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Parietal Infiltration for Postoperative Analgesia

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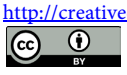

Abstract

The parietal component of pain occupies an important place in the management of postoperative analgesia. Parietal infiltration is a technique that fits into a concept of multimodal analgesia using several analgesic products simultaneously. This simple and reliable technique makes it possible to reduce the use of opioids and therefore their adverse effects; without increasing the risk of infection. It reduces the length of hospitalization.

Keywords

Parietal Infiltration, Analgesia, Surgery

1. Introduction

Parietal infiltration corresponds to the administration of an analgesic agent (most often a local anesthetic) in a subcutaneous, musculo-aponeurotic space, or even in a serosa near the operative site [1]. Unlike analgesia peripheral locoregional by plexus or truncal block, the infiltration technique does not require any precise anatomical identification of the nerve paths. On the contrary, their effectiveness is based on the widest distribution of the product and the blocking of nerve endings. This technique allows the performance of parietal surgical acts such as the cure of the hernia. As far as the heaviest surgery is concerned, this technique is part of a concept of multimodal analgesia which consists in simultaneously using several drugs acting at different levels on distinct components of the pain in order to improve the overall effectiveness by an additive effect. The other potential interest is the reduction of morphine consumption and therefore

its adverse effects [2]. The purpose of this review is to present the interests, indications, techniques and complications of parietal infiltration.

2. History

During the evolution of surgery, postoperative analgesia has known several great periods. A long time ago, postoperative analgesia was not a priority; because pain was considered a corollary of surgery and that analgesia can mask an immediate postoperative complication. 10 years ago, there was a finding that too many patients were suffering from pain which complicated the postoperative period. This is when postoperative pain is considered unnecessary. And the slogan of painless surgery was topical. At the same time in France and during this period, morphine was insufficiently used. 30% to 35% of patients received morphine postoperatively and 40% suffered from moderate or weak pain. For several years, what counts has been good analgesia, multimodal analgesia with sparing morphine. And parietal infiltration is an important part of this method [3].

3. Type of Pain

Nociceptive pain is a stimulation of peripheral receptors by a lesional stimulus, an inflammatory or traumatic process. Acute pain of recent installation, transient, intense, is considered as an alarm signal which disappears with the treatment of the cause. Any pain evolving for 6 months and resistant to symptomatic and etiological treatment should suggest a chronic pain syndrome [4].

4. Interest of Infiltration

Infiltration allows patient comfort postoperatively by inhibiting the parietal component of pain and gives great satisfaction to patients. Beaucier's study showed that parietal infiltration gives 99% success if it is well infiltrated. The PI allows the rapid rehabilitation of the patient therefore a rapid healing and the eviction of the complications of decubitus and the chromization of the pain. One of the important interests of the PI is morphine saving, the reduction in the consumption of morphine and its deleterious effects such as confusion, habituation in a concept of multimodal analgesia [5].

5. Indications

The best documented indications for single injection are hernia, goitre; the hydrocele. This list is not exhaustive. Many other indications exist and will soon be recognized. It is in the treatment of inguinal hernia that the analgesic interest of infiltration techniques has been best demonstrated. Injection in the deep plane has been shown to be more effective than administration limited to the edges and subcutaneously. PI reduces the total consumption of analgesics and improves postoperative pain both at rest and during mobilization .Well done, 20% of patients do not use additional analgesics for the first 24 hours. Proctology, reputed to be very painful, benefits greatly from infiltration techniques. After the

hemorrhoidectomy, the infiltration of 20 ml of bupivacaine dosed at 0.5% greatly reduces the pain and the consumption of opioids. For the other interventions, the fields of application are very vast and remain to be developed [6].

6. Choice of Product and Dosage

The choice of a local anesthetic agent must take into account the potency of the product, the vasomotor properties which condition blood resorption, the duration of action as well as the toxic potential. Lidocaine 1% or 2% remains widely used by surgical teams as an analgesic supplement when a short onset of action is desired. Its potency is limited and the maximum dose is 400 mg or 4 mg/kg. Pubivacaine (marcaine), ropivacaine (naropein) and levobupivacaine (chirocaine) have a less marked vasodilator effect, long persistence at the site and less toxicity. The dosage is 0.25% (2.5 mg/ml) or 0.50% (5 mg/ml). The maximum dose is 2.5 mg/ml [7].

7. Parietal Infiltration Techniques

7.1. When to Infiltrate

After surgery, PI must be performed after parietal closure but this depends on each type of intervention.

7.2. Infiltration Site

From the incision line from top to bottom and all around the incision; then the infiltration is done from the surface to the depth up to the level of the muscular layer. With regard to major surgery, it is necessary to put a catheter under the skin which thus allows the prolonged continuous administration of a local anesthetic at the very site of the surgical lesion.

7.3. Materials

For The materials used, these are 1 to 2 syringes for minor surgeries and 1 to 2 vials of lidocaine 1% or 2% and or bupivacaine (marcaine), ropivacaine (naropein), levobupivacaine (chirocaine) dosed at 0.25% or 0.50%. Major abdominal surgery requires a subcutaneous catheter which allows continuous and prolonged administration of the local anesthetic at the level of the operating site.

7.4. Safety Rules

Infiltration is always carried out in a monitored patient with monitoring of oxygen saturation, blood pressure, pulse and respiratory rate. The injection should be done slowly and infractions. Aspiration testing is a rule to avoid accidental injection into the bloodstream. The maximum dose must be respected [8].

8. Complications

The most frequent complications are related to the systemic toxicity of local anesthetics. They result either from the administration of excessive doses, or

from an injection into a space whose systemic resorption is too great. In these two cases, knowledge of the products used and the injection sites, as well as compliance with the usual precautions when injecting a local anesthetic, can be used to protect against them [9]. No arguments allow us to incriminate the infiltrations in the occurrence of an infection, a hematoma or a delay in healing. In the literature, a few cases of ischemia have been noted when anesthetic products are combined with adrenaline [10].

9. Conclusion

Given the importance of the parietal component in the genesis and maintenance of the painful message, parietal infiltration of local anesthetic is an effective technique and provides analgesic benefit for the patient in many indications. The benefit is direct, by the improvement of postoperative pain, and indirect by the reduction of morbidity linked to the consumption of morphine and prolonged immobilization.

Conflicts of Interest

The authors declare no conflicts of interest regarding the publication of this paper.

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