



ORIGINAL

## Treatment of the Temporomandibular Joint Arthritis

Oleksii O. Tymofieiev<sup>a,\*</sup>, Diana S. Havlytiuk<sup>b</sup>, Viktoriia M. Ripa<sup>b</sup>, Marta A. Sokoliuk<sup>b</sup>, & Lesia A. Kolisnichenko<sup>b</sup>

### SUMMARY

Temporomandibular joint (TMJ) arthritis is an inflammatory process in the TMJ. It's more common in young and middle-aged people. Among the reasons of the TMJ arthritis development may be the following: local infection (periodontal disease, gingivitis, stomatitis, otitis, tonsillitis, osteomyelitis of the jaw, etc.), general infectious diseases (acute respiratory infections, influenza, pneumonia, dysentery, tuberculosis, syphilis, etc.), allergic diseases, traumatic effects, etc. Para-allergic factors contribute to the onset of TMJ inflammatory processes (hypothermia, overheating, etc.), changes in the endocrine and nervous systems, foci of chronic infection (especially in the oral cavity), etc. The purpose of this pare is to determine the effectiveness of the use of the non-steroidal anti-inflammatory drug "Nimesil" in the complex treatment of acute arthritis of the TMJ. We observed 64 patients in age from 24 to 65 years who were diagnosed with acute post-traumatic arthritis of the TMJ. Patients were divided into 2 observation groups: 1st group (the main one) – 31 patients who were treated with the nonsteroidal anti-inflammatory drug "Nimesil" and 2nd group (the control one) – 33 patients who were prescribed treatment, including the use of a nonsteroidal anti-inflammatory drug "Indomethacin". The duration of the treatment was 7-8 days. After the relieving of acute inflammation, according to indications, prosthetic treatment was carried out. Treatment was carried out in 64 patients with acute post-traumatic arthritis of the temporomandibular joints by comparative use of various non-steroidal anti-inflammatory drugs in different observation groups. It has been proved that the drug "Nimesil" has a more expressed analgesic, anti-inflammatory and antipyretic effect, and also has a significantly smaller number of side effects compared to the drug "Indomethacin."

Kyiv, Ukraine

<sup>a</sup> ScD, Professor, Department of Oral and Maxillofacial Surgery, Private Higher Educational Establishment "Kyiv Medical University."

<sup>b</sup> Assistant Professor, Department of Oral and Maxillofacial Surgery, Private Higher Educational Establishment "Kyiv Medical University."

\* Corresponding author's address: Department of Oral and Maxillofacial Surgery, Private Higher Educational Establishment "Kyiv Medical University." 4-A Profesora Pidvysotskoho Street, Kyiv 02000, Ukraine.  
E-mail: [tymofeev@gmail.com](mailto:tymofeev@gmail.com) (Oleksii Tymofieiev)  
ORCID: <https://orcid.org/0000-0002-3191-6025>

Co-authors' ORCID:

Havlytiuk DS, <https://orcid.org/0000-0002-0288-5485>

Ripa VM, <https://orcid.org/0000-0002-8644-8708>

Sokoliuk MA, <https://orcid.org/0000-0003-3565-1965>

Kolisnichenko LA, <https://orcid.org/0000-0003-4458-0564>

Please cite this article as: Tymofieiev OO, Havlytiuk DS, Ripa VM, Sokoliuk MA, Kolisnichenko LA. Treatment of the temporomandibular joint arthritis. J Diagn Treat Oral Maxillofac Pathol 2021;5(9):111-14.

Paper received 11 September 2021

Accepted 26 September 2021

Available online 30 September 2021

<https://doi.org/10.23999/j.dtmp.2021.9.5>

© 2021 OMF Publishing, LLC. This is an open access article under the CC BY license (<http://creativecommons.org/licenses/by-nc/4.0/>).

## INTRODUCTION

**T**emporomandibular joint (TMJ) arthritis is an inflammatory process in the TMJ. It's more common in young and middle-aged people. Among the reasons of the TMJ arthritis development may be the following: local infection (periodontal disease, gingivitis, stomatitis, otitis, tonsillitis, osteomyelitis of the jaw, etc.), general infectious diseases (acute respiratory infections, influenza, pneumonia, dysentery, tuberculosis, syphilis, etc.), allergic diseases, traumatic effects, etc.<sup>1-6</sup> Para-allergic factors contribute to the onset of TMJ inflammatory processes (hypothermia, overheating, etc.), changes in the endocrine and nervous systems, foci of chronic infection (especially in the oral cavity), etc.<sup>2,7-14</sup>

The purpose of this article is to determine the effectiveness of the use of the non-steroidal anti-inflammatory drug "Nimesil" in the complex treatment of acute arthritis of the TMJ.

