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OPINION

Endometriosis: Where are we today? An Anesthesiologist's Point of View

Christian Vetter*

Department of Anaesthesiology and Pain Medicine, Inselspital, University Hospital, University of Bern, Bern, Switzerland

Current Opinion

Worldwide 10 % of women in reproductive age and 25 % up to 50 % of infertile women are affected due to endometriosis [1,2]. This condition has a comparable incidence to asthma and chronic low back pain [3]. The natural history of the disease remains poorly understood although genetic, immunological, and hormonal factors are all believed to contribute to disease severity [4]. Although the majority of patients with endometriosis have a completely asymptomatic course, there is a significant number of patients whose quality of life is impaired by the disease and leads to Chronic Pelvic Pain (CPP) [5]. However, the objective findings of significant endometriosis and the severity of pain are poorly correlated together [4,6]. Moreover, it could be shown that depending on the pain treatment received, in many surgical procedures the incision size and extent of tissue trauma were not related to postoperative pain intensity [7].

The treatment of endometriosis can be conservatively in addition to hormonal treatment, sometimes combined with anti-inflammatory drugs or if conservative strategies have been exhausted by surgical excision of the lesions. In non-pregnant women, hysterectomy is the most common surgical procedure [3]. But approximately 30 % of women who undergo endometriosis surgery report ongoing pain after surgical excision of the lesions [8]. In comparison with women without endometriosis, they had a four-time greater risk for chronic opioid use and this should be taken into account during treatment selection [9].

After surgery, the overall initial postoperative pain can be severe, but generally subsides to Numeric Rating Scale (NRS) for pain assessment scores < 4 within one day after surgery. Pain generated from laparoscopic hysterectomy includes incisional pain, which can be also severe initially, but subsides within the first half day; visceral pain, which takes longer (up to a day) to resolve; and shoulder pain (e.g. shoulder-tip pain), which is milder but occurs in about 80% of women following gynaecological laparoscopy [10], typically peaks within 24 hours and can last for several days. Typical length for use of opioid rescue drugs is approximately 4 days. Despite acute pain can be controlled and mostly resolves within 1 week and should not cause distress or limit postoperative recovery [11]. As already mentioned above, in addition to surgical trauma, other predisposing factors influence the recovery or development of chronicity. As with non-surgical chronic pain, psychological and social factors have an important

*Corresponding author(s)

Christian Vetter, Department of Anaesthesiology and Pain Medicine, Inselspital, University Hospital, University of Bern, Freiburgstrasse, CH-3010 Bern, Switzerland

Tel: +41-316-323-965

Fax: +41-316-320-554

Email: christian.vetter@insel.ch

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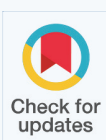
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influence, which can persist for months or years after the procedure [12]. Suboptimal acute-pain management accompanied by an array of negative consequences, including increased morbidity, impaired physical function and quality of life, slowed recovery, prolonged opioid use during and after hospitalization, and increased cost of care. In addition, early postoperative pain appears to trigger persistent pain that may last for months after surgery in a substantial proportion of patients.

Especially young age, non-white race, less education, history of sleep dysfunction, current tobacco, alcohol use, high scores on fibromyalgia screening administered preoperatively, and high anxiety are associated with higher pain severity, excess postoperative opioid use and are potential determinants of persistent pain after surgery. Because pain is both a sensory and an emotional experience, psychological factors such as mood, disability and pain coping (e.g., pain self-efficacy and pain catastrophizing) play an important role in this setting [13-15]; so that especially patients with a tendency or known depression, anxiety, catastrophizing symptoms are at high risk for developing Chronic Postsurgical Pain (CPSP) [16,17]. However, for some patients with acute postoperative pain persists beyond the usual time of tissue healing and transitions into a chronic pain state. It is estimated that approximately 10% of all patients, who have surgery, and 30% of all patients with endometriosis had a chronification of pain. Typically, it begins as acute postoperative pain that is difficult to control, but soon transitions into a persistent pain condition with neuropathic features that are unresponsive to opioids and could trigger the development and persistence of CPSP. However, opioids are too often overused, particularly in the post-discharge period [12].

Opioids are usually a component of a typical postoperative analgesia regimen, and a multimodal strategy is frequently used to achieve the best outcome. But opioid tolerance, adverse effects, contraindications, or a combination of those factors may prevent or limit the use of one or more components of the multimodal regimen [18]. Especially lower abdominal surgery and other procedures had the greatest benefit in opioid reduction.

During anaesthesia, Propofol or volatile anaesthetics are mostly used. In addition, various co-administrators such as Ketamine, Lidocaine, and Dexmedetomidine and their combination(s)

have been increasingly used alone or in combination during the last decade [19]. This circumstance is reflected in the Enhanced Recovery after Surgery (ERAS) recommendations for perioperative care [20].

In the treatment of these patients' population, the NMDA receptor antagonist Ketamine may play a critical role in those patients undergoing surgery in which the expected postoperative pain will be serve [21]. For the acute pain management in the settings of trauma, exacerbation of chronic painful conditions, and postsurgical pain, particularly in patients who are opioid tolerant, Ketamine is most commonly used, generally in subanaesthetic doses [22]. As some patients reported severe debilitating side effects of Ketamine administration that did not tolerate higher ketamine doses, an adequate balance of analgesia and adverse effects in continuous low-dose in a range of 0.1-0.5 mg*kg⁻¹*h⁻¹ was described as sufficient [18].

Other components in pain management and treatment of endometriosis are the continuous intraoperative and postoperative administration of Dexmedetomidine and Lidocaine in patients at high risk for development and persistence of CPSP. Since many years, the highly selective alpha-2 Agonist has been established in postoperative pain therapy and many other indications [23,24]. Among others, these drugs have a place as co-anaesthetics in the perioperative setting [25]. In daily use, the value of dexmedetomidine is based not only on reducing perioperative analgesia, but also on influencing delirium or Postoperative Cognitive Dysfunction (POCD) and preventing it, as well as reducing Postoperative Nausea and Vomiting (PONV) [19,26-30]. According to my own experience the continuous administration of 0.2-0.7 mcg*kg⁻¹*h⁻¹ Dexmedetomidine with or without initial bolus is sufficient during surgery and improve patient's outcome.

It should be noted that pharmacological and therapy-refractory situations surgical treatments for endometriosis can be helpful and may be an effective strategy to limit the recurrence of the disease [31,32]. However, other possibilities (e.g. psychological support) must be taken into account in patients at high risk of developing CPSP. The chronicity of pain must be recognized as early as possible so that a multimodal treatment provided immediately in addition to standard anaesthesia. In the perioperative, setting all efforts should be made to prevent chronification of pain, which in turn results in an improvement in quality of life for patients with endometriosis.

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