

## ORIGINAL RESEARCH

### **A Hospital Based Prospective Study to Assess the Postnatal Changes and Postnatal Complications Among Postnatal Mothers with Caesarean Section and Vaginal Delivery at Tertiary Care Center**

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#### **ABSTRACT**

**Background:** Maternal health and wellbeing influences the development of the child. Healthy children are assets for family, community, and the nation. The problems of maternal mortality and morbidity are complex, involving women's status, education, employment opportunities, and availability of health services. The aim of this study to assess whether the changes in the mode of delivery have brought about any changes in the outcome of birth and complications.

**Materials & Methods:** A hospital based prospective study done on 100 postnatal mothers i.e., 50 mothers who had undergone caesarean section and 50 mothers who had vaginal delivery in government hospitals pali, Rajasthan, India during one year period. Data collection is a precise, systematic gathering of information relevant to the research process. A structured interview schedule for collecting baseline data of the respondents. A semi structured observation schedule on postnatal changes, which comprised of 19 parameters for assessing physiological and psychological changes after caesarean section and vaginal delivery.

**Results:** Our study showed that mean age of patients was 25.38 years in caesarean section and 26.22 years in vaginal delivery, which was statistical insignificant ( $P > 0.05$ ). As far as the type of vaginal delivery is concerned, majority of mothers had normal vaginal delivery (45 i.e. 90%) and very less number of mothers (5 i.e. 10%) had undergone instrumental delivery. All postnatal mothers who underwent caesarean section (50 i.e. 100%) had firm and retracted uterus compared to 48 mothers (96%) with vaginal delivery on first postnatal day. Majority of mothers who had caesarean section (20 i.e. 40%) started self-care on third postnatal day compared to 36 mothers (72%) with vaginal delivery who started self-care on first postnatal day itself.

**Conclusion:** This study showed that the postnatal mothers had high learning needs regarding post-natal care after emergency LSCS and their self-care practices performed was poor. The self-care practices were increased every day, because awareness created by the health personnel during hospital stay.

**Keywords:** Vaginal Delivery, LSCS, Postnatal Changes, Postnatal Complications.

## INTRODUCTION

Mother is the most important person in the child's life. Maternal health and wellbeing influences the development of the child. Healthy children are assets for family, community, and the nation. The period after childbirth is a critical time for the health of mother and her baby. With the joy of getting a newborn, most families tend to believe that nine months of added care and anxiety have come to an end.<sup>1</sup>

The postnatal period starts about an hour after the delivery of placenta and includes the following 6 weeks. It is a special phase involving special needs. Puerperium is the time of reflection of pregnancy and birth experiences, a time of adjustment to the new role. It is an opportunity for women to rest and recuperate, following delivery, to receive guidance and support and information on baby care.<sup>2</sup> Obstetric complications are the leading causes of death for women of reproductive age in developing countries today and constitute one of the world's most urgent and not easily manageable health problems.<sup>3</sup> Worldwide, every minute one woman dies of pregnancy related complications. Nearly 600,000 women die each year. Of these 99%, occur in developing countries. Fifty to seventy one percent occur during the postnatal period. Globally the major causes of maternal deaths are severe bleeding (25%), infection (15%), eclampsia (12%), obstructed labour (8%) and other direct causes.<sup>4</sup>

The psychological problems in the postpartum period are postpartum blues, postpartum depression, and puerperal psychosis. Postpartum blues are now considered as normal physiological event because of its frequency of occurrence (30 – 70%). The biological changes in the first week postpartum are responsible for it. The incidence of postpartum depression has been reported to be 6% and the most vulnerable period is between 8 to 20 weeks after childbirth. Puerperal psychosis is a much more serious disturbance occurring in 0.1 to 0.2 % of all postpartum women. The task of the caregiver is to be watchful and to diagnose the disease in time and transport the mother to a hospital where she can get appropriate treatment and support.<sup>4</sup>

The World Health Organization reports 23% of health problems in early months after delivery in India.<sup>4</sup> The problems of maternal mortality and morbidity are complex, involving women's status, education, employment opportunities, and availability of health services.<sup>5</sup> The poor physical growth of Indian girls also contributes to maternal complications. Over 50% of pregnant woman have less than 10 gm of haemoglobin. Anemia accounts for 20% of maternal death.<sup>6</sup> National family health survey data reveals that over 50% of girls marry below the age of 18 years, resulting in unsafe abortions, low birth weight babies, high maternal mortality and morbidity.<sup>7</sup> The underlying causes for increased maternal morbidity in developing countries are low socio-economic status and lack of education. Because of unawareness in mothers, the maternal morbidity is less reported than maternal mortality. Good obstetric care and better education of men and women will reduce the figures of maternal mortality and morbidity. Moreover, re-hospitalisation among mothers after caesarean delivery was nearly twice as common after vaginal delivery. The increased morbidity rates with increased recovery time results in a twofold increase in cost for caesarean section.<sup>8</sup>

