

removable prosthetic constructions. *Bullet. Probl. of biol. and med.* 2013; 4: 11-13.

8. Gasiuk PA., Radchuk VB., Kalashnikov DV. Features of morphological changes of dental hard tissues after odontopreparation. *Clin. Dent.* 2014; 3: 8-11.

7. Gasiuk PA., Radchuk VB., Brekhlichuk PP. et al. The influence of orthodontics preparation for the unfixed orthodontic constructions on the tooth pulp from the point of view of morphology. *Intermed. J.* 2015; 3: 39-43.

10. Hazhva SI., Pashinyan GA., Alyoshin AA. Analysis of mistakes and complications in prosthetics with the use of permanent orthopedic structures. *Stomatology.* 2010; 2: 7-8.

11. Schnebelen A., Sweat K., Marshall J. et al. Alleviation of Ig M monoclonal protein interference in nephelometric assays by sample treatment with reducing agent in a chaotropic salt solution. *Am. J. Clin. Pathol.* - 2012; 137 (1): 26-28.

## Реферати

### ПРОТЕЗУВАННЯ НЕЗНІМНИМИ ОРТОПЕДИЧНИМИ КОНСТРУКЦІЯМИ З ВИКОРИСТАННЯМ ТЕХНОЛОГІЇ ЦИФРОВОГО ОБ'ЄМНОГО СКАНУВАННЯ

Гасюк П. А., Радчук В. Б., Гасюк Н. В., Росоловська С. О., Демкович А. Є., Воробець А. Б.

Стаття присвячена вивченню функціонального стану опорних зубів. Ряд досліджень довів, що глибоке препарування та депульпування опорного зуба для виготовлення металокерамічного протезу не є раціональною. Матеріал був розділений на дві дослідні групи. В якості контрольної групи були взяті середні дані стандартів морфології та функціональних характеристик пульпи і дентину відповідної функціональної групи зубів. Підсумки даного дослідження дозволяють стверджувати, що експеримент із використанням цифрового об'ємного сканування для визначення глибини одонтопрепарування в ділянці уступу, дозволяє більш точно та ретельно підійти до визначення глибини препарування опорних зубів для незмінних конструкцій зубних протезів.

**Ключові слова:** Протезування, CAD / CAM, уступ, металокерамічна штучна корона.

Стаття надійшла 2.08.2017 р.

### ПРОТЕЗИРОВАНИЕ НЕСЪЕМНЫМИ ОРТОПЕДИЧЕСКИМИ КОНСТРУКЦИЯМИ С ИСПОЛЬЗОВАНИЕМ ТЕХНОЛОГИИ ЦИФРОВОГО ОБЪЕМНОГО СКАНИРОВАНИЯ

Гасюк П. А., Радчук В. Б., Гасюк Н. В., Росоловская С. А., Демкович А. Е., Воробець А. Б.

Статья посвящена изучению функционального состояния опорных зубов. Ряд исследований доказал, что глубокое препарирование и депульпирование опорного зуба для изготовления металлокерамического протеза является не рациональной. Материал был разделен на две исследовательские группы. В качестве контрольной группы были взяты средние данные стандартов морфологии и функциональных характеристик пульпы и дентина соответствующей функциональной группы зубов. Итоги данного исследования позволяют утверждать, что эксперимент по использованию цифрового объемного сканирования для определения глубины одонтопрепарирования в области уступа, позволяет более точно и тщательно подойти к определению глубины препарирования опорных зубов для постоянных конструкций зубных протезов.

**Ключевые слова:** Протезирование, CAD / CAM, уступ, металлокерамическая искусственная корона.

Рецензент Аветіков Д.С.

DOI 10.26724 / 2079-8334-2017-4-62-17-24

UDC 616.284-002:612.858

I. I. Grynko, O. M. Borysenko

SI "Institute of Otolaryngology named after prof. O. S. Kolomyichenko NAMS of Ukraine", Kyiv

### COMPARATIVE CLINICAL AND AUDIOLOGICAL CHARACTERISTICS OF THE AUDITORY ANALYZER CONDITION IN PATIENTS WITH CHRONIC TUBOTYMPANIC OTITIS MEDIA

e-mail: igrynko@yandex.ua

At a frequency of 8.0 kHz in patients with a teflon tube (T/tvt) - the magnitude of this indicator increases in the first 3 months after surgical intervention, and then gradually decreases after 6 and 12 months after the operation, and in patients with a silicone tube (T/svt) - practically does not change during all time after surgical intervention. The dynamics of thresholds for the perception of bone-carved sounds at different frequencies in patients with T/tvt after surgery is in most cases of a multi-directional nature. In patients with T/svt, the perception of bone-carved sounds at a frequency of 4.0 and 8.0 kHz increases in the first 3 months after surgical intervention, with subsequent preservation of its level until the 12th month after surgery. The dynamics of bone-air intervals at frequencies of 0.5 and 1.0 kHz in virtually all groups of patients with CTOM (except for T/tvt at a frequency of 1.0 kHz) after surgery has a similar nature - a gradual decrease with an increase in time after surgery (3 – 6 – 12 months), and the most pronounced decrease is observed in the first 3 months. At the frequency of 2.0 and 4.0 kHz, in most groups of patients with CTOM, the most pronounced reduction of bone-air intervals is noted not only after 3 months, but also in the interval from the 3rd to the 6th month. At a frequency of 8.0 kHz, the gradual decrease in the value of bone-air intervals with the increase in time after surgery is observed in the group of patients with T/svt, in patients with T/tvt its magnitude increases after 3 months after surgery, and in the interval between the 3rd and in the 6th months it decreases and then practically does not change.

