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ORIGINAL ARTICLE

Outcome of Early Disposal of Lower Uterine Caesarean Section Patient from Hospital - A Randomized Clinical Trial

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ABSTRACT

Background and Objectives: Uncomplicated caesarean section patients are usually discharged from the hospital on the 7th postoperative day. Prolonged hospital stay increases the chance of nosocomial infections and facilitates them to spread rapidly. Experience shows that early discharge of patients reduces the chance of maternal and neonatal morbidities. The present study was done to assess the outcome patients discharged early from the hospital following caesarean section.

Patients & Methods: The present randomized clinical trial was conducted in Dhaka Medical College Hospital, Dhaka Bangladesh from July 2006 - December 2006. A total of 300 term pregnant women admitted consecutively in the Obstetrics & Gynaecology Department of the Hospital and underwent elective or emergency caesarean section were included in the study. The patients were randomly divided into two study groups - early discharge group and usual discharge group. Patients of Group-A were discharged 72 hours after caesarean section and were advised to visit after 7th postoperative day for follow up, while the patients of Group-B stayed in the hospital for 7 days (including the day of operation) and outcome was evaluated on 7th postoperative day at discharge. The maternal outcome measures were urinary and respiratory tract infections (UTI and RTI), wound infection and puerperal sepsis and neonatal outcome variables were umbilical cord sepsis, septicemia and respiratory distress syndrome.

Results: Of the 4,494 labour patients admitted during the 6 months study period, 1744(38%) needed caesarean section. Of them, 300 consecutive cases fulfilling the enrolment criteria were included in the study. The demographic variables studied were age, parity, socioeconomic condition. Types of caesarean section (elective or emergency) were also recorded. In 'Early discharge group' (discharge on 3rd postoperative day) out of 150 patients, only 50 patients returned for follow up on 7th postoperative day. Majority (84%) of them was free from any sorts of complications and very few of their neonates have had any complications. In 'Usual discharge group'(discharge on 7th postoperative day) out of 150 patients, 69(46%) cases developed complications. Of them wound infection was the leading complication (36%) followed by UTI (16%), RTI (9.3%), puerperal sepsis (8.0%), wound dehiscence (6.7%). Umbilical cord sepsis of newborn was also significant (17.3 %) in them. Other complications were considered negligible. Occurrence of overall complication was staggeringly lower in the former group than that in the later group (8% vs. 46%, $p < 0.001$).

Conclusions: Early discharge of patients of caesarean delivery from hospital is safe for both mothers and neonates. It reduces unnecessary hospital burden and saves hospital resources.

Key words: Early discharge, usual discharge, lower uterine caesarean section and outcome.

INTRODUCTION

Caesarean section is a common operation in obstetric practice. The incidence is rising worldwide and the reported incidence ranges from 5 to 25% depending on the nature and area of practice.[1-3] Almost one in four women who give birth in the United States do so by caesarean birth.[4] While the operation is widely

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embraced and utilized in the developed world, it is generally surrounded by a lot of fears, miseries, aversion, guilt and misconception in the developing countries like ours. Reasons for these includes the morbidity and mortality from the operation, prolonged hospital stay, and perceived high cost of hospital bills.[1,5-7]

In many countries National strategies to control health care costs have resulted in earlier hospital discharge of many patient groups. Earlier discharge may reduce hospital charges and return patients to their family environment sooner. However, complications after discharge may go undetected and require readmission to the hospital and more intensive care.[8-11] To maintain good patient outcomes while lowering hospital charges, a number of programs of early hospital discharge and home follow-up have been developed for groups of patients at high risk who use a high volume of services.[12,13] Women delivering by caesarean birth represent such a group.

Based on this concept, the hospital stay after caesarean birth has decreased dramatically in many countries from a mean of 6.1 days in 1982 to 4.0 days in 1992.[14,15] One recent report suggested a 2-day length of stay for women after delivery by cesarean birth, provided they had no complications during pregnancy and delivery and after delivery.[16]

But in public hospitals in our country an uncomplicated caesarean section patient is usually discharged from the hospital on the 7th post-operative day. We keep the patient in bed for seven days up to removal of the stitches. As our public hospitals are overcrowded, sometimes 2-3 operated patients have to share a single bed, which results not only discomfort to the operated patients but also act as a source of cross-infection resulting in prolonged hospital stay. Early disposal means short duration of hospitalization up to three days. In early disposal a patient get discharged. On second post-operative day. The private hospitals and clinics have already accepted the concept, where a caesarean section case gets discharged on third day of the operation and usually no complication is reported. Embracing the concept of early home discharge after caesarean section in uncomplicated cases may remove some of the psychological concerns and economical impediments associated with the operation and make the operation more acceptable. It will also contain the cost of public hospitals caused by unnecessary services.