The natural way for a baby to be born is normal vaginal delivery and it is the most common and safest type of delivery. Vaginal delivery can be assisted to speed up the normal process with the help of forceps or vacuum extractor. According to World Health Organization, instrumental delivery or assisted vaginal birth is one of the six critical functions of emergency obstetric care. However, the rates of instrumental delivery have decreased considerably as caesarean delivery is becoming increasingly accessible and acceptable.<sup>9</sup>

Caesarean section rates have increased considerably over the past few years. An expansion of indications for caesarean section, with the changes in lifestyle has contributed to it. Mothers consider dangers of caesarean section as small in comparison to the benefits. It has become a

matter of personal choice.<sup>10</sup>The aim of this study to assess whether the changes in the mode of delivery have brought about any changes in the outcome of birth and complications.

## **MATERIALS& METHODS**

A hospital based prospective study done on 100 postnatal mothers i.e., 50 mothers who had undergone caesarean section and 50 mothers who had vaginal delivery in government hospitals pali, Rajasthan, India during one year period.

### **INCLUSION CRITERIA**

- The postnatal mothers who had undergone instrumental or traumatic or normal vaginal delivery.
- The postnatal mothers who had undergone elective or emergency caesarean section.
- The postnatal mothers who were available at the time of data collection.

### **EXCLUSION CRITERIA**

- The postnatal mothers who were not available at the time of data collection.
- The postnatal mothers who were not willing to participate in the study.

### **METHOD OF DATA COLLECTION**

Data collection is a precise, systematic gathering of information relevant to the research process. Interview is a data collection method in which an interviewer obtains responses from a subject in a face-to-face encounter or through a phone call. A schedule is a proforma containing a set of questions filled in by the enumerator.

- A structured interview schedule for collecting baseline data of the respondents. It had 11 items, out of which four were common for all postnatal mothers, four questions were specific for mothers who had vaginal delivery, and three questions for mothers who had undergone caesarean section.
- A semi structured observation schedule on postnatal changes, which comprised of 19 parameters for assessing physiological and psychological changes after caesarean section and vaginal delivery. The physiological measurements recorded were fundal height in centimetres, temperature in Fahrenheit, pulse in beats per minute, blood pressure in millimetres of mercury and amount of lochia in millilitres, the procedures of which is included in the annexure. The remaining items on postnatal changes were related to bowel, bladder, breast-feeding, and they had different number of options. The researcher observed the mothers and recorded the correct option in the columns provided for each postnatal day.
- An observational checklist on 9 postnatal complications namely, puerperal sepsis, postpartum haemorrhage, venous thromboembolism, thrombophlebitis, urinary tract infection, incontinence of urine, breast engorgement, postpartum depression and postpartum psychosis.
- The presence of a clinical manifestation carried a score of '1' and its absence scored '0'. A total score of '2' or more confirmed the presence of a postnatal complication. A score of '1' indicated a moderate chance for the occurrence of a postnatal complication. A score of '0' for each postnatal complication meant the absence of that complication.

### **STATISTICAL ANALYSIS**

The assessment of postnatal changes and complications were done on postnatal mother by two observers independently. Karl Pearson's coefficient ' $\gamma$ ' was computed for finding out reliability. The statistical analysis done with software statistical package 22.0 version.

## RESULTS

Our study showed that mean age of patients was 25.38 years in caesarean section and 26.22 years in vaginal delivery, which was statistical insignificant ( $P>0.05$ ). The parity revealed that among mothers 31 (62%) & 32 (64%) were primiparae, 16 (32%) & 10 (20%) were second parae, and three(6%)& 8 (16%) were multipara with caesarean section and vaginal delivery respectively (table 1).