**Key words:** chronic tubotympanic otitis media, mpanoplastic, vent tube.

Among the diseases of otolaryngology organs, treated stationary, the frequency of chronic purulent otitis media is 20-25% [10] and may cause disability in patients with deafness and the development of such intracerebral complications as meningitis, encephalitis, brain abscess, sigmoid sinus thrombosis, etc. [2, 9, 15, 18]. In patients with a sufficient function of the auditory tube after eliminating the inflammatory process in the area of the middle ear, nose and nasopharynx, the predictions of surgical

treatment are the most optimistic. Such patients have a good prognosis for closing the perforation of the tympanic membrane and restoring the hearing function [10, 14]. The situation in patients with a significant degree of violation of the tubular function is diametrically opposed. Until now, the arsenal of surgical manipulations for such patients was extremely limited. In most cases, this was a serious constraint and even a contraindication to surgical intervention [1, 13, 16]. The decisive achievement is the long drainage of the tympanic cavity, which causes a chain of pathological changes that develop in the cavity of the middle ear during obstruction of the auditory tube, due to the fact that during this time the function of the auditory tube will improve [1, 4, 8, 12]. In particular, this gives a chance to patients with severe violations of the auditory tube function - a group that for a long time was doomed to palliative therapy and a dubious or negative prognosis for the restoration of the tympanic membrane [1, 20]. The question arises as to how to successfully ventilate the restored surgically through the tympanic membrane, drain the exudate and exercise control over the above functions. This leads to the search for optimal methods of ventilation, drainage and to assess the function of the auditory tube after the tympanoplasty of the perforated tympanic membrane. Ventilation tubes and shunts are widely used by otolaryngologists in the treatment of recurrent secretory otitis media. They have different sizes and shapes and are used for prolonged ventilation and drainage of the cavity of the middle ear [3, 7].

In addition, one should pay attention to the material from which the ventilation drainage tube is made, which is important for the length of its stay in the middle ear. As a rule, the material must be inert, do not induce intolerance, provide good drainage without causing complications [20, 21]. The requirements correspond to the requirements of the drainage systems of teflon and silicone [6, 10].

All of the foregoing suggests in favor of the scientific and applied importance of comparative study of the effectiveness of the long-term use of ventilation tubes from various materials for the treatment of tubular dysfunction in patients with chronic purulent otitis media.

**Research purpose** - to conduct a comparative clinical and auditory characteristic of the condition of the auditory analyzer before and after tympanoplasty in patients with perforation of the tympanic membrane with the use of ventilation tubes of different materials.

**Material and methods.** For 2014-2016 years, we have selected 49 histories of patients' illnesses with CTOM with dysfunction of the auditory tube. The determination of hearing acuity and the degree of its reduction were carried out in a specially equipped sound absorbing chamber, with a sound pressure level of up to 30 dB. Audiometric "Itera" (Denmark) was used for the audiometric survey, which generates pure tones from 0,125 to 8000 Hz with an intensity of up to 110 dB in a conventional circuit, using threshold tone and language tests. The results were entered in special forms, where the axis of the ordinate reflects the intensity in dB, and for the abscissa - the frequency in Hz.

The evaluation of the perception of patients with bone and airborne sounds before and after the tympanoplasty was evaluated at five frequencies - 0.5 kHz, 1 kHz, 2 kHz, 4 kHz, 8 kHz, that is, in the range of speech frequencies. With the help of tonal audiometry, thresholds of auditory sensitivity were determined throughout the range of studied frequencies by air and bone conduction. With asymmetry of hearing and eavesdropping, of better to hearing ear, camouflage was performed: the masking noise in the ear that hears better, with the aim of its exclusion. Air conduction was masked when the difference between the ear canal airways that feels worse and the ear canal bone conduction thresholds that heals better was 40 dB or more. The results were analyzed according to the International Classification of Deafness, approved by the WHO (1997). According to her, hearing impairment is considered to increase the threshold of hearing according to audiometry data by more than 10 dB: I degree of hearing loss corresponds to an increase in hearing thresholds by 26-40 dB; II degree - raising the thresholds by 41-55 dB; III degree - at 56-70 dB; IV degree - 71-90 dB; raising thresholds by more than 91 dB indicates deafness. Tympanoplasty with teflon vent tubes was performed in 29 patients (T/tvt group), from silicone - 20 patients (T/svt group). The vent tube was installed in an electric boron channel formed on the lower wall of the external auditory passage. One end of the vent tube opens in the external auditory passage, the other end to the tympanic cavity (Fig. 1). To restore the integrity of the tympanic membrane, fascia of the temporal muscle was used.

The statistical processing of the results of the audiometric survey was carried out using the license package "STATISTICA 6.0".

**Results and its discussion.** In the analysis of the threshold of perception of air-operated sounds at a frequency of 0.5 kHz, in all groups of patients with CTOM there is a gradual decrease with an increase in time after surgical intervention (3 – 6 - 12 months) compared with the magnitude of this indicator before surgery (Fig. 2A).

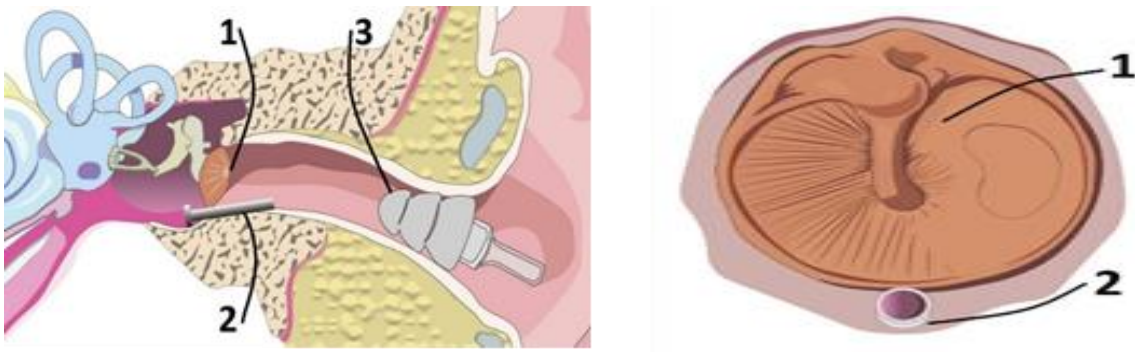


Fig. 1. Ventilation tube in the auditory passage. Marking: 1 - tympanic membrane; 2 - the ventilation tube is installed subannular; 3 - an ear inserter of the middle ear analyzer.