## MATERIALS AND METHODS

We observed 64 patients in age from 24 to 65 years who were diagnosed with acute post-traumatic arthritis of the TMJ. Patients were divided into 2 observation groups: 1st group (the main one) – 31 patients who were treated with the nonsteroidal anti-inflammatory drug "Nimesil" and 2nd group (the control one) – 33 patients who were prescribed treatment, including the use of a nonsteroidal anti-inflammatory drug "Indomethacin". The duration of the treatment was 7-8 days. After the relieving of acute inflammation, according to indications, prosthetic treatment was carried out.

Patients of the 1st observation group were treated with a non-steroidal anti-inflammatory drug "Nimesil" (Laboratorios Menarini S.A., Barcelona, Spain) – international name: Nimesulide (registration certificate number in Ukraine: UA/1445/01/01). The examined patients took the drug after food, 2 times a day for 7-8 days. Patients of the 2nd observation group were prescribed a traditional non-steroidal anti-inflammatory drug "Indometacin" (also known as indomethacin) (Pharmaceutical Company "Zdorovye," LTD, Kharkiv, Ukraine) (registration certificate number in Ukraine: UA/1217/01/01). Patients were prescribed tablets of 0.05 g (50 mg) 2-3 times a day after meals; the maximum daily dose should not exceed 200 mg.

All patients underwent clinical examination methods, which included: examination (the severity of facial asymmetry, edema, hyperemia and infiltration of the mucous membrane in the area of the pathological focus), palpation. To assess the intensity of pain, we used the well-known verbal pain assessment – the visual analogue scale (VAS) – a method available to any dental department. The visual analogue scale is a ruler 10 cm long, according to which the patient is asked to rate his pain from 0 to 10 points. The absence of pain corresponds to 0 points. Unbearable pain – 10 points. Pain assessment: very severe pain (10 and 9 points), severe (8, 7, and 6 points), moderate (5, 4, and 3 points), weak (2 and 1 point), and no pain (0 points).

## RESULTS AND DISCUSSION

The results of the examination of the pain intensity in patients of the 1st observation group (main group) according to the VAS in the dynamics of the treatment are presented below. Before starting treatment, 100% of the examined patients of the 1st observation group had severe (by 8, 7 and 6 points) pain. The next day after the start of the treatment in patients of the 1st observation group (when treated with the drug "Nimesil"), severe pain (8, 7 and 6 points) was found in 27 patients (87.1%), average severity of pain (5 points) – in 4 patients (12.9%). On the 3rd day of the treatment, severe pain was detected in 14 patients (in 45.2%), and average severity (5, 4 and 3 points) – in 17 patients (54.8%). On the 5th day of the treatment of pain in the 1st (main) observation group, the results were following: average (3 and 4 points) – in 12 patients (38.7%) and weak (2 and 1 points) – in 19 patients (61.3%). On 7-8 days of the treatment, pain in the 1st group was as follows: weak (1 point) – in 7 patients (22.6%) and there was no pain – in 24 patients (77.4%).

Side effects on Nimesil were observed in 5 patients (16.2%): Hypertension and tachycardia were observed by us in 1 patient (3.2%), nausea, diarrhea and pain in the epigastric region – in 2 patients (6.5%), drowsiness – in 2 patients (6.5%). Side effects disappeared on their own after the end of the drug intake. The drug "Nimesil" showed good tolerance, no changes in blood and urine patterns.

The results of the examination of the pain intensity in patients of the 2nd (main) observation group according to the visual analogue scale (VAS)

in the dynamics of the treatment are presented below. Before the start of the traditional treatment, 100% of the examined patients of the 2nd observation group had severe (by 8, 7 and 6 points) pain. On the next day after the start of the treatment in patients of the 2nd observation group (with traditional treatment), severe pain (8, 7 and 6 points) was found in 32 patients (97.0%), average pain severity (5 points) – in 1 patient (3.0%). On the 3rd day of the traditional treatment, severe pain was detected in 23 patients (69.7%), and average pain (5, 4 and 3 points) – in 10 patients (30.3%). On the 5th day of the treatment in the 2nd (control) observation group, the results were: average (4 and 3 points) – in 27 patients (81.8%) and weak (2 points) – in 6 patients (18.2%). On 7-8 days of the treatment, pain in the 2nd observation group was as follows: weak (2 and 1 points) – in 22 patients (66.7%) and there was no pain – in 11 people (33.3%).

Side effects were noted in 13 patients (39.4%). Side effects on “Indometacin” were as follows: headache and dizziness – in 2 patients (6.0%); nausea, vomiting, loss of appetite and pain in the epigastric region – in 5 patients (15.2%), drowsiness – in 3 patients (9.1%), allergic reactions – in 3 patients (9.1%). Side effects disappeared on their own after the end of the drug intake.

Thus, on the basis of these examinations, it can be argued that the treatment with the drug “Nimesil” is a more effective in decreasing the total body temperature in patients with acute post-traumatic arthritis of the TMJ compared with the group of patients treated with the drug “Indomethacin.”