**Table 1: Age and clinical characteristics of Postnatal Mothers with Caesarean Section and Vaginal Delivery**

Variables		Caesarean section	Vaginal delivery
Age (mean±SD) yrs		25.38±3.4	26.22±5.6
Parity	Primiparous	31	32
	Second para	16	10
	Multiparous	3	8

As far as the type of vaginal delivery is concerned, the majority of mothers had normal vaginal delivery(45i.e.90%) and very less number of mothers (5i.e. 10%) had undergone instrumental delivery. The intactness of perineum reveals that the majority of mothers (41 i.e. 82%) had episiotomy. Intact perineum was reported in 8 mothers (16%). Whereas, incidence of perineal tear was very low(1 i.e.2%). More than half of the mothers(32i.e.64%) started walking by 6-10hours, followed by 17 mothers (34%) who walked within 5 hours, and 1 mother who (2%) took more than 11 hours to walk (table 2).

**Table 2: Frequency and Percentage Distribution of the Postnatal Mothers with Vaginal Delivery by the Type of Vaginal Delivery, Intactness of Perineum and Time Taken for Ambulation.**

Variables	No. of patients	Percentage
<b>Type of Vaginal delivery</b>		
Normal	45	90%
Instrumental	5	10%
<b>Intactness of Perineum</b>		
Episiotomy	41	82%
Perineal tear	1	2%
Intact	8	16%
<b>Time taken for ambulation</b>		
<5 hr.	17	34%
6-10 hr.	32	64%
>10 hr.	1	2%

More than half of the postnatal mothers (30 i.e. 60%) had emergency caesarean section and remaining(20i.e.40%) had elective caesarean section. The majority of mothers (33 i.e. 66%) took more than 25 hours to walk, followed by 14 mothers (28%) who walked between 13-24 hours and 3 (6%) mothers who took less than 12hours to walk (table 3).

**Table 3: Frequency and Percentage Distribution of the Postnatal Mothers with Caesarean Section by the Type of Vaginal Delivery, Intactness of Perineum and Time Taken for Ambulation.**

Variables	No. of patients	Percentage
<b>Type of Caesarean Section</b>		
Elective	20	40%
Emergency	30	60%
<b>Time taken for ambulation</b>		
≤12 hr.	3	6%
13-24 hr.	14	28%

>24 hr.	33	66%
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All postnatal mothers who underwent caesarean section (50 i.e. 100%) had firm and retracted uterus compared to 48 mothers (96%) with vaginal delivery on first postnatal day. Two (4%) postnatal mothers with vaginal delivery had soft uterus, which becomes hard on massage on the first postnatal day. Uterus was firm and retracted for the remaining 2 postnatal days for both the groups.

The majority of mothers who underwent caesarean section (21 i.e. 42%) had initiated breast-feeding between 1-2 hours and the majority of mothers (20 i.e. 40%) who had vaginal delivery started breast-feeding between 30 min to 1 hour.

The majority of mothers who had caesarean section (20 i.e. 40%) started self-care on third postnatal day compared to 36 mothers (72%) with vaginal delivery who started self-care on first postnatal day itself.

The majority of mothers (38 i.e. 76%) who underwent caesarean section had first bowel movement with the help of laxatives after 24 hours, 8 mothers (16%) had with the help of enema and 4 mothers (8%) passed spontaneously between 12 to 24 hours. Among mothers who had vaginal delivery, two mothers (4%) passed spontaneously between 12 to 24 hours, 44 mothers (88%) with the help of laxatives after 24 hours and 1 mother (2%) with the help of enema (table 4).

**Table 4: Day Wise Frequency and Percentage Distribution of Postnatal Mothers with Caesarean Section and Vaginal Delivery by the Time of Initiation of Breast-feeding, Time of initiation of Self-care, Time and Mode of First void after Delivery, and Time and Mode of First Bowel Movement.**

POSTNATAL CHANGES		Caesarean section. (n=50)		Vaginal delivery. (n=50)	
		f	%	f	%
<b>Time of initiation of breast-feeding.</b>					
a	Within 30 minutes after delivery	0	0%	13	26%
b	Between 30 min to 1 hour.	7	14%	20	40%
c	Between 1-2 hours.	21	42%	14	28%
d	Between 3-5 hours.	18	36%	3	6%
e	More than 5 hours.	4	8%	0	0%
<b>Time of initiation of self care.</b>					
a	First day.	0	0%	36	72%
b	Second day.	11	22%	12	24%
c	Third day.	20	40%	2	4%
d	Fourth day.	11	22%		
e	Five or more days.	8	16%		
<b>Time and mode of first void after delivery.</b>					
a	Spontaneously within 6 hours.			47	94%
b	With the help of nursing measures within 6 hours.			3	6%
c	With the help of catheterization within 6 hours.	50	100%	0	0%
<b>Bowel movement.</b>					
a	Spontaneously within 12 hours.			2	4%
b	Spontaneously between 12-24 hours.	4	8%	3	6%
c	With the help of laxatives after 24 hours.	38	76%	44	88%
d	With the help of enema.	8	16%	1	2%