In analyzing the dynamics of changes in the value of the threshold of perception of bone-carved sounds at a frequency of 0.5 kHz in patients with CTOM there is a gradual decrease with an increase in time after surgery (3 – 6 - 12 months) compared with the magnitude of this indicator before surgery in the group of T/svt, and in patients with T/tvt - only in the interval between the 3rd and 6th months after surgery (Fig. 2B).

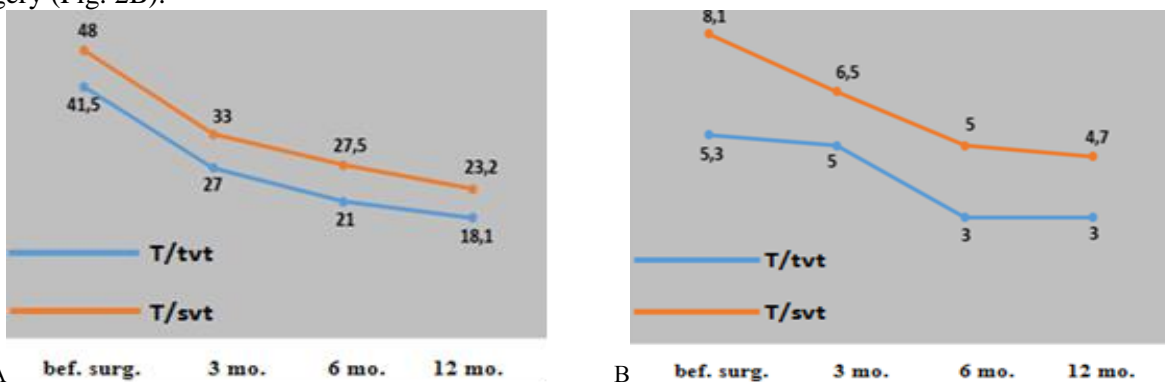


Fig. 2. Dynamics of thresholds for the perception of airborne (A) and bone-carved (B) sounds (dB) in patients with CTOM after surgical intervention at a frequency of 0.5 kHz.

Dynamics of changes in the threshold of perception of airborne sounds at a frequency of 1.0 kHz in patients with T/svt almost coincides with the nature of the changes set at a frequency of 0.5 kHz. Only in the group of patients with T/tvt the most pronounced decrease in the value of this indicator is noted not only in the first 3 months after surgery, but also in the interval between the 3rd and 6th months (Fig. 3A). The volume of threshold for the perception of bone-carved sounds at a frequency of 1.0 kHz in patients with T/tvt and T/svt gradually decreases until the 6th month after surgical intervention, and then practically does not change (Fig. 3B).

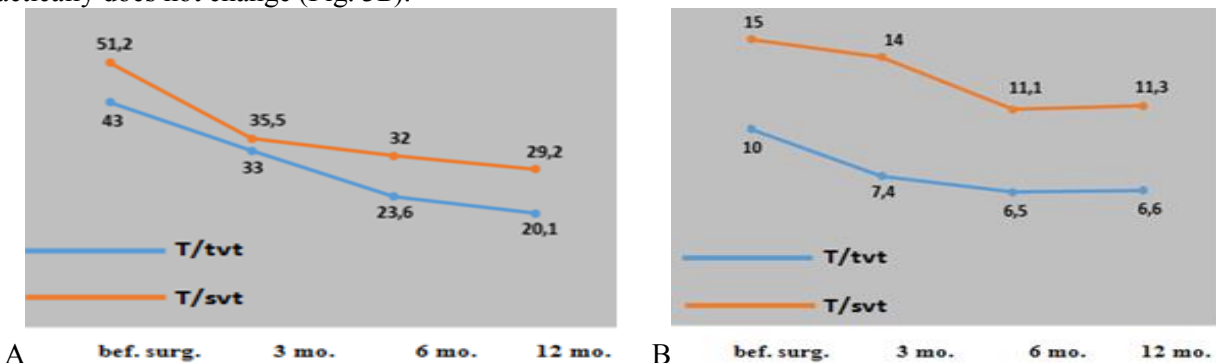


Fig. 3. Dynamics of thresholds for the perception of airborne (A) and bone-carved (B) sounds (dB) in patients with CTOM after surgery at a frequency of 1.0 kHz.

The threshold of perception of airborne sounds volume at a frequency of 2.0 kHz in patients with CTOM with T/tvt and T/svt have most pronounced decreasing not only in the first 3 months after surgical intervention, but also in the interval between the 3rd and 6th months (Fig. 4A). The dynamics of the threshold value for the perception of bone-carved sounds at a frequency of 2.0 kHz in all groups of patients with CTOM practically coincides with the nature of the changes set at a frequency of 1.0 kHz (Fig. 4B).

