



# Postoperative pain in orthognathic surgery: a little more light on this issue

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*Comment on:* Tomic J, Wallner J, Mischak I, *et al.* Intravenous ibuprofen versus diclofenac plus orphenadrine in orthognathic surgery: a prospective, randomized, double-blind, controlled clinical study. *Clin Oral Investig* 2022;26:4117-25.

Received: 31 May 2022; Accepted: 05 September 2022; Published: 30 December 2022.

doi: 10.21037/joma-22-18

View this article at: <https://dx.doi.org/10.21037/joma-22-18>

The concept of pain, as we understand it today, was suggested in 1978 by the Taxonomy Subcommittee of the International Association for the Study of Pain (IASP) and approved by the council of that institution, then chaired by Professor John J. Bonica. Pain was defined as “An unpleasant sensory and emotional experience associated with actual or potential tissue damage or described in terms of such damage”. Since then, this terminology has been widely adopted by public and private agents involved in health care, teaching and research, including the World Health Organization (1). But, nowadays, even with greater understanding of the factors involved in the genesis of acute postoperative pain, even with the availability of new analgesics, drug delivery methods and less invasive surgical techniques, the prevention, diagnosis and treatment of acute postoperative pain are not always performed correctly and published studies in the area of acute pain still find a large discrepancy in pain intensity among participants (2). And these unresolved issues need to be more and more discussed, researched and implemented as guidelines, because adequate analgesia results in a better quality of life in the postoperative period, less morbidity, post-surgery early mobilization, shortened hospitalization, increased patient satisfaction and a faster return to their daily activities (3).

The prospective, randomized, double-blind, controlled clinical study by Tomic *et al.* (4) seeks answers for better analgesic control of a specific type of difficult-to-manage postoperative pain, orthognathic surgeries performed with

the following techniques: Le Fort I, bimaxillary osteotomies (BIMAX), bilateral sagittal split osteotomies (BSSO) or segmental osteotomies.

Prolongation or readmission after orthognathic surgery are mainly caused by pain and swelling. (5,6). And patients often report moderate to severe level of pain after this type of surgery (7). In major maxillofacial surgeries, multimodal analgesia, including preemptive analgesia, is a strategy that guarantees a higher success rate (3).

The research compared the analgesic effects of two different treatment regimens in 109 participants: ibuprofen 600 mg or diclofenac 75 mg with orphenadrine 30 mg intravenously twice a day for 3 days. The primary outcome evaluated was the level of postoperative pain, using the patient’s numerical scale (NRS), and the secondary was the use of opioids and paracetamol. Major adverse events from analgesic use, major postoperative complications, body mass index (BMI), body weight, demographics data (gender, age), and mean length of hospital stay (days) were also recorded.

Multimodal analgesia considers the use of analgesics with different mechanisms and sites of action, with the aim of relieving pain and reducing opioid consumption (8,9). And for that, non-steroidal anti-inflammatory drugs (NSAIDs) are one of the most recommended medications. Ibuprofen, a pain reliever widely used around the world, is commonly administered as a component of a multimodal analgesic approach for postoperative pain.

The addition of a central muscle relaxant to a peripheral

anti-inflammatory drug such as diclofenac may increase its potency and prolong its analgesic duration (10). Previous studies have demonstrated that the use of diclofenac-orphenadrine infusion is an effective and safe analgesic strategy, in addition to being easy to administer and combine to relieve pain after surgeries (11,12).

As statistically significant differences, the study found:

- ❖ Higher NRS pain scores on the first postoperative day;
- ❖ Higher mean NRS in the BIMAX Diclofenac-orphenadrine group *vs.* BIMAX-Ibuprofen group on the third postoperative day;
- ❖ The higher the BMI, the higher the NRS on the second and third postoperative days.

With these results, the authors concluded that patients with lower BMI undergoing bimaxillary osteotomy who received ibuprofen had less pain on the third postoperative day. So ibuprofen is more efficient than diclofenac plus orphenadrine in relieving acute postoperative pain in this type of orthognathic surgery.

Some points of this study may be questioned by readers and need to be further clarified:

- ❖ Why was stratified randomization not used, as it would be ideal for this type of study?
- ❖ Although the mean surgery time ranged from 18 to 123.5 minutes without postoperative complications, the study reported an average of hospitalization of 6.18 days. Doesn't this hospitalization time seem too long?
- ❖ From what BMI did pain scores increase significantly?
- ❖ The authors used the NRS for pain, a 11-point numeric rating scale, with 0 representing "no pain" and 10 "unbearable pain". But Clinicians usually categorize pain intensity into: 0 no pain; 1–4 mild pain; 5–7 moderate pain and 8–10 severe pain. In this study, the mean postoperative pain on the third day was significantly lower in the BIMAX I group with a mean of 1.23 compared with the BIMAX D group 2.73 ( $P=0.015$ ). But despite being statistically significant, the pain averages of the groups remained within the mild pain category. What is the clinical impact of this finding?

Finally, it must be said that through this study the authors shed a little more light on the obscure issue of postoperative pain management of orthognathic surgery and, therefore, deserve our respect and congratulations.

## Acknowledgments

*Funding:* None.

## Footnote

*Provenance and Peer Review:* This article was commissioned by the editorial office, *Journal of Oral and Maxillofacial Anesthesia*. The article did not undergo external peer review.

*Conflicts of Interest:* All authors have completed the ICMJE uniform disclosure form (available at <https://joma.amegroups.com/article/view/10.21037/joma-22-18/coif>). The authors have no conflicts of interest to declare.

*Ethical Statement:* The authors are accountable for all aspects of the work in ensuring that questions related to the accuracy or integrity of any part of the work are appropriately investigated and resolved.

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doi: 10.21037/joma-22-18

**Cite this article as:** Laureano Filho JR, Faro TF, Caetano AMM, Duarte NMC. Postoperative pain in orthognathic surgery: a little more light on this issue. *J Oral Maxillofac Anesth* 2022;1:38.