Methods & Materials

The present randomized clinical trial was conducted in Dhaka Medical College Hospital, Dhaka Bangladesh from July 2006 - December 2006. A total of 1744 term pregnant women were admitted consecutively in the Obstetrics & Gynaecology Department of the Hospital and underwent elective or emergency caesarean section. Of them 300 were included based predefined eligibility criteria which included, among others, healthy wound on 2nd postoperative day. The following categories of women were excluded from the study: *(i)* age < 18 or > 45 years; *(ii)* hypertension, cardiac disease, diabetes mellitus and severe anaemia (haemoglobin £ 7 g/dl); *(iii)* high risk of postoperative infection (rupture of membranes ³ 24 hours, labour duration ³20 hours) cephalopelvic disproportion, pyrexia in labour; *(iv)* surgical difficulties such as vertical or upper segment uterine incision or suspected bladder injury, or excessive intra-operative or peripartum bleeding requiring packing, draining or blood transfusion; *(v)* stillbirth; *(vi)* evidence of infection after 24 hours postoperatively (heart rate ³110 beats/min, temperature ³37.5oC); *(vii)* poor clinical condition on the 2nd postoperative day, such as not getting up, not eating, vomiting, evidence of ileus; *(viii)* infant not discharged at that time from the hospital, and *(ix)* unwillingness to be discharged. Data were collected from the hospital register, investigation records and treatment schedule of the hospital.

Selected patients were randomly divided into two study groups - 'Early discharge' group and 'Usual discharge' group. Patients of 'Early discharge' group were discharged 72 hours after caesarean section and were advised to visit after 7th postoperative day for follow up, while the patients of 'Usual discharge' group stayed in the hospital for 7 days (including the day of operation). Outcome was evaluated on 7th postoperative day at discharge. The maternal outcome measures were urinary and respiratory tract infections (UTI and RTI), wound infection, wound dehiscence, puerperal sepsis and readmission and neonatal outcome variables were umbilical cord sepsis, septicemia respiratory distress syndrome and readmission. Data analysis was done using SPSS, version 11.5. Statements of descriptive statistics included frequencies with percentages, means and ranges. Differences in proportions were assessed using the Chi-square test or Fisher's exact test with a p-value <0.05 suggesting statistical significance.

RESULT

Of the 4,494 labour patients admitted during the 6 months study period, 1744(38%) needed caesarean section. Of them, 300 consecutive cases fulfilling the enrollment criteria were included in the study. The demographic variables (age, parity, socioeconomic condition), clinical condition (antenatal anaemia) and past history of abortion or menstrual regulation (MR) were studied. Types of caesarean section (elective or emergency) were also recorded. In Group-A (early discharge group) out of 150 patients, only 50 patients returned for follow up on 7th postoperative day. Majority (84%) of the attended mothers was free from any sorts of complications and very few of their neonates have had any complications. In Group-B (Usual discharge group) out of 150 patients, 69(46%) cases developed complications. Of them wound infection was the leading complication (36%) followed by UTI (16%), RTI (9.7%), puerperal sepsis (8.0%), wound dehiscence (6.7%). In terms of neonatal complications, umbilical cord sepsis of newborn was significant (17.3%). Other complications were considered negligible.

There was no significant difference between the study groups in terms of demographic characteristics (age, parity and socioeconomic condition), clinical condition (anemia) and past obstetric history (history of abortion or MR) (Table I). The incidence of postoperative wound infection in 'Early discharge' group was observed to be significantly lower (16%) than that in 'Usual discharge' group (36%) (p = 0.008). The incidence of UTI, RTI and wound dehiscence were also considerably lower in the former group than those in the later group (p = 0.185, p = 0.186 and p = 0.189 respectively). The frequency of puerperal sepsis was, however, almost similar in both groups (p = 0.457). The development of cord sepsis was much lower in 'Early discharge' group in comparison to 'Usual discharge' group (p = 0.049) (Table II). Occurrence of overall complication was staggeringly lower in the former group than that in the later group (16% vs. 46%, p < 0.001) (Table III).