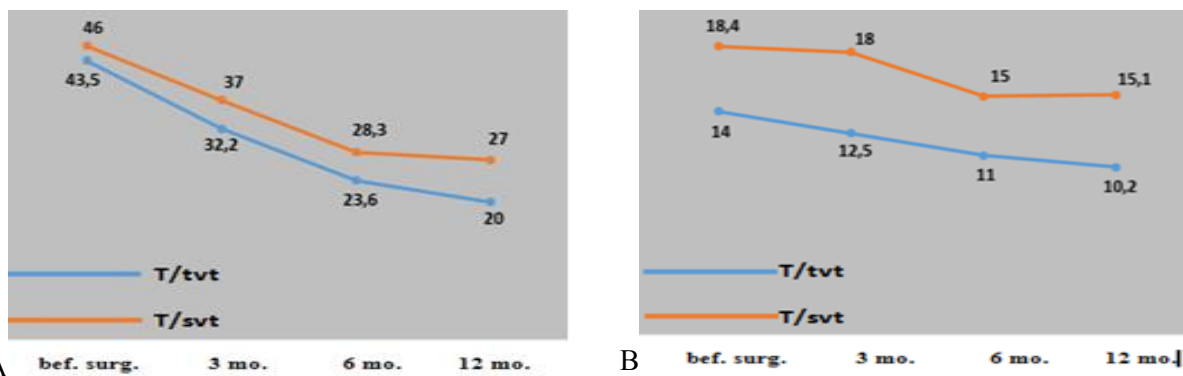


Fig. 4. Dynamics of the thresholds for the perception of airborne (A) and bone-carved (B) sounds (dB) in patients with CTOM after surgery at a frequency of 2.0 kHz.

In the analysis of the dynamics of the thresholds for the perception of air-operated sounds at a frequency of 4.0 kHz in patients with CTOM, its gradual decrease with an increase in time after surgical intervention (3 – 6 - 12 months) in all groups was established (Fig. 5A). The dynamics of the change in the threshold value for the perception of bone-carved sounds at a frequency of 4.0 kHz coincides with the nature of the changes set at a frequency of 2.0 kHz only in the group of patients with T/tvt. In patients T/svt - the magnitude of this indicator at a frequency of 4.0 kHz increases in the first 3 months after surgical intervention, and then remains practically unchanged (Fig. 5B).

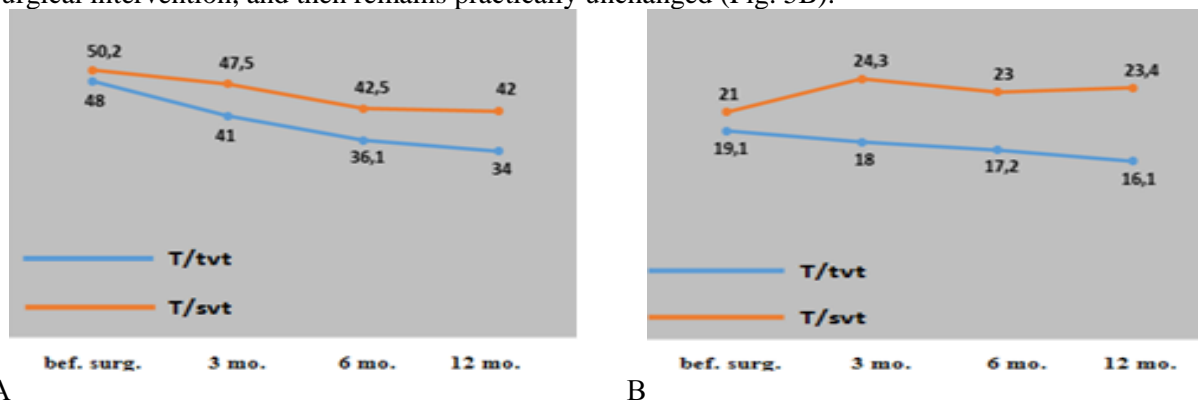


Fig. 5. Dynamics of thresholds for the perception of airborne (A) and bone-carved (B) sounds (dB) in patients with CTOM after surgery at a frequency of 4.0 kHz.

The threshold value of the perception of air-operated sounds at a frequency of 8.0 kHz in patients with T/svt practically does not change during all time after surgical intervention; and in patients with T/tvt - increases in the first 3 months after surgical intervention, and then gradually decreases after 6 and 12 months after surgery (Fig. 6A). In the analysis of the dynamics of thresholds for the perception of bone-carved sounds at a frequency of 8.0 kHz in patients with CTOM with T/svt, an increase in this index was established in the first 3 months after surgical intervention, and then its magnitude practically does not change until the 12th month after surgery (Fig. 6.13). In patients with T/tvt, the value of this indicator at the frequency of 8.0 kHz practically does not change during the whole time after surgical intervention (Fig. 6B).

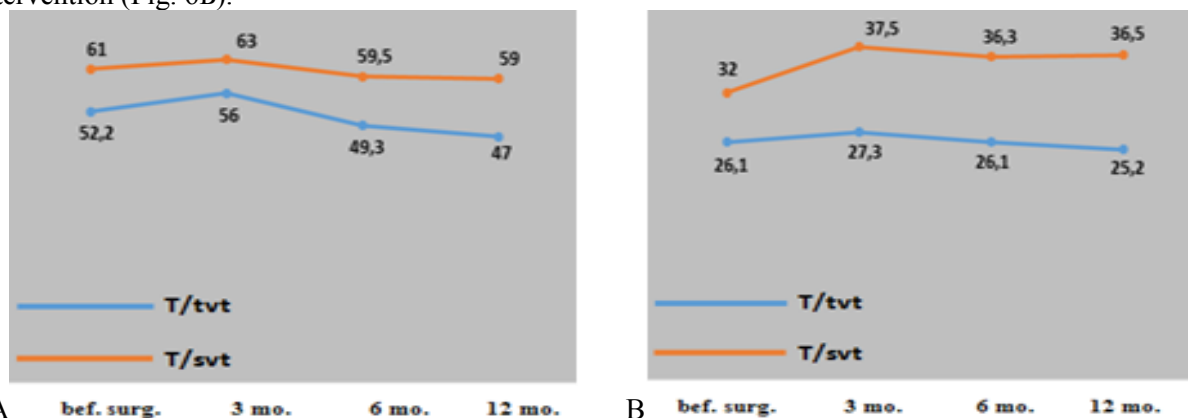


Fig. 6. Dynamics of thresholds for the perception of airborne (A) and bone-carved (B) sounds (dB) in patients with CTOM after surgery at a frequency of 8.0 kHz.

