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An exploratory study in the UK of the effectiveness of three different pain management regimens for post-caesarean section women

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Summary
Objective: to compare the effects of three types of analgesic administration after elective caesarean section on a number of clinical outcome measures. Supplementary aims of the study were to determine the acceptability of, and satisfaction with, the different regimens.
Design: a quasi-experimental different subject design was used to compare three types of analgesic administration on pain, post-operative nausea and vomiting, analgesic consumption, length of hospital stay and overall satisfaction with pain management.
Setting: a specialist women's hospital in a large UK city, with around 1500 caesarean sections per annum.
Participants: 95 women who had undergone elective caesarean section.
Interventions: the women were allocated to one of the three pain management groups: group 1 (oral morphine, Co-dydramol and diclofenac [all self-administered]); group 2 (oral morphine, Co-dydramol and diclofenac [all midwife-administered]); and Group 3 (intra-muscular morphine, oral Co-dydramol and diclofenac [all midwife-administered]). The safety of self-medication was measured by adherence to a safety protocol.
Measurements: data collection was undertaken over the first 3 days after surgery and included visual analogue scale (0–100 mm) pain scores, analgesic consumption, incidence of post-operative nausea and vomiting, and length of hospital stay. In addition, questionnaires were given to midwives and patients to assess the

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acceptability of self-medication and patient satisfaction. Data collection took place between June 2002 and June 2003.
Findings: the results indicated that the outcomes of all three interventions were comparable in terms of pain scores, incidence of post-operative nausea and vomiting, and overall levels of satisfaction, although intra-muscular morphine was disliked to a degree that deterred some women from requesting it. Consumption of oral morphine was significantly greater than consumption of intramuscular injections of morphine, whereas Co-dydramol use was lower in the self-medicating group; the self-medicating women also went home, on average, a day earlier than women in the other two groups.

Introduction

The management of post-operative pain has become an important focus of health-care delivery, because it contributes to good quality care and patient satisfaction (Royal College of Surgeons of England and the Royal College of Anaesthetists, 1990), and also because poorly controlled pain can cause potentially dangerous post-operative complications and morbidity (Bowden, 1996). It is widely accepted that post-operative pain can impair respiratory, cardiac and endocrine functions. It can also reduce mobility, which may cause joint stiffness, pressure sores or precipitate deep-vein thrombosis or pulmonary embolus (Macintyre and Ready, 2001), whereas severe pain can cause vomiting and retching, which, for high-risk patients, may result in wound dehiscence. For women with concomitant disease, physiological responses to pain may exacerbate pre-existing symptoms.

Besides the clinical ramifications of poorly controlled pain, there may also be negative psychological implications (Macintyre and Ready, 2001), as well as fiscal considerations. With regard to the latter, there is an argument, albeit inconclusive, that inadequate pain control delays the patient's discharge from hospital (Moore and McQuay, 2003). Thus, even short delays in discharge may have a potentially deleterious effect for both patient and hospital, as well as increasing the opportunity for developing a hospital-acquired infection.

Although the foregoing brief review derives from surgical studies in general, the argument in favour of good pain management also applies to obstetrics, especially in view of the increase in the caesarean section rate. In England and Wales, this has risen from 9% of deliveries in 1980 to 21% in 2001, about 120,000 caesarean sections each year (Royal College of Obstetricians and Gynaecologists [RCOG], 2004). The reasons for this increase are multi-factorial and have been well-documented (Thomas and Paranjothy, 2001). However, the associated risks of caesarean section are considerable, one of which is the incidence of abdominal pain (RCOG, 2004). Clearly, this needs to be managed effectively in order to enable the mother to care for her baby as quickly as possible. Moreover, there are organisational drivers for the efficient management of pain after caesarean section. These include the shortage of postnatal beds and the rise in hospital-acquired Infection, with the consequent need to ensure that the discharge process is not delayed by controllable factors such as pain. As available evidence suggests that better pain control shortens the length of hospital stay after caesarean section (Antrobus, 1999), there is a further imperative to ensure that pain is effectively managed. In addition, the Royal College of Anaesthetists (Lack et al., 2000) set an audit standard, whereby more than 90% of women after caesarean section should have a maximum pain score of less than 3 on a visual analogue scale of 0–10 cm. To what extent this has been achieved is as yet unknown.

Together, these factors necessitate further study into the optimum ways of managing post-caesarean section pain. Although the general pain management criteria of safety, efficacy and acceptability apply to women who have had caesarean sections, it is also the case that these women constitute a distinct group, with specific needs that should influence the choice of technique. First, they are typically young, healthy and independent; second, pain control should be as effective and free from side-effects as possible, to enable early mobilisation and to allow them to care for the baby; and third, although a caesarian section delivery is, by definition, highly interventionist, there is an assumption that these women wish to de-medicalise during the postnatal period, and thus require pain relief that is simple and non-restricting.

Current recommendations for post-caesarean section pain management include patient-controlled analgesia using an opioid drug intravenously, and