TABLE I: Comparison of baseline characteristics between the groups (n = 300)

Baseline characteristics*	Group		p-value
	Early Discharge (n = 150)	Usual discharge (n = 150)	
Age (years)			
18 - 20	19(12.7)	16(10.7)	
21 - 30	66(44.0)	69(46.0)	0.945
31 - 40	54(36.0)	53(35.3)	
41 - 45	11(7.3)	12(8.0)	
Parity			
Primipara	111(74.0)	118(78.7)	0.342
Multipara	39(26.0)	32(21.3)	
Socioeconomic condition			
Poor	48(32.0)	52(34.7)	
Average	56(37.3)	61(40.7)	0.509
Solvent	46(30.7)	37(24.7)	
Mild to moderate anaemia	89(59.3)	82(54.7)	0.414
Past history abortion or MR	23(15.3)	19(12.7)	0.506

**Data were analysed using Chi-square (c^2) Test.*
Figures in the parentheses denote corresponding percentage.

TABLE II: Association between time of discharge of caesarean patients and complications

Outcome	Group		p-value
	Early Discharge (n = 150)	Usual discharge (n = 150)	
Maternal complications*			
Wound infection*	8(16.0)	54(36.0)	0.008
UTI*	4(8.3)	24(16.0)	0.185
RTI**	2(4.0)	14(9.3)	0.186
Wound dehiscence**	1(2.0)	10(6.7)	0.189
Puerperal sepsis**	3(6.0)	12(8.0)	0.457
Neonatal complications			
Umbilical cord sepsis*	4(8.0)	26(17.3)	0.049
Septicemia**	1(2.0)	4(2.7)	0.663
Respiratory distress syndrome**	1(2.0)	2(1.3)	0.580

*Data were analyzed using *Chi-square (c^2) Test and **Fisher's Exact Test*
Figures in the parentheses denote corresponding percentage.

TABLE III: Association between discharge of caesarean patients and overall complications

Total complications*	Group		p-value
	Early Discharge (n = 50)	Usual Discharge (n = 50)	
Developed	8(16.0)	69(46.0%)	< 0.001
Not developed	42(84.0)	81(54.0)	

**Data were analysed using Chi-square (c^2) Test.*
Figures in the parentheses denote corresponding percentage.

Discussion

In most of the developed countries it has become a common practice to discharge women from hospital early after caesarean section, to satisfy their wishes or to reduce workload on the part of the service providers. The developing countries are also adopting the norms. The hospitals of our country, particularly the private hospitals have also begun the practice without studying its merits and demerits in the sociocultural context of our country. We under took this study to find out if discharge from hospital on the 2nd postoperative day after uncomplicated caesarean section (i.e., 72 hours after caesarean section) was beneficial to our women, and to what extent it was followed by adverse clinical outcomes. Only one such study has been performed in Africa, in which Nigerian women were discharged on the 3rd instead of the usual 7th postoperative day, with good results.[1] No studies from Africa or Asia have investigated discharge from hospital on the 2nd postoperative day, although there have been reports of good outcomes from high income countries.[16,17]

In the present study no significant difference was observed between the study groups in terms of baseline characteristics (demographics like age, parity and socioeconomic condition, clinical condition like anemia and past bad obstetric history like abortion or MR). The incidence of postoperative wound infection in the 'Early discharge' group was appreciably lower (16%) compared to the 'Usual discharge' group (36%). The incidence of other infections like UTI, RTI were also lower in the former group. So was found in case of umbilical cord sepsis of newborn. The wound dehiscence, which is usually the result of wound infection, was observed to have a low incidence in the former group. Occurrence of overall complication was staggeringly lower in the former group than that in the later group (8% vs. 46%, $p < 0.001$).

Thus, the findings obtained indicate that hospital acts as a source of infection and prolonged stay on hospital bed predisposes women to acquire infection of different kinds including the wound infection.[17] Besides, early ambulation after surgery helps better circulation of blood to the surgical site. Walking promotes the flow of oxygen throughout the body and maintains normal breathing function. It strengthens the muscle tone, improves gastrointestinal, respiratory and urinary tract functions. These body systems are slowed down after surgery. Walking also improves blood flow and speeds wound healing. Failure to walk may cause increased constipation and gas pain, weakness, less power to fight infections, and puts the women at a higher risk for blood clots and lung problems such as pneumonia.[18]

So from all considerations early discharge from the hospital (on 2nd postoperative day or 72 hours from caesarean section) is safe for both mother and neonates. It is economical as well for patients and service providers.

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