In the analysis of bone-air intervals at a frequency of 0.5 kHz, in all groups of patients with CTOM it is observed its gradual decrease with an increase in time after surgery (3 - 6 - 12 months) compared with the magnitude of this indicator to the operation, most pronounced in the first 3 months (Fig. 7A). In the analysis of bone-air intervals at a frequency of 1.0 kHz in the group of patients with T/svt, the most pronounced decrease in the value of this indicator was established in the first 3 months after surgical intervention, practically does not change between the 3rd and 6th months after surgery and slightly decreases between the 6th and 12th months after surgical intervention. In the group of patients with T/tvt, the value of bone-air intervals at a frequency of 1.0 kHz most significantly decreases in the first 6 months after surgical intervention (Fig. 7B).

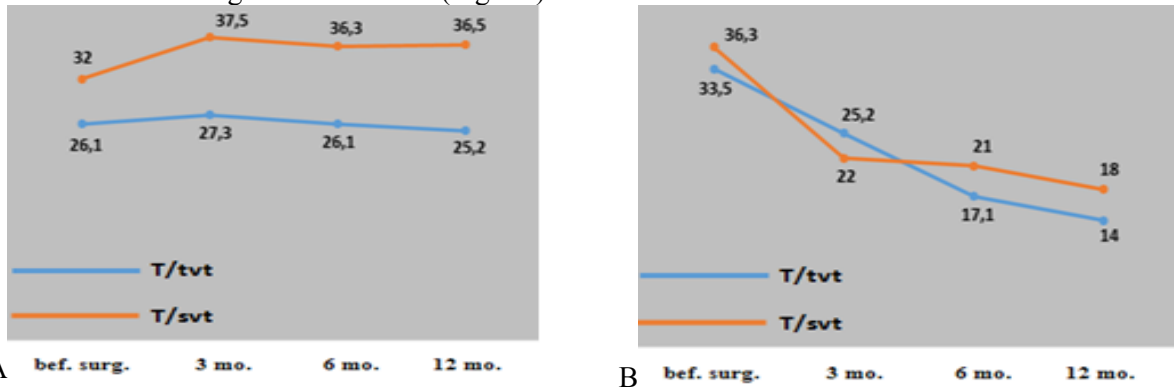


Fig. 7 Dynamics of bone-air intervals (dB) in patients with CTOM after surgical intervention at a frequency of 0.5 kHz (A) and at a frequency of 1.0 kHz (B).

In the analysis of bone-air intervals at a frequency of 2.0 kHz in the groups of patients with T/tvt and T/svt the magnitude of this indicator is most pronounced decreases in the first 6 months after surgical intervention (Fig. 8A).

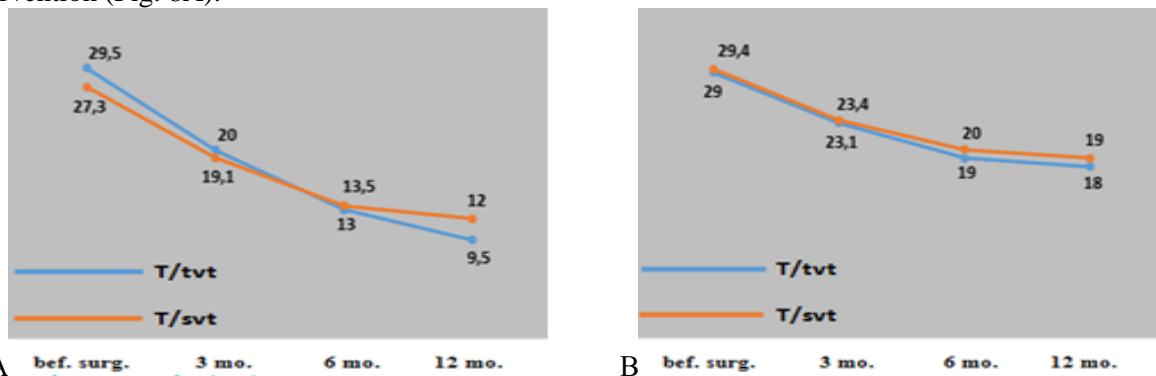


Fig. 8 Dynamics of bone-air intervals (dB) in patients with CTOM after surgical intervention at a frequency of 2.0 kHz (A) and at a frequency of 4.0 kHz (B).

In the analysis of bone-air intervals at a frequency of 4.0 kHz, in groups of patients with T/tvt and T/svt, a gradual decrease in the value of this indicator with an increase in time after surgery (3 - 6 - 12 months) is observed (Fig. 8B). A similar dynamics is observed at a frequency of 8.0 kHz in both groups of patients. According to literary sources, with the pathology of the middle ear, the transmission of sound signals from the external to the inner ear is disturbed, therefore the thresholds of perception in air sound conduction in one way or another increase [11]. In most cases, when conductive deafness caused by exudation or perforation of the tympanic membrane with purulent otitis media is determined by an increase in the thresholds of auditory perception of airborne sounds at low and medium frequencies of 20-40 dB while maintaining the normal perception of sound for bone conduction [17].

Consider the dynamics of the thresholds for the perception of airborne sound at low, medium and high frequencies in patients with CTOM after surgical intervention using tubes of silicone or teflon.

In most cases, the dynamics of the thresholds for the perception of air-operated sounds at a frequency of 0,5, 1,0 and 2,0 kHz in all groups of patients with CTOM after surgery is similar - gradual decrease with an increase in time after surgery (3 - 6 - 12 months), and, the most pronounced decrease is noted in the first 3 months. At frequency 4.0 kHz, in all groups of patients with CTOM after surgery, a gradual slight decrease in the thresholds for the perception of airborne sounds was established. This result partially satisfies us, because hearing recovery in this frequency range allows the patient to perceive the human voice and sounds created by most of our important processes in nature [5].

