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Full length article

An enhanced recovery programme after caesarean delivery increases maternal satisfaction and improves maternal-neonatal bonding: A case control study

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ABSTRACT

Objectives: Enhanced recovery programmes (ERP) have been shown to improve postoperative outcomes. The aim of our study was to investigate the impact of an ERP after caesarean delivery on maternal feelings and satisfaction towards mother-child bonding initiation, in comparison with traditional postoperative care.

Study design: A comparative, prospective and multicentre study was conducted in three maternity units of the Paris area: one applied traditional postoperative care while the two others applied an ERP, were included patients after elective or emergency caesarean delivery who had given birth to full-term healthy singleton newborns. Data were collected from 8th October 2014 to 31st January 2015. Patients were asked about their feelings toward the relationship with their infant using a questionnaire, to be completed one (D1) and three (D3) days after caesarean delivery.

Results: Patients (n = 86) received post-operative care in agreement with what was expected in the group in which they were included. Patients in the ERP group had more positive feelings toward the relationship with their newborn on D1 and D3, had a greater maternal satisfaction level on D1 and were more comfortable in caring for their newborn, especially for cradling and breastfeeding the child.

Conclusion: Our study suggests that application of ERP after caesarean delivery is associated with improved maternal satisfaction and more positive feelings toward the relationship with the newborn.

Introduction

During childbirth physical contact between mother and her newborn is critical to allow the development of a bond. Bowlby defines attachment as the "essential bond" reuniting mother and child [1]. It requires significant physical contact that allows the activation of sensorial stimuli to the mother and the newborn. Various types of stimuli are used: the touch mainly by the newborn, but also smell and mouth contact, while his (her) mother essentially uses touch and sight. Stimulation of and interaction between these senses for one or the other and also the presence of primitive reflexes of the newborn enhance the mother-child bond [1,2]. Hormonal mechanisms allow the strengthening of the mother-child bond [2–5]. For the newborn a safety feeling is created [2]. Psychologically, for the mother it allows the emergence of a mothering behaviour and also she realizes that the newborn "is hers" and she is a mother [4–6].

Several situations in obstetrical care modify the usual environment of birth and care, especially during caesarean delivery and do not allow the attachment because of the distance induced between the mother and her baby. Enhanced recovery programmes (ERP) have been shown to improve postoperative outcomes by reducing complications and hospital stay [7]. Although this benefit has not yet been proven for caesarean delivery, ERP should be used [8] because their components can improve maternal condition even when used separately [9–12]. After caesarean delivery, the postoperative period is particular because it associates psychological and physical changes for the mother on physical contact with the baby and nursing. Patient's wellbeing is enhanced due to same features of the programme [13] and studies have shown greater maternal satisfaction when they have greater control over childbirth [14,15]. Data suggest that ERP may improve mother-child bond and experience. However there is little scientific evidence on this behalf. The aim of this study is to

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compare the effects of an ERP with a conventional postoperative management over the mother-child bond, perception and satisfaction.

Materials and methods

The aim of this prospective, comparative, multicentre study was to compare one maternity unit where an ERP was not used (CHU Robert Debré, Paris) to two maternity units where it was used (Chu KB, CHI Creteil). We defined an enhanced recovery programme as a postoperative combination of the following practice patterns: early mobilisation i.e. within 6–8 h after surgery (at least sitting in a chair), early drinking and feeding (within 6–8 h after surgery and generally including drinking during the PACU stay), maintenance of intravenous infusion for less than 24 h, early urinary catheter withdrawal (withdrawal within the first 12 h) and early use of oral analgesics (first oral analgesic pills given within the first 24 h). The first mobilisation takes place 12–24 h after surgery. Drinking is encouraged during the stay in the PACU and the first light meal is provided 6 h after surgery. Later on, normal meals are provided. A maternity unit could be included if the ERP was in use for at least several months. In the conventional recovery programme, the urinary catheter is removed 24 h after caesarean delivery or later, and the venous cannula even later, according to the time of return of the first flatus.

Person protection committee agreement was not considered to be necessary as no change of their practice was included in our study. Patients were recruited during their hospital stay, after childbirth, by the midwives, following several criteria. These included patients after elective or emergency caesarean section that had full term healthy singleton newborns and also French speaking that could fill in questionnaires and give their consent. Difficult caesarean delivery, pathological pregnancies, somatic and psychiatric maternal conditions, or any foetal anomalies were excluded. Caesarean deliveries under general anaesthesia were also excluded. Eligible patients who joined the study had clear explanation of on the study, its purpose, the number of questionnaires to fill in, the respect of the confidentiality and the possibility of quitting the study at any time. Ethical committee was not deemed necessary due to the observational design of the study.

