

методів профілактики ненавмисної інтраопераційної гіпотермії. Дослідження включало вивчення температурного гомеостазу у 160 хірургічних хворих. Пацієнти досліджуваної групи перебували в умовах корекції їх температурного гомеостазу місцевим застосуванням полімерного поліетиленерефталатного покриття. Пацієнтам контрольної групи будь-яких методи, спрямовані на корекцію їх температурного гомеостазу, не застосовувались. Виявлено поступове зниження температури всіх частинах тіла, а також інтегральних показників температурного гомеостазу в інтраопераційному періоді. Найбільш виражене зниження температури хірургічних хворих спостерігалось на 60-й хвилині хірургічної процедури на шкірі стегон та рук. Запобігання зниженню температури було можливим завдяки ізоляції стегон та рук пацієнтів захисними матеріалами.

**Ключові слова:** температурний гомеостаз, ненавмисна інтраопераційна гіпотермія, профілактика.

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и разработка методов профилактики непреднамеренной интраоперационной гипотермии. Исследование включало изучение температурного гомеостаза у 160 хирургических больных. Пациенты исследуемой группы находились в условиях коррекции их температурного гомеостаза местным применением полимерного полиетиленерефталатного покрытия. Пациентам контрольной группы никакие методы, направленные на коррекцию их температурного гомеостаза, не применялись. Вывявлено постепенное снижение температуры всех частей тела, а также интегральных показателей температурного гомеостаза в интраоперационном периоде. Наиболее выраженное снижение температуры хирургических больных наблюдалось на 60-й минуте хирургической процедуры на коже бедер и рук. Предотвращения снижения температуры было возможным благодаря изоляции бедер и рук пациентов защитными материалами.

**Ключевые слова:** температурный гомеостаз, непреднамеренная интраоперационная гипотермия, профилактика.

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#### DIFFERENTIAL AND DIAGNOSTIC CRITERIA FOR HYPERMOBILITY OF THE ARTICULAR HEADS OF THE MANDIBLE, MUSCLE AND JOINT CONTRACTURE AND COMPRESSION-DISLOCATION DYSFUNCTION OF TEMPOROMANDIBULAR JOINT (ACCORDING TO THE DATA OF TMJ ZONOGRAPHY)

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The article deals with the results of systematic visual analysis of the TMJ zonograms of 67 patients with compression-dislocation dysfunction of TMJ, 29 patients with hypermobility of the articular heads of the mandible and 12 patients with a muscle and joint unilateral contracture of the mandible. The obtained data not only expand the scientific understanding of the pathogenesis of the aforementioned dysfunctions of TMJ, but also have practical significance for their more accurate differential diagnosis and ensuring adequate treatment of patients.

**Key words:** temporomandibular joint, dysfunction, zonography.

*The present work is a fragment of RSW "Algorithm for surgical and conservative treatment of patients with cosmetic defects of tissues of the maxillofacial area, involuntal ptosis of the skin of face and neck, pain syndromes of face, and prophylaxis of the formation of pathological cicatrically modified tissue" (state registration No. 0114U001910).*

The diseases of temporomandibular joint (TMJ) constitute one of the most common pathologies of the maxillofacial area. According to many authors, more than 65% of population in different countries present with some or other symptoms of TMJ dysfunction [1, 3]. Given that the number of such patients is steadily increasing, and clinical manifestations of TMJ disruptions significantly impair the quality of life for millions of people, the problem of their diagnosis and treatment does not lose its relevance up to this day [4]. According to international classification of diseases, TMJ dysfunction is recognized as a separate nosological unit. However, it has not yet been specified that there are a number of various etiopathogenetically determined dysfunctional conditions of the joint [8]. The considerable efforts of specialists are being applied to studying the mechanisms of the occurrence of functional TMJ disorders. However, in spite of active scientific researches, their differential diagnostics causes considerable difficulties until now [2]. Diagnosis of muscle and joint dysfunctions of TMJ is based on anamnesis, clinical and radiological findings, such as orthopantomography, teleroentgenography, computer and magnetic resonance imaging, arthrophonography, and the like [6, 7]. Difficulties in diagnosing muscular and articular dysfunctions of TMJ are due to the similarity of patients' complaints, as well as to different interpretations of the results of additional studies, including the radiographic ones.

Despite the significant technical improvement of the ways for visualizing the TMJ components, the methods for analyzing the obtained images do not always allow researchers to give an adequate description of different nature of its muscle and joint disorders. At present, the most accessible method for visualizing the bone components of TMJ is the targeted computer radiography with closed and open mouth (zonography) [5, 9]. The significant experience in application of TMJ zonography has already

been accumulated, but it should be noted that scientific sources do not pay the necessary attention to the issue of defining the differential and diagnostic characteristics based on the results of this type of study in such common TMJ dysfunctions as hypermobility of the articular heads of the mandible, muscle and joint contracture, and compression-dislocation dysfunction.