When raising the threshold of perception of air-operated sounds at high frequencies, the perception of the sensation (sound presence) of itself in the space suffers in the first place. Without them, people are scared and do not understand where the sound goes, and the sounds themselves seem to be highly distorted. There is no sense in the volume of sound. Everything sounds like some kind of fragmentary sounds that seem to be all by themselves and strictly separate [5]. As a result, the psyche and ears are strained: after all, you have to think of something that did not happen to hear plus something to try to hear. The brain, meanwhile, is accustomed to not using hearing in the problem ranges, making the perception level even higher. Appears a typical situation for all organs of sensation - a body that does not use - dies. Therefore, after high frequencies, the average and the low [22] begin to suffer.

At frequency 8.0 kHz at patients with T/tvt - the magnitude of this indicator increases in the first 3 months after surgical intervention, and then gradually decreases after 6 and 12 months after the operation, and in patients with T/svt - practically does not change during all the time after surgical intervention. This suggests the best prospects for the completeness of hearing loss for patients using teflon tubes, because the wider the spectrum of the perception of acoustic frequencies, the more likely it is to hear all the details in detail [19].

At the same time, in patients with CTOM with bone sound conduction, the sound signals are perceived at normal levels of intensity, since the receptor apparatus of the snail and the nerve auditory pathways are preserved [17]. In our study, the dynamics of thresholds for the perception of bone-carved sounds at different frequencies and in different groups of patients with CTOM after surgical intervention has in most cases a multi-directional character. Attention is drawn to the increase in the threshold for perceiving bone-carved sounds in patients with T/svt at a frequency of 4.0 and 8.0 kHz in the first 3 months after surgical intervention, with subsequent preservation of its level until the 12th month after surgery, which is known to be negative prognostic sign in terms of hearing rejuvenation.

Normally, the difference between the thresholds of air and bone sound conduction is minimal or they coincide. The difference between the thresholds of air and bone sound conduction is reflected in the bone-air interval and depends on the degree of violations in the middle ear. With mixed hearing loss, thresholds for both bone and air sounding are raised, with bone-air interval of different sizes marked [19].

The increased bone-air interval (more than 20 dB) suggests conductive hearing loss - this is usually the result of otosclerosis or otitis. The forecast can be approximate and the 100% conclusion is made not on the basis of concurrent audition, but on the dynamics of the following survey results [5].

The dynamics of bone and air intervals at frequencies of 0.5 and 1.0 kHz in virtually all groups of patients with CTOM (with the exception of T/tvt at a frequency of 1.0 kHz) after surgery has a similar nature - a gradual decrease with an increase in time after surgery (3 - 6 - 12 months), and the most pronounced decrease is observed in the first 3 months. At the frequency of 2.0 and 4.0 kHz, in most groups of patients with CTOM, the most pronounced reduction of bone-air intervals is noted not only after 3 months, but also in the interval from the 3rd to the 6th month. At a frequency of 8.0 kHz, gradual decrease in the value of bone-air intervals with increasing time after both groups of patients is observed.

Thus, the results of the auditory diagnosis of auditory disorders in patients with T/tvt and T/svt indicate the use of ventilation tubes from teflon, which effectively addresses the treatment, prevention and rehabilitation of patients with tubular dysfunction caused by CTOM.

## Conclusions

1. In patients with CTOM of different groups, the dynamics of the thresholds for the perception of air-operated sounds and bone-air intervals in the low and mid-range of sound waves in most cases has similar features (gradual decrease in the values of these indicators with the increase in time after surgery).
2. In patients with CTOM of different groups, the dynamics of thresholds for the perception of air-operated sounds and bone-air intervals in the high-frequency range has significant differences (in patients with T/tvt - the magnitude of this indicator increases in the first 3 months after surgery, and then gradually decreases after 6 and 12 months after the operation, and in patients with T/svt - practically does not change during the whole time after surgical intervention).
3. Dynamics of thresholds for the perception of bone-carved sounds at different frequencies in patients with T/tvt after surgical intervention has in most cases a multi-directional character. In patients with T/svt, the perception of bone-carved sounds at a frequency of 4.0 and 8.0 kHz increases in the first 3 months after surgical intervention, with subsequent preservation of its level until the 12th month after surgery.

## References

1. Adil E, & Poe D. What is the full range of medical and surgical treatments available for patients with eustachian tube dysfunction? *Curr. Opin. Otolaryngol. Head Neck Surgery*. 2014; 22: 8-15.