### CONCLUSIONS

Treatment was carried out in 64 patients with acute post-traumatic arthritis of the temporomandibular joints by comparative use of various non-steroidal anti-inflammatory drugs in different observation groups. It has been proved that the drug “Nimesil” has a more expressed analgesic, anti-inflammatory and antipyretic effect, and also has a significantly smaller number of side effects compared to the drug “Indomethacin.”

### AUTHOR CONTRIBUTION

Conceptualization: Tymofieiev OO. Data and interpretation acquisition: Tymofieiev OO, Havlytiuk D, Sokoliuk M, Ripa VM, Kolisnichenko

LA. Drafting of the manuscript: Sokoliuk M. Critical revision of the manuscript: Tymofieiev OO. Approval of the final version of the manuscript: all authors.

### REFERENCES (14)

1. Sodhi A, Naik S, Pai A, Anuradha A. Rheumatoid arthritis affecting temporomandibular joint. *Contemp Clin Dent* 2015;6(1):124–7. <https://doi.org/10.4103/0976-237X.149308>
2. Tymofieiev OO. Manual of Maxillofacial and Dental Surgery [Russian]. 5th edition. Kyiv: Chervona Ruta-Turs; 2012.
3. Tymofieiev OO. Maxillofacial surgery and surgical dentistry [Russian]. 1st Volume. 1st edition. Kyiv, Ukraine: All-Ukrainian Specialized Publishing House “Medicine”; 2020.
4. Tymofieiev OO. Maxillofacial Surgery [Ukrainian]. 3rd edition. Kyiv, Ukraine: All-Ukrainian Specialized Publishing House “Medicine”; 2021.
5. Mupparapu M, Oak S, Chang YC, Alavi A. Conventional and functional imaging in the evaluation of temporomandibular joint rheumatoid arthritis: a systematic review. *Quintessence Int* 2019;50(9):742–53. <https://doi.org/10.3290/j.qi.a43046>
6. Sadura-Sieklucka T, Gębicki J, Sokołowska B, Markowski P, Tarnacka B. Temporomandibular joint disorders in patients with rheumatoid arthritis. *Reumatologia* 2021;59(3):161–8. <https://doi.org/10.5114/reum.2021.107593>
7. Campos DES, de Araújo Ferreira Muniz I, de Souza Villarim NL, Ribeiro ILA, Batista AUD, Bonan PRF, de Sales MAO. Is there an association between rheumatoid arthritis and bone changes in the temporomandibular joint diagnosed by cone-beam computed tomography? A systematic review and meta-analysis. *Clin Oral Investig* 2021;25(5):2449–59. <https://doi.org/10.1007/s00784-021-03817-8>
8. Cordeiro PC, Guimaraes JP, de Souza VA, Dias IM, Silva JN, Devito KL, Bonato LL. Temporomandibular joint involvement in rheumatoid arthritis patients: association between clinical and tomographic data. *Acta Odontol Latinoam* 2016;29(3):123–9.
9. Witulski S, Vogl TJ, Rehart S, Ottl P. Evaluation of the TMJ by means of clinical TMD examination and MRI diagnostics in patients with rheumatoid arthritis. *Biomed Res Int* 2014;2014:328560. <https://doi.org/10.1155/2014/328560>
10. Ahmed N, Petersson A, Catrina AI, Mustafa H, Alstergren P. Tumor necrosis factor mediates temporomandibular joint bone tissue resorption in rheumatoid arthritis. *Acta Odontol Scand*

- 2015;73(3):232–40.  
<https://doi.org/10.3109/00016357.2014.994561>
11. Ahmed N, Catrina AI, Alyamani AO, Mustafa H, Alstergren P. Deficient cytokine control modulates temporomandibular joint pain in rheumatoid arthritis. *Eur J Oral Sci* **2015**;123(4):235–41.  
<https://doi.org/10.1111/eos.12193>
  12. Xiao D, Feng X, Huang H and Quan H: Severe septic arthritis of the temporomandibular joint with pyogenic orofacial infections: a case report and review of the literature. *Exp Ther Med* **2017**;14:141–6.  
<https://doi.org/10.3892/etm.2017.4510>
  13. O'Connor RC, Fawthrop F, Salha R, Sidebottom AJ. Management of the temporomandibular joint in inflammatory arthritis: involvement of surgical procedures. *Eur J Rheumatol* **2017**;4(2):151–6.  
<https://doi.org/10.5152%2Feurjrheum.2016.035>
  14. Park JY, Lee JH. Efficacy of arthrocentesis and lavage for treatment of post-traumatic arthritis in temporomandibular joints. *J Korean Assoc Oral Maxillofac Surg* **2020**;46(3):174–82.  
<https://doi.org/10.5125/jkaoms.2020.46.3.174>