The **purpose** of our research is to objectify the diagnosis of hypermobility of the articular heads of the mandible, muscle and joint contracture and compression-dislocation dysfunction of temporomandibular joints according to the data of targeted zonography.

**Materials and methods.** We observed 67 patients aged from 22 to 45 with the phenomena of compression-dislocation dysfunction of TMJ, 29 patients (12 women and 17 men) of the same age with hypermobility of the articular heads of the mandible and 12 patients (11 men and 1 woman) with a muscle and joint unilateral contracture of the mandible. All diagnoses were clinically justified by ultrasound examination of the musculo-articular complex, electromyography of the proper chewing and temporal muscles, targeted zonography of the TMJ in the lateral projection with open and closed mouth. A sufficiently significant difference in the correlation of the bone components of symmetrical TMJ on radiographic images in the examined category of patients served as a basis for their detailed analysis. At the same time, we estimated the size and shape of the articular heads of the mandible, their correspondence to the mandibular fossa of temporal bone, the location of the articular heads with respect to the articular tubercle, the shape and height of the articular tubercles, the width of the articular cavities.

**Results of the study and their discussion.** In TMJ hypermobility, which is usually bilateral and occurs in the long-term keeping mouth wide open during the treatment or removal of molars on the mandible or maxilla (especially “wisdom teeth”), treatment of distal teeth for orthopedic structures and impressions, the use of mouth expanders, conducting intubation. Against the background of excessive stretching of the articular capsule, there is an inadequately wide opening of the mouth, overexertion of the joint components with their possible damage, accompanied by the phenomenon of pain, disruption of the structural and functional in relation to the masticatory muscles. In the targeted radiographs of the TMJ, in most patients the articular heads are adequately arranged in the articular cups (depressions), but with almost identical sizes of the articular cavities in the anterior and posterior sections, there is a significant narrowing in the upper ones, creating conditions for friction of the surfaces of the articular heads and articular cups in these areas. With the mouth open, both heads significantly extend beyond the tops of the articular tubercles (Fig. 1). This situation can be interpreted as anterior dislocation of the head, but this is not clinically observed. Attention is drawn to a rather frequent phenomenon of inconsistency of the sizes of the articular cups to the sizes of the articular heads.

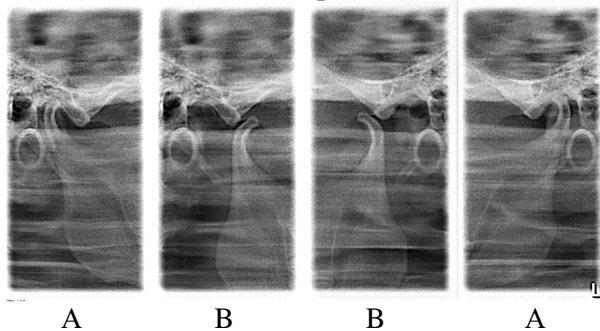


Fig. 1. Targeted X-rays of TMJ with closed (A) and open (B) mouth of the patient with clinical phenomena of hypermobility of the articular heads.

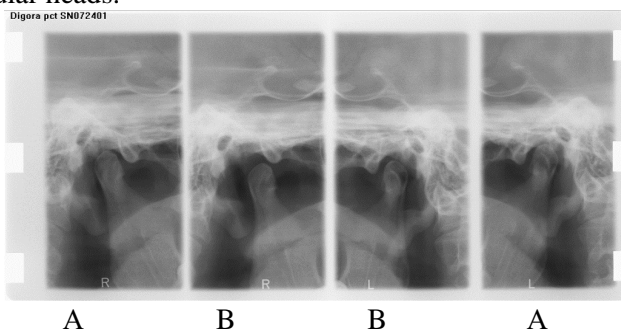


Fig. 2. Targeted X-ray of the TMJ with closed (A) and open (B) mouth of the patient with muscular contractures closed.

In patients with muscular contractures, the main complaints are related to the incapability to optimally open the mouth, which is usually accompanied by the impaired facial expressions. In anamnesis, these patients had an injection of posterior superior alveolar nerve block for the removal of molars of the maxilla. In targeted X-rays at open and closed mouth, the articular head on the side of the contracture did not change its position; on the intact side, the defective movement of the head was also observed (Fig. 2). The main clinical manifestations of compression-dislocation dysfunction of TMJ were the symptoms of discomfort in one of temporomandibular joints (more to the left) in the form of pain phenomena, crepitation in the joint, and deviation of the mandible in this direction. In the zonography of TMJ with the mouth closed, the patients noticed a significant narrowing of the articular cavity in the upper and posterior sections on the side of pain phenomena (the condition of compression of the bilaminar zone) and an expansion in the posterior and antero-superior sections on the opposite side. At the same time, the articular head with the mouth open on the side of pain phenomena was on the posterior

slope of the articular tubercle without extending to its apex, “drowned” in the articular depression, and on the opposite side it extended to the apex of the articular tubercle anteriorly (Fig. 3).