On the basis of a literature review on mother – child bonding after childbirth, two questionnaires were established using questions which had been used in previous studies [16–18]. The first contained eight questions that were focusing mainly on the caesarean delivery (time, date, elective or emergency caesarean delivery) as well as postoperative care (early mobilisation, oral intake, urinary catheter removal and peripheral venous catheter removal). To maintain confidentiality each questionnaire was identified by an acronym corresponding to the maternity care unit, the birth date using six digit numbers: MM/DD/YY. This was filled in by the healthcare professional who had selected the patients. The second questionnaire was anonymously filled in by the patient herself, on day one (D1) after the caesarean delivery and three days (D3) afterwards. The aim of this questionnaire was to assess the way mothers lived this experience. Each patient was asked nine questions, each assessing one dimension.

Pain was measured using a visual analogue scale rated from 0 (not at all) to 10 (worst pain ever). Patients were assessed at rest and when mobilised at CD day one and three. Overall maternal satisfaction was assessed using a visual analogue scale from 0 (completely unsatisfied) to 10 (totally satisfied). Feeling towards her baby using propositions with the following wording: close, difficult, unstable, distant. Feeling on the bonding process was classified as “rather positive” when the following answers were obtained: “I feel close” or “the bond is real”. On the other hand their feelings were rated as “rather negative” when their answers were: “I feel close but it seems unstable”, “I feel close but it seems difficult to accomplish”, “The bond is unstable”, “The bond seems difficult to accomplish”, “I feel distant and it’s a difficult situation”, “I feel distant and the bond is unstable”. They were questioned about their experience throughout for items using several possible answers. Answers like: “happy”, “happy and reassured” were placed in the “rather positive experience” category. Mother’ mood was assessed using a list of four words: happy, sad, worried, reassured. Answers such as: “sad”, “sad and reassured”, “sad and worried” and “worried” were placed in the “rather negative experience” category. Infant care (changing nappies, taking bath . . . .) was also evaluated focusing on mother’s ability to nurse. Answers were grouped in two categories:” very difficult” or “sometimes difficult” and “sometimes easier” or ”easily”. Four items were proposed to assess the frequency of holding the babies such as: “not often”, “sometimes”, (the first category in the analysis) “often”, “as often as possible” (second category). Finally, mothers were assessed on their experience with feeding the neonate. First they were questioned on their choice: breast milk, formula or mixed. Then, their experience and ease with breastfeeding were also assessed using several answers: comfortable, reassured, gradually more comfortable, troubled, concerned, uncomfortable, discouraged. For analysis purposes, the first three proposals corresponded to score “ +1”, and the others proposals corresponded to score “−1”. Adding answers led to three categories: a score less than 0 interpreted as “rather negative feeling”, a score than 0 as “neutral feeling”, and a score more than 0 as “rather positive feeling”.

Quantitative variables were presented as a mean and standard deviation and were treated variables with parametric tests (such as the Student *T*-test and analysis of variance) when continuous and normally distributed. Quantitative variables presented as categories or as a percentage were processed by the Chi square test. Results were analysed by comparing the “enhanced recovery” group to the “conventional recovery” group on day 1 and 3. Results were processed using Microsoft Excel. A significant difference between the two groups was defined by a risk of alpha error less than 5% ($p < 0.05$).

Results

The study was performed from October 8th, 2014 to January 31th, 2015. All three maternity units included were perinatal level 3 units. Of the 106 patients included in the study, twenty were excluded secondarily due to various reasons. The study population is represented as a flow diagram (Fig. 1). Patients’ general features are included in Table 1. In all patients who had undergone scheduled caesarean delivery, spinal anaesthesia was used and was successful (i.e. none required any additive or sedative). In all patients who had undergone n emergency caesarean delivery, augmentation of epidural analgesia, previously placed for labour analgesia was used.

The number of elective or emergency caesarean deliveries was not significantly different in the two groups. The enhanced recovery protocol was well applied in the ERP group (Table 1). The patients of this group had indeed an earlier oral intake and were mobilised earlier and had their urinary catheter removed before discharge from the post anaesthesia unit (Table 1). Pain rating on mobilisation was significantly lower in the ERP group at CD day 3 (Table 2).

Maternal satisfaction rate toward their bond with the baby was higher on the ERP group during the first 24 h postoperative (Table 3). In the ERP group the number of mothers in a positive mood was significantly greater at day 1 and 3 (Table 3), and women described their relationship with their baby as better than those in