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ORIGINAL ARTICLE

Intraoperative instillation of ropivacaine during the placement of sub-muscular cosmetic breast implants: Is there a clinical benefit?

Instillation peropératoire de ropivacaine pendant la pose de prothèses mammaires esthétiques rétromusculaires : y a-t-il un bénéfice clinique ?

F. Picard^{a,*}, J. Niddam^a, A. De Runz^c, M. Chaouat^b,
M. Mimoun^b, D. Boccara^b

^a Plastic and reconstructive surgery, hôpital Henri-Mondor, 51, avenue du Marechal-de-Lattre-de-Tassigny, 94000 Créteil, France

^b Plastic and reconstructive surgery, hôpital Saint-Louis, 1, avenue Claude-Vellefaux, 75010 Paris, France

^c Plastic and reconstructive surgery, CHRU de Nancy, 29, avenue du Marechal-de-Lattre-de-Tassigny, 54000 Nancy, France

Received 2 April 2017; accepted 17 July 2017

KEYWORDS

Breast implants;
Ropivacaine;
Pain;
Peroperative anesthesia

Summary

Introduction. – The sub-muscular placement of cosmetic breast implants leads to substantial pain due to the muscular distention. The aim of this study was to assess the efficiency of intraoperative ropivacaine instillation to reduce postoperative pain the day after surgery.

Material and methods. – We conducted a prospective, controlled, single-blinded study comparing the intraoperative instillation of 7.5 mg of ropivacaine through Redon drains with the standard procedure in 72 patients undergoing sub-muscular cosmetic breast augmentation for the first time.

Results. – Pain at the awakening on postoperative day 1 was 4.8 on a simple numeric pain scale in the treatment group and 5.1 in the control group ($P > 0.05$). On postoperative day 3, pain at awakening was 3.7 in both groups ($P > 0.05$), and on postoperative day 5, pain was 2.8 in the treatment group and 2.7 in the control group ($P > 0.05$).

Conclusion. – Local instillation of ropivacaine in the implant pocket during surgery did not decrease postoperative pain on day 1, day 3 and day 5. From now on, we are able to tell to

* Corresponding author.

E-mail address: dr.picard.frederic@gmail.com (F. Picard).

MOTS CLÉS

Implants mammaires ;
Ropivacaïne ;
Douleur ;
Anesthésie
peropératoire

patients that the postoperative pain after sub-muscular cosmetic breast implants surgery is about 5/10 on postoperative day 1, 4/10 at day 3 and 3/10 at day 5.

Level of evidence. – Level II.

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Résumé

Introduction. – La mise en place des prothèses mammaires esthétiques rétromusculaires entraîne une douleur postopératoire conséquente. Le but de cette étude était d'évaluer l'efficacité de l'instillation peropératoire de ropivacaïne pour réduire la douleur le lendemain de l'intervention.

Matériels et méthodes. – Nous avons réalisé une étude prospective, contrôlée, en simple insu comparant l'instillation peropératoire par les drains de Redon de 7,5 mg de ropivacaïne avec la procédure standard chez 72 patientes opérées de primo-implantation de prothèses mammaires esthétiques rétromusculaires.

Résultats. – La douleur au réveil le lendemain de l'intervention était de 4,8/10 sur une échelle numérique simple dans le groupe traité et de 5,1/10 dans le groupe témoin ($p > 0,05$). Au 3^e jour postopératoire, la douleur au réveil était de 3,7/10 dans chacun des 2 groupes ($p > 0,05$) et au réveil du 5^e jour postopératoire la douleur était de 2,8/10 dans le groupe traité et de 2,7/10 dans le groupe témoin ($p > 0,05$).

Conclusion. – L'instillation locale peropératoire de ropivacaïne dans la loge prothétique ne diminue pas la douleur postopératoire à j1, j3 ou j5. Désormais, nous sommes capables de dire aux patientes que la douleur postopératoire après pose de prothèses mammaires esthétiques rétromusculaires est d'environ 5/10 le lendemain de l'intervention, de 4/10 au 3^e jour et de 3/10 au 5^e jour.

Niveau de preuve. – Niveau II.

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Introduction

Between 2010 and 2012, about 78,000 breast implants were placed in France annually for aesthetic or reconstructive motives [1]. For cosmetic reasons, breast augmentation leads to a significant improvement in body image, self-esteem and depressive symptoms [2]. Breast implants in aesthetic surgery can be positioned behind the pectoralis major muscle mainly depending on the soft tissue pinch thickness at the upper pole [3]. The decrease of postoperative pain after retromuscular breast implants would be appreciated by the patients and plastic surgeons.

Currently, postoperative pain is treated by analgesics, administered first intravenously and then orally. Recently, anesthesiologists have evaluated the possibility of an ultrasound-guided pectoral nerve bloc before surgery [4–6], and some surgeons used local infiltration of ropivacaïne of the wound or the surgical site of breast cancer surgery [7–9].

Ropivacaïne is a local anesthetic, which blocks the conduction of the nerve C fibers. It has a half-life of 4 hours and a duration of activity of about 12 hours (3 half-lives) [10].

The aim of this study was to assess the efficiency on postoperative pain of intraoperative instillation of ropivacaïne in the sub-muscular pocket.

Material and methods

We performed a single-center, prospective, controlled, single-blinded clinical trial. The trial protocol had been

approved by the local institutional review board and all the patients signed an informed consent.

Population

Our calculation showed that a total of 72 patients was necessary. It was based on an objective to reduce postoperative pain of 2 points on the first postoperative day on a simple numeric pain scale (0–10), an α risk of 5%, a β risk of 10%, and a baseline postoperative pain score of 4.9/10.

The inclusion criteria were adult women undergoing sub-muscular cosmetic breast augmentation for the first time. The exclusion criteria were placement of implants for reconstruction, the combination of implant placement with another surgical or cutaneous plasty procedure, a change of implant, any surgical revision during the first 5 days, and sub-glandular implant placement.

Surgical technique

The surgical technique consisted in an infra-nipple access for saline implants or in a periareolar access for silicone implants, the creation of a sub-muscular pocket after incision of the pectoralis major, the placement of a Redon drain, the placement of the implant, and the closure of the gland and the skin.

Technique for local anesthesia

Local anesthesia in the treatment group consisted in the injection through each Redon drain of 75 mg of ropivacaïne

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