## DISCUSSION

Caesarean section is undertaken to improve maternal or fetal outcome, and also to reduce anticipated complications from spontaneous labour and vaginal delivery. Over the last ten years the rising caesarean section rate in the developed world has stimulated discussion of best anesthetic and obstetric practice. WHO recommends an optimum caesarean section rate of 5-15% to ensure the best maternal and newborn outcome. The caesarean section itself is associated with significant morbidity and mortality and improvements in post operative care and anesthetic management can reduce this problem. Postpartum care should respond to the special needs of the mother and baby during this period. It is well known that women commonly experience problems immediately after childbirth, but less recognized. As postpartum recovery is most likely to be affected by the mode of delivery, health professionals evaluating women during postnatal period should have enough knowledge about the physical and psychological changes associated with it, to recognize an abnormal circumstance that needs immediate attention.<sup>11</sup>

Our study showed that mean age of patients was 25.38 years in caesarean section and 26.22 years in vaginal delivery, which was statistical insignificant ( $P > 0.05$ ). This is consistent with the study done by Divya Reghunath et al (2019)<sup>12</sup> showed that the majority of women who had caesarean section (60%) belonged to the age group of 26-30 years and the majority of women who had a normal vaginal birth (60%) belonged to the age group of 20-25 years.

Maternal age has definite effects on the outcome of pregnancy. The mother and fetus are both at higher risk when the mother is young and in adolescent. The young mother and adolescence mothers are inexperienced and unprepared to recognize the early signs of illness, potential dangers. The higher mortality rate among infants of adolescents and young mothers are attributed to the inexperience, lack of knowledge and immaturity of the mother which causes them to be unable to recognize a problem and obtain the necessary resource to rectify the situation.<sup>11</sup>

Allen V. Met al<sup>13</sup> showed that women undergoing caesarean deliveries were more likely to have puerperal infections [95% CI, 1.1:4.5], but were less likely to have postpartum haemorrhage [95% CI, 0.4:0.9] in the first week postpartum, compared to women undergoing spontaneous labour. The increased maternal morbidity in elective caesarean delivery compared to spontaneous vaginal delivery was due to puerperal infections.

Early ambulation is successful in reducing the incidence of thromboembolism and in promoting women for more rapid recovery of strength, They are not having adequate knowledge about ambulation, 53 elimination, wound hygiene, and wound care following cesarean section but they have adequate knowledge in the area of diet, rest and sleep, baby care, breast feeding, personal hygiene, perineal hygiene. This is consistent with the study conducted by Laanterä S, et al (2009)<sup>14</sup> conducted the web-based breast feeding knowledge; Attitude with Confidence scale. He concluded the weak response rate requires attention. Parents need more information about ways to increase lactation and breast hygiene. The adequate support and developmentally appropriate teaching, young mothers can learn effective parenting skills.

The mothers had high learning needs in the area of ambulation, wound care and elimination but they performed poor practices in the area of breast hygiene, skin care, burping the baby after feeds even though they had adequate knowledge in these area This reveal knowledge regarding postnatal care was adequate in some of the area but their performance was poor.

A study was conducted to assess maternal infant interactions among primiparous women according to the mode of delivery in selected hospitals of Seoul, Korea. He selected a sample of 32 mothers who had anormal vaginal delivery and 30 mothers who had a non-elective caesarean section by random selection. The study results did not show any difference of maternal– infant interaction among primiparae women according to the mode of delivery.<sup>15</sup>

Another study done by Tay S K., who revealed that caesarean section was a risk factor for not initiating breast feeding (27.1%) and for breast-feeding less than one month (21.8%), whereas instrumental delivery was a risk factor for duration of breast-feeding (16.1%). The study concluded that instrumental delivery and caesarean delivery had a negative effect on initiation and duration of breast-feeding.<sup>16</sup>

## CONCLUSION

This study showed that the postnatal mothers had high learning needs regarding post-natal care after emergency LSCS and their self-care practices performed was poor. The self-care practices were increased every day, because awareness created by the health personnel during hospital stay. The overall self care practice was moderate and poor. Import knowledge regarding postnatal care during antenatal period can make them to perform the self care practices fairly well and the length of hospital stay of the patient can also be minimized.

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