2. Dubey SP, & Larawin V. Complications of chronic suppurative otitis media and their management. *Laryngoscope*. 2007; 117(2): 264-267.
3. Dvoryanchikov V V, & Ivashin I A. Korrektsiya disfunktsii sluhovoy trubki posle mikroendoskopicheskikh rinologicheskikh operativnykh vmeshatelstv metodom prolongirovannogo transtubarnogo drenirovaniya. *Vestnik otorinolaringologii*. 2012; 4: 54-56. (in Russian)
4. Florentzson R, & Finizia C. Transmyringeal ventilation tube treatment: a 10-year cohort study. *Int. J. Pediatr. Otorhinolaryngol*. 2012; 76(8): 1117-1122.
5. Ferrari DV, Lopez EA, Lopes AC, Aiello CP, Jokura PR. Results obtained with a low cost software-based audiometer for hearing screening. *Int. Arch. Otorhinolaryngol*. 2013; 17(3): 257-264.
6. Endo S, Mizuta K, Takahashi G, Nakanishi H, Yamatodani T, Misawa K, Mineta H. The effect of ventilation tube insertion or trans-tympanic silicone plug insertion on a patulous Eustachian tube. *Acta Otolaryngol*. 2016; 23: 1-5.
7. Hussein AA, Adams AS, Turner JH. Surgical Management of Patulous Eustachian Tube: A Systematic Review. *Laryngoscope*. 2015; 125(9): 2193-2198. (in Russian)
8. Ivanova NI, Dolgov VA, Shevlyuk NN. Sostoyanie regenerativnoy aktivnosti tkany barabannoy pereponki i rezultaty miringoplastiki na raznykh strokakh remissii eksperimental'nogo srednego otita. *Vestnik otorinolaringologii*. 2014; 5: 11-13. (in Russian)
9. Kong, K, & Coates H L. Natural history, definitions, risk factors and burden of otitis media. *Med. J. Aust*. 2009; 191(9): 39-43.
10. Llewellyn A, Norman G, Harden M, Coatesworth A, Kimberling D, Schilder A, McDaid C. Interventions for adult Eustachian tube dysfunction: a systematic review. *Health Technology Assessment*. 2014; 18(46): 5-6.
11. Shekelle P, Takata G, Chan LS, Mangione-Smith R, Corley PM, Morphey T, Morton S. Diagnosis, Natural History, and Late Effects of Otitis Media with Effusion. Evidence Report/Technology Assessment No. 55 Agency for Healthcare Research and Quality. Rockville. 2002. MD.
12. Sajjan JA, Hilton CW, Levine SC. Long-term outcomes and reliability of Jahn ventilating tube. *Otolaryngology-Head and Neck Surgery*. 2011;145(2): 218.
13. Shreyas S, Joshi Mohan J, Saurabh A, Dnyaneshwar A. Tympanometry, a Prognostic Indicator of Myringoplasty with Assessment of Eustachian Tube Function. *International Journal of Otolaryngology and Head & Neck Surgery*. 2012; 1(3):105-108.
14. Schröder S, Reineke U, Lehmann M, Ebmeyer J, Sudhoff H. Chronic obstructive Eustachian tube dysfunction in adults: long-term results of balloon Eustachian tuboplasty. *HNO*. 2013; 61: 142-151.
15. Sun J, & Sun J. Intracranial complications of chronic otitis media. *Eur. Arch. Otorhinolaryngol*. 2014; 271(11): 2923-2926.
16. Schilder AG, Bhutta MF, Butler CC, Holy C, Levine LH, Kvaerner KJ, Lund VJ. Eustachian tube dysfunction: consensus statement on definition, types, clinical presentation and diagnosis. *Clin. Otolaryngol*. 2015; 40: 407-411.
17. Tavarkiladze GA. (Red. Palchun, V. T.) Funktsionalnye metody issledovaniya sluhovogo analizatora. V kn.: *Otorinolaringologiya / Natsionalnoe rukovodstvo* (str. 113-149). 2008. M.: Geotar. (in Russian)
18. Thorne MC, Chewaproug L, Elden LM. Suppurative complications of acute otitis media: changes in frequency over time. *Arch Otolaryngol Head Neck Surg*. 2009; 135(7): 638-641.
19. Tavarkiladze GA. *Klinicheskaya audiologiya*. 2013; M., Meditsina. (in Russian)
20. Tarabichi M, Najmi M. Site of eustachian tube obstruction in chronic ear disease. *Laryngoscope*. 2015; 125(11): 2572-2575.
21. Teschner, M. Evidence and evidence gaps in the treatment of Eustachian tube dysfunction and otitis media. *GMS Curr. Top. Otorhinolaryngol. Head. Neck. Surg*. 2016; 15: 17-21.
22. Wingfield A, & Jonathan E. How does hearing loss affect the brain? *Peelle Aging health*. 2012; 8(2): 107-109.

## Реферати

### ПОРІВНЯЛЬНА КЛІНІКО-АУДІОЛОГІЧНА ХАРАКТЕРИСТИКА СТАНУ СЛУХОВОГО АНАЛІЗАТОРА У ХВОРИХ НА ХРОНІЧНИЙ ТУБОТИМПАНАЛЬНИЙ СЕРЕДНІЙ ОТИТ

Гринько І. І., Борисенко О. М.

Проведено порівняльну клініко-аудиологічну характеристику стану слухового аналізатора до і після тимпанопластики у хворих із перфорацією барабанної перетинки при застосуванні вентиляційних трубок із різного матеріалу. На частоті 8,0 кГц у хворих із тефлоновою трубкою (Т/твт) – величина повітрянопроведених звуків збільшується у перші 3 місяці після хірургічного втручання, а далі поступово зменшується через 6 і 12 місяців після операції, а у хворих із силіконовою трубкою (Т/свт) – практично не змінюється на протязі усього часу після хірургічного втручання. Динаміка порогів сприйняття кісткопроведених звуків на різних частотах у хворих з Т/твт після хірургічного втручання має в більшості випадків різнонаправлений характер. У хворих із Т/свт поріг сприйняття кісткопроведених звуків на частоті 4,0 і 8,0 кГц зростає у перші 3 місяці після хірургічного втручання з подальшим збереженням його рівня до 12-го місяця після операції. Динаміка кістково-повітряних інтервалів на частоті 0,5 і 1,0 кГц практично в усіх групах хворих на ХТСО (за винятком із Т/твт на частоті 1,0 кГц) після хірургічного втручання має подібний характер – поступове зменшення зі збільшенням часу після операції

### СРАВНИТЕЛЬНАЯ КЛИНИКОАУДИОЛОГИЧЕСКАЯ ХАРАКТЕРИСТИКА СОСТОЯНИЯ СЛУХОВОГО АНАЛИЗАТОРА У БОЛЬНЫХ С ХРОНИЧЕСКИМ ТУБОТИМПАНАЛЬНЫМ СРЕДНИМ ОТИТОМ

Гринько И. И., Борисенко А. Н.

