Persistent post-partum pain after vaginal birth and cesarean section

Abstract

Purpose of review: Labor pain remains under evaluated and under managed while evidence is growing that post partum treatments strongly influence patients’ outcome. The present review examines the recent developments in mechanisms underlying labor and delivery pain and questions current understanding of post-partum pain features observed in patients.

Recent findings: Different strategies to approach acute labor pain have been developed. Chronic pain after labor and delivery has not been studied so extensively. Prevalence rates of chronic pain after cesarean section are between 6 and 18% and after vaginal delivery they are between 4 and 10%. Predictors for chronic pain after cesarean section and delivery are previous chronic pain, general anesthesia and higher post delivery pain. As labor pain is rated as one of the most serious kinds of acute pain we speculate that effective treatment of this pain with peripartum epidural analgesia could prevent the development of chronic pain.

Conclusion: Treatment of acute pain during labor and delivery is necessary to prevent chronic pain. Effective perioperative block of nociceptive inputs from the wound as well as use of antihyperalgesic and analgesic drugs in combination seem the best way to control postoperative pain and specifically to prevent central sensitization. Future studies should focus on the long-term effects of different analgesic regimens on the development of chronic pain after labor and delivery.

INTRODUCTION

A painful labor is a universal fear experienced by pregnant women as they approach term. Pain should be considered one of these undesirable events because optimal pain management is mandatory for early rehabilitation after labor. In modern obstetrics, alleviation of labor pains by simple, safe and effective means is possible, but still remain under evaluated and poorly treated (1).

Recent surveys suggest that 80% of patients experience pain after surgery, 11% having severe pain, and that pain delays recovery in 24% of patients undergoing ambulatory surgery (2, 3). Furthermore, recognition is growing that peri-operative treatments have long-term consequences on patients’ outcome and quality of life; specifically, unresolved acute pain favors the occurrence of postoperative cognitive impairment (4), and chronic post surgical pain (5).
Pain is defined as pain that persists beyond the usual course of an acute disease or after a reasonable time for healing (11). The reported prevalence of perineal pain, back pain and pelvic griddle pain that affects women’s recovery from childbirth ranging from 5–43% for 6 month after delivery (15).

**Chronic pain and cesarean section**

Cesarean section are usually performed through a Pfannenstiel or vertical skin incision and a transverse lower uterine segment incision. Depending on haemostasis, the uterine wound is closed in one or two layers of continuous absorbable suture, the peritoneum and muscles are left open and the fascia is closed with a running continuous suture of absorbable material. The skin is closed with non absorbable individual stitches that are removed on day five or six. The patients ambulate 8–10 h after cesarean section.

Surgical injury causes flare formation around the wound and results in two different types of hyperalgesia. Primary hyperalgesia occurs for both thermal and mechanical stimuli applied to damaged tissues close to the site of injury (16). The underlying mechanism involves peripheral sensitization of primary afferent nociceptors by algogenic mediators locally released. Although inflammation certainly participates in incisional pain, its cause and its role are different from these in other models of tissue injury (17). In contrast, ischemia may play an important role and local acidosis parallels postoperative pain behavior (18). Low pH activates several ion channels susceptible to transduce pain, i.e. acid-sensing ion channels, vanilloid receptors, purinergic receptors, and potassium channels. Surgical injury also induces hypersensitivity in adjacent tissues, called secondary hyperalgesia and observed only for mechanical stimuli applied to uninjured tissues surrounding the wound (16). Secondary mechanical hyperalgesia is considered a consequence of central sensitization and results from enhanced response of dorsal horn neurons to peripheral inputs, with magnitude and duration related to the degree of tissue injury (19).

Post-cesarean patients differ from the general surgical population because of concerns of exposure to analgesic drugs to the newborns and because of a need for early physical request to care for their baby. Pain treatment after childbirth may even be less adequate than after surgery. This is because of the restraint to use non-steroidal anti-inflammatory drugs or adequate doses of opioids during breastfeeding (20).

Persistent pain after cesarean section has been investigate in the Danish study by Nikolajsen et al. (21). They reported that 12.3% of the parturients experience persistent pain at the end of a follow-up period ranging from 6 to 18 months. Daily pain was reported in 5.9% of the patients. In that study, the risk factors for persistent pain were cesarean section under general anaesthesia, as well as previous pain problems, and recall of severe acute postoperative pain (21).

The type of anaesthesia was found to be a predictor of chronic pain, showing that patients undergoing cesarean

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section under general anaesthesia had a higher frequency of pain than patients receiving spinal anaesthesia (21).

Almeida et al. (22) found that 67% of women with chronic pelvic pain had a history of cesarean section. In an Asian study, the incidence of chronic pain after 3 months was 9.2% after elective cesarean section under spinal anaesthesia. Higher recalled pain scores postoperatively, the presence of pain elsewhere and non-private insurance status were found to be independent risk factors (23).

A study from Finland found a significant difference in persistent pain 1 year after delivery between cesarean section (44/229, 18%) and vaginal delivery (20/209, 10%). The persistent pain was mild in 55% of the women in both groups, and intense or unbearable in four women after cesarean sections and in six women after vaginal births. Persistent pain was significantly more common in women with previous pain, previous back pain and any chronic disease. The women with persistent pain recalled significantly more pain on the day after cesarean section and vaginal birth than those who did not report persistent pain (24).

Eisenach et al. (25) recently compared the occurrence of chronic pain after cesarean section and after vaginal delivery. The prevalence of severe acute pain within 36 h postpartum was found to be 10.9% and persistent pain after 8 weeks was found to be 9.8%. Severity of acute postpartum pain was independently related to the risk of persistent postpartum pain, whereas no relation was observed concerning mode of delivery. Women with severe acute postpartum pain had a 2.5-fold increased risk of persistent pain.

The few presented studies agree that drugs combinations—multimodal or balanced analgesia—are mandatory to achieve satisfactory and effective pain relief with reduced side effects. Effective perioperative block of nociceptive input from the wound by means of regional anaesthesia and the administration of analgesics may prevent central sensitization and reduce development of chronic pain.

CONCLUSION

We conclude that persistent pain is more common after cesarean section that vaginal birth, although the pain was usually. In all study the persistent pain was associated with a history of previous pain, chronic disease and pain in peripartum time. A more extensive prospective study are needed to examine risk factors for persistent pain after cesarean section and vaginal delivery.

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