently in unscarred uterus in our study group even after implementation of JSY. This might be due to deliveries conducted by untrained personnel in rural sectors where either proper medical care is still not available or the ill-informed, uneducated patient and family are still reluctant to seek any trained help. This has been found in some other studies from low income countries (Kidanto HL et al, Padhye et al, Amanel et al, Miller et al, Mulumba).[11,14-17] This has been found against the studies of Kelechi et al, Xiaoxia B. et al, Nausheen et al 2012 8.[7,8,12,19,20] However, a comparative increase in the frequency of rupture in scarred uterus was also observed in post JSY period. This might be due to overall increase in rate of caesarean section, inadequate monitoring of patient on trial of scar, delayed referral.

It is observed in our study that maternal mortality related to rupture uterus has been decreased significantly after implementation of this scheme. But the remaining maternal mortality (4.88%) is still higher in comparison to the studies like Xiaoxia B et al (0%), Fitzpatrick et al (1.3%) and lower to studies Akaba et al (14.7%), Nousheen et al (8.19%), Hussain L et al (6.6%).[7-10]

We have observed that perinatal mortality was almost same in both groups i.e 93.93% and 95.12% in group 1 and group 2 respectively. This incidence of fetal case fatality rate is comparable to Akaba et al (90.7%), Kidanto H. L. et al (96.3%) and Nousheen et al (83.6%).[9-11]

It is observed that major bulk of patients (60.97%) were not taken care by ASHA at the time of delivery which shows that there is a definite lack of fieldwork at periphery. Probability is that the incidence of rupture uterus and maternal mortality in post JSY period could have decreased more than that of showing today.

CONCLUSION

Most cases of rupture uterus are preventable with good antenatal and intrapartum care and proper identification of high risk cases. The study points that the JSY has increased the proportion of institutional deliveries decreased the incidence of rupture uterus and maternal mortality related to it. But we yet have a long way to go to achieve the targets comparable to developed countries. The study draws our attention towards the astonishingly high incidence of rupture uterus in Eastern Utter Pradesh even after seven years of implementation of janani suraksha yojana. To fulfill the aim of JSY, we will have to ensure more dedicated work by peripheral workers including ASHA, so that we can reduce the incidence and related maternal mortality of this dreaded complication.

We also need to extend this scheme until we achieve the target of 100% institutional delivery rate, so that we would be able to prevent the occurrence of uterine rupture and 0% maternal mortality related to it.

To achieve these goals, we have to do proper utilization of antenatal care services, prompt referrals, proper monitoring of labor both in the referring facilities and tertiary hospitals as well as improvement of comprehensive emergency obstetric care services in all levels.

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