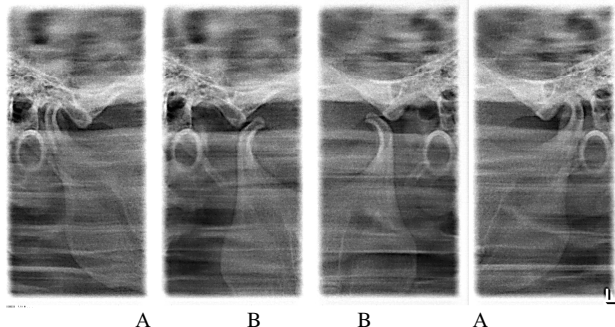


Fig. 3. Targeted X-rays of both TMJs of patient with compression-dislocation dysfunction of TMJ. When the mouth is closed (A), the articular cavity of the right joint is sharply narrowed from behind (the condition of compression), and the left joint is enlarged. When the mouth is open (B), the left articular head is significantly displaced anteriorly to the apex of the articular tubercle, the right one is located on the anterior slope of the tubercle.

In this case, the displacement of the articular head beyond the apex of the articular tubercle anteriorly can be qualified as its anatomical and functional instability in the form of dislocation with a sufficiently pronounced clinical symptomatology. An objective analysis of the relations of all anatomical components of both TMJs, detected on targeted radiographs, with a detailed assessment of complaints and anamnesis of the disease, makes it possible to conduct differential diagnosis of such dysfunctional conditions of TMJ as hypermobility of the articular heads, muscle and articular contracture of the mandible and compression-dislocation dysfunction.

**Prospect of research.** The obtained data not only expand the scientific understanding of the pathogenesis of the aforementioned dysfunctions of TMJ, but also have practical significance for their more accurate differential diagnosis and ensuring adequate treatment of patients.

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#### Реферати

**ДИФЕРЕНЦІЙНО-ДІАГНОСТИЧНІ КРИТЕРІЇ ГІПЕРМОБІЛЬНОСТІ СУГЛОБОВИХ ГОЛІВОК НИЖНЬОЇ ЩЕЛЕПИ, М'ЯЗОВО-СУГЛОБОВОЇ КОНТРАКТУРИ І КОМПРЕСІЙНО-ДИСЛОКАЦІЙНОЇ ДИСФУНКЦІЇ СКРЕНЕВО-НИЖНЬОЩЕЛЕПНОГО СУГЛОБА (ЗА ДАНИМИ ЗОНОГРАФІЇ СНЩС)**

Яценко П.І., Яценко О.І., Рыбалов О.В., Іваницька О.С., Новіков В.М.

У статті представлені результати системного візуального аналізу зонограм СНЩС 67 пацієнок із компресійно-дислокаційною дисфункцією суглоба, 29 хворих із гіпермобільністю суглобових головок нижньої щелепи і 12 осіб з м'язово-суглобовою односторонньою контрактурою нижньої щелепи. Отримані дані не тільки розширюють наукові уявлення про патогенез зазначених дисфункцій СНЩС, але і мають практичне значення для більш точної їх диференціальної діагностики та забезпечення адекватного лікування пацієнтів.

**Ключові слова:** скронево-нижньощелепний суглоб, дисфункція, зонографія.

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**ДИФЕРЕНЦІАЛЬНО-ДІАГНОСТИЧЕСКИЕ КРИТЕРИИ ГИПЕРМОБИЛЬНОСТИ СУСТАВНЫХ ГОЛОВЕК НИЖНЕЙ ЧЕЛЮСТИ, МЫШЕЧНО-СУСТАВНОЙ КОНТРАКТУРЫ И КОМПРЕССИОННО-ДИСЛОКАЦИОННОЙ ДИСФУНКЦИИ ВИСОЧНО-НИЖНЕЧЕЛЮСТНОГО СУСТАВА (ПО ДАННЫМ ЗОНОГРАФИИ ВНЧС)**

Яценко П.И., Яценко А.И., Рыбалов О.В., Иванецкая Е.С., Новиков В.М.

В статье представлены результаты системного визуального анализа зонограмм ВНЧС 67 пациенток с компрессионно-дислокационной дисфункцией сустава, 29 больных с гипермобильностью суставных головок нижней челюсти и 12 особ с мышечно-суставной односторонней контрактурой нижней челюсти. Полученные данные не только расширяют научные представления о патогенезе указанных дисфункций ВНЧС, но и имеют практическое значение для более точной их дифференциальной диагностики и обеспечения адекватного лечения пациентов.

**Ключевые слова:** височно-нижнечелюстной сустав, дисфункция, зонография.

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