Проведена сравнительная клинико-аудиологическая характеристика состояния слухового анализатора до и после тимпанопластики у больных с перфорацией барабанной перепонки при применении вентиляционных трубок с разного материала. При частоте 8,0 кГц у пациентов с тефлоновой трубкой (Т / tvt) - величина воздухопроводимых звуков увеличивается в первые 3 месяца после хирургического вмешательства, а затем постепенно уменьшается через 6 и 12 месяцев после операции, а у пациентов с силиконовой трубкой (Т / svt) - практически не изменяется в течение всего времени после хирургического вмешательства. Динамика порогов восприятия костнопроводимых звуков на разных частотах у пациентов с Т / tvt после операции в большинстве случаев носит многонаправленный характер. У пациентов с Т / svt восприятие костяных звуков на частоте 4,0 и 8,0 кГц увеличивается в первые 3 месяца после хирургического вмешательства с последующим сохранением его уровня до 12-го месяца после операции. Динамика костно-воздушных интервалов на частотах 0,5 и 1,0 кГц практически во всех группах пациентов с СТМ (за исключением Т / tvt на частоте 1,0 кГц) после операции имеет сходный характер - постепенное снижение с

(3 – 6 – 12 місяців), причому, найбільш виражене зменшення відмічається у перші 3 місяці. На частоті 2,0 і 4,0 кГц в більшості груп хворих на ХТСО найбільш виражене зменшення кістково-повітряних інтервалів відмічається не лише через 3 місяці, але й у проміжку від 3-го до 6-го місяця. На частоті 8,0 кГц поступове зменшення величини кістково-повітряних інтервалів зі збільшенням часу після операції спостерігається в групі хворих із Т/свт, у хворих із Т/твт його величина зростає через 3 місяці після хірургічного втручання, а у проміжку між 3-м та 6-м місяцями зменшується і далі практично не змінюється.

**Ключові слова:** хронічний туботимпанальний середній отит, тимпанопластика, вентиляційна трубка.

Стаття надійшла 1.08.2017 р.

увеличением времени после операции (3 - 6 - 12 месяцев), а наиболее выраженное снижение наблюдается в первые 3 месяца. На частоте 2,0 и 4,0 кГц, в большинстве групп пациентов с КТОМ, наиболее выраженное сокращение интервалов костного воздуха отмечается не только через 3 месяца, но и в интервале от 3-го по 6-й месяц. На частоте 8,0 кГц наблюдается постепенное снижение значения интервалов костного воздуха с увеличением времени после операции в группе пациентов с Т / свт, у пациентов с Т / твт его величина возрастает через 3 месяца после хирургия, а в промежутке между 3-м и 6-м месяцами она уменьшается, а затем практически не изменяется.

**Ключевые слова:** хронический туботимпанальний середній отит, тимпанопластика, вентиляционная трубка.

Рецензент Безшапочний С.Б.

DOI 10.26724 / 2079-8334-2017-4-62-24-27

UDC [612.014.5:616.053-002]-053.67(477.43/44)

I. V. Gunas<sup>1</sup>, O. Ye. Maievskiy<sup>2</sup>, S. V. Dmitrenko<sup>2</sup>, I. M. Makarchuk<sup>2</sup>, O. I. Terekhovska<sup>2</sup>, O. L. Cherepakha<sup>2</sup>, O. L. Ocheretna<sup>2</sup>

Intertional Academy of Integrative Anthropology<sup>1</sup>, Vinnitsa, National Pirogov Memorial Medical University<sup>2</sup>, Vinnitsa

## DISTRIBUTION VARIANTS OF SOMATOTYPE IN HEALTHY AND PATIENTS WITH ACNE BOYS AND GIRLS FROM PODILSKY REGION OF UKRAINE

e-mail: igor.v.gunas@gmail.com

Set peculiarities of distribution variants somatotype in healthy and patients with acne boys and girls from Podilsky region of Ukraine. In patients with acne compared with healthy young boys found significantly higher percentage of people mesomorphic and meso-endomorphic somatotype and a smaller percentage of people ecto-mesomorphic somatotype. In patients with acne girls compared with healthy girls found significantly higher percentage of people mesomorphic and a smaller percentage of people endomorphic somatotype. The rest of the percentages by somatotype (ectomorphic and medium intermediate in both sexes, and ecto-mesomorphic and meso-endomorphic in girls) between patients and normal subjects were not significantly differ. As in boys and in girls were not found significant differences or trends in the distribution variants somatotype between groups of patients with acne of various degrees of severity.

**Key words:** somatotypes distribution, acne, boys, girls.

Acne - a disease which in one form or another during the life suffer up to 95% of the population of civilized countries [5, 8]. In recent years, acne is no longer a just teenage disease and often occurs in adolescence and adulthood. It is known that post inflammatory skin changes disturb most patients not less than the actual manifestations of acne, it adjusted difficult and often remain forever, which also reduces the quality of life of patients [8, 20]. Dermatology is an urgent need before nosology problem of diagnosis and prevention of the formation of pronounced skin blemishes that will significantly reduce the psychosocial consequences of the disease, improve quality of life and reduce overall costs for the treatment of acne and correcting its effects [17].

The basis of all state norms and pathology is interaction peculiarities of organism of genetic and environmental factors. In fact, the genetic component gives an explanation of individual differences in susceptibility to a particular disease and causes a different degree of its manifestation and susceptibility to various means of therapy [11]. Multifactor pathology to which the acne include is characterized by polygenic predisposition, which is implemented through specific inherent features of genotypic constitution norm of reaction [14]. Of course, problems in the study of predisposition to acne one of the promising is constitutional approach, which involves the study of private subsystems of general constitution of man and can detect internal communications between private constitutions and structural-functional state of organism [13], including acne. The most complete picture of the overall human constitution gives somatotype (private bodily constitution). It is important to emphasize that a predisposition to acne and features of the constitution is largely caused by genetic factors [1], thus suggesting the relationship of physical types with a predisposition to this dermatosis [9]. In addition, the constitutional approach could promote primary prevention among persons who due to the peculiarities to their constitutions tend to the appearance of acne [17].

**The purpose** of research - identify the characteristics of distribution variants somatotype in healthy and patients with acne boys and girls Podilsky region Ukraine.