Prevalence and predictors of chronic pain after vaginal delivery

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The International Association for the Study of Pain defines pain as ‘an unpleasant sensory and emotional experience associated with actual or potential tissue damage, or described in terms of such damage’. Chronic pain often occurs as a complication of surgery, which can be associated with significant morbidity and socio-economic impact [1]. It is known that acute postoperative pain is a predictor for chronic pain [2]. Therefore it is expected that acute pain during labour and delivery would also generate chronic pain.

Labour pain is a complex phenomenon with sensory, emotional, and perceptive components, and can be regarded as one of the most serious kinds of pain [3]. In this lecture, a summary of the recent literature will be provided about the pathophysiology of acute pain, chronic pain, the occurrence of chronic pain after surgery and predictors of chronic pain in general. Furthermore, predictors and prevalence of chronic pain after labour and delivery will be discussed.

Acute pain and obstetrics

The amount of pain experienced during labour is the result of complex processing of multiple physiologic and psychosocial factors on a woman’s individual interpretation of nociceptive labour stimuli [4]. In the 1980s Melzack et al [3] determined that about 65-68% of primiparas and multiparas rated their labour pain as severe or very severe; moreover, 23% of primiparas and 11% of multiparas rated their pain as ‘horrible’.

Labour pain arises from contraction of the myometrium against the resistance of the cervix and perineum, progressive dilatation of the cervix and lower uterine segment, as well as stretching and compression of pelvic and perineal structures. In order to relieve labour pain, epidural analgesia has proven to be one of the most effective methods of pain relief [5, 6]. The availability of adequate epidural analgesia could be of importance for the development of chronic pain. The duration and severity of experienced pain could be of importance in the long-term psychological well-being and the development of chronic pain in the mother. However, data are lacking in this regard.

Development of chronic pain

Chronic pain is defined as pain that persists beyond the usual course of an acute disease or after a reasonable time for healing to occur. This period can vary from 1 to 6 months. After surgery, the pathogenic mechanisms of pain are complex. Some of the main risk factors are acute postoperative pain and the intensity of pre-operative pain [1]. When discussing chronic pain after labour, the other types of chronic pain that could exist in this population, such as pelvic pain, back pain and pelvic girdle pain, should first be described. Chronic pelvic pain is a major public health problem in the developed world. It is a symptom, not a diagnosis, and is defined as intermittent or constant pain in the lower abdomen or pelvis of at least 6 months duration, not occurring exclusively with menstruation or intercourse and not associated with pregnancy [7]. A multidisciplinary approach is often required in the treatment of chronic pelvic pain.
Chronic pain and Caesarean section

Post-Caesarean patients differ from the general surgical population because of concerns about exposure to analgesic drugs to the newborn and because of the need for physical activity soon after surgery to allow the mother to care for her baby. Pain treatment after childbirth may be less than after other surgery due to a reluctance to use non-steroidal anti-inflammatory drugs or adequate doses of opioids, due to concern about using these drugs while breastfeeding.

Few studies have focused on chronic pain after Caesarean section. Almeida et al [8] found that 67% of women with chronic pelvic pain had previously undergone a Caesarean section. Another study with a total of 220 patients showed that 18.6% still had pain more than 3 months after Caesarean section [9], and in 12.3% of the patients pain was still present after a mean observation time of 10 months. Daily pain was reported in 5.9%. The type of anaesthesia was found to be a predictor of residual pain [9], with patients undergoing Caesarean section under general anesthesia having a higher frequency of pain than patients receiving spinal anesthesia.

Finally, patients with chronic pain also had a higher recall of postoperative pain.

In an Asian study [10] the incidence of chronic pain after 3 months was 9.2% after elective Caesarian section under spinal anesthesia. Higher pain scores postoperatively, the presence of pain elsewhere and non-private insurance status were found to be independent risk factors.

Effective strategies for the relief of postoperative pain after Caesarean section are summarized in a review by Lavand’homme [11]. This concluded that current studies agree that a drug combination, that is, multimodal or balanced analgesia, is mandatory to achieve satisfactory and effective pain relief with minimum side-effects. Effective peri-operative block of nociceptive input from the wound by means of regional anaesthesia and the administration of analgesic drugs may prevent central sensitization and reduce development of chronic pain.

Chronic pain and delivery

Chronic pain after Caesarian section and vaginal delivery were compared in a recent study [12]. In this prospective, longitudinal cohort study 1288 women were enrolled. The prevalence of severe acute pain within 36 h of surgery was 10.9% and persistent pain after 8 weeks was 9.8%. The severity of acute postpartum pain, was independently related to the risk of persistent postpartum pain, whereas no relation was observed with the mode of delivery. Women with severe acute postpartum pain had a 2.5-fold increased risk of persistent pain.

Genital and pelvic pain are common and well-documented problems in the early postpartum period but little is known about their course. The reported prevalence rates of perineal pain at 12-24 months range from 5 to 33% [13].

Future studies

A good study on the influence of epidural anaesthesia on post-delivery chronic pain is lacking. We are currently conducting a prospective study in which patients are randomized to an early epidural group and a conservative group (pain medication on request). The objective is to assess the impact of a pro-active policy of offering an early epidural at the start of labour (before maternal request) on maternal pain reduction, obstetric complications, neonatal outcome and the occurrence of chronic pain. Six months after delivery patients will be questioned about the occurrence of chronic pain and the impact of chronic pain on their quality of life.
**Key learning points**

- Chronic pain after surgery is a common finding and has been studied extensively.
- Strong predictors of chronic pain after surgery are pre-operative pain and acute postoperative pain.
- Little is written about chronic pain after labour and delivery. Prevalence rates of chronic pain after Caesarian section are between 6 and 12% and after vaginal delivery are 4%-10%.
- As labour pain is rated as one of the most severe types of acute pain one could predict chronic pain after labour and delivery. However, this has not yet been extensively studied.

**References**