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В сборнике тезисов «1-го Международного Конгресса оториноларингологов» будут представлены работы ученых и врачей Республики Беларусь, Польши, Литвы и других стран. В тезисах публикуются современные проблемы оториноларингологии.

Информация, представленная в сборнике тезисов, будет доступна для использования большим количеством врачей и молодых ученых.

Рекомендован к применению оториноларингологами, онкологами, сурдологами, аудиологами.

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In the collection of abstracts «1ST International Congress of Otorhinolaryngologists» will be present works of scientists and doctors of the Republic of Belarus, Poland, Lithuania and other countries. In the abstracts publish modern problems of otorhinolaryngology.

The information presented in the collection of abstracts will be available for use by a large number of physicians and young scientists.

It is recommend for use by otorhinolaryngologists, oncologists, surdologists, audiologists.

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CONTENT

DEVELOPMENT OF NOVEL GENETIC SIGNATURE FOR PREDICTING SURVIVAL IN PATIENTS WITH LARYNGEAL SQUAMOUS CELL CARCINOMA

[1]Agnė Pašvenskaitė, [2]Rasa Liutkevičienė, [2]Alvita Vilkevičiūtė, [2]Greta Gedvilaitė, [1]Vykintas Liutkevičius, [1]Virgilijus Uloza

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Introduction. Results of laryngeal squamous cell carcinoma (LSCC) treatment and five-year survival rate of these patients remain poor. To purifytherapeutic targets, investigation of new specific and prognostic specific blood- or tissue-based biomarkers of LSCCis required.

Research objectives. This study aimed toevaluate the impact on selected single nucleotide polymorphisms (SNPs) (*IL-6* rs1800795, *IL-9*: rs2069884, rs2069885, rs1859430, rs2069870, rs11741137, *IL-10*: rs1800872, rs1800871, rs1800896, *BLK* rs13277113, *TIMP3* rs9621532, *IL1RL1* rs1041973, ant *IL1RAP* rs4624606) on LSCC development and to analyse associations of selected SNPs with patients' five-year survival rate.

Material and methods. 300 *LSCC* patients and 533 controls were included in the study. Genotyping of selected SNPs was carried out using the RT-PCR.

Results. Significant associations were identified between *IL-10* rs1800871 variants and advanced stage of LSCC patients'group in the codominant, recessive and additive models (p=0.027, p=0.040 and p=0.037). Significant variants of *IL-10* rs1800872 were determined in the codominant, recessive and additive models (p=0.027, p=0.040 and$p$=0.037). Significant genotype distribution was identified between *TIMP3* rs96215332 variants and LSCC in the codominant, overdominant and additive models (p=0.020, p=0.020 and p=0.045).Also, significant variants of *IL1RAP* rs4624606 were determined in the codominant, overdominant and additive models (p=0.030, p=0.037 and p=0.025). Multivariable Cox regression analysis revealed a significant association between the patients' survival rate and distribution of *IL-9* rs1859430 and *IL1RAP* rs4624606 variants: patients carrying AA genotype at *IL-9* rs1859430 and AA or TT at *IL1RAP* rs4624606 had a higher risk of dying (p=0.005; p=0.044).

Conclusions. *IL-10:*rs1800871, rs1800872 SNPs are associated with the development of advanced stages of LSCC. TIMP3 rs96215332 and *IL1RAP* rs4624606 SNPs play a significant role in the development of LSCC. The genotypic distribution of *IL-9* rs1859430 and *IL1RAP* rs4624606 negatively influences the five-year survival rate of LSCC patients, suggesting that they could contribute to developing blood-based biomarkers of LSCC.

MULTIPLE PRIMARY TUMORS AND LARYNGEAL CANCER

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Introduction. The number of patients with laryngeal cancer is increasing by 8-10% every year, primary multiple tumors (PMT) with the participation of the larynx have become more common. The number of PMTs increased to 13% of the total number of newly diagnosed cancer patients.

Purpose. To study cancer of the larynx as part of the PMT in the Grodno region for 2001-2018.

Material and methods. A retrospective analysis was carried out of 66 outpatient records of patients with a laryngeal cancer as part of the PMT in the Grodno Region for 17 years.

Results. There were 65 men (98.5%) and 1 woman (1.5%). Patients were sick at the age of 40-49 years (9.3%), 50-59 years (21.2%), 60-69 years (50%), 70-79 years (13.6%), 80-89 years (5.9%). Laryngeal cancer was the first tumor in 26.2% cases, the second tumor – in 42.2% of cases, tumors were detected synchronously in 31.6% of cases. Laryngeal cancer as a second tumor was detected 115.2 ± 37.3 months after the first tumor. Second tumors after cancer of the larynx were detected after 45.2 ± 14.2 months. Three tumors were found in 21.5% of patients. Laryngeal cancer in the PMT was detected at stage T1 (36.8%), T2 (39.6%), T3 (21%), T4 (2.6%). The larynx tumor was located in the supraglottis (31.4%), glottis (47.1%), the supraglottis and glottis (7.8%), the entire larynx (13.7%). The second tumor was found in the lung (23.5%), gastrointestinal tract (25.5%), skin of the head and limbs (37.2%), oral cavity and pharynx (11.8%), prostate gland (13, 7%), kidneys (3.9%), other localizations (5.9%).

Conclusions. 1. Cancer of the larynx as part of the PMT occurs mainly in men (98.5%) at the age of 50-69 years (71.2%), as a second tumor (42.2%) or synchronously (31.6%).

2. The second tumor after cancer of the larynx is detected earlier (45.2 months) than laryngeal cancer as a second tumor (115.2 months).

3. Laryngeal cancer is more common at the T2 (39.6%) and T1 (36.8%) stages, in the glottis (47.1%) and supraglottis (31.4%).

4. Localization of the second tumors within the PMT predominates in the skin of the head and limbs (37.2%), the gastrointestinal tract (25.5%) and the lung (23.5%).

COCHLEAR PASSAGE IN CHILDREN WITH SENSORINEURAL DEAFNESS

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Introduction. Sensorineural hearing loss occurs in 0.1% of cases in newborns and young children. Cochlear implantation is the most promising area of rehabilitation for persons suffering from deafness. The cochlear passage is 2 mm, it varies, practically does not change with age.

Purpose. To study the relationship between the functional state of the hearing and the diameter of cochlear passage in children of different ages with severe hearing loss.

Material and methods. Medical records were studied in 36 patients (ASSR and CT of the inner ear). The average age of the patients was 3.5 ± 2.3 (from 0.9 to 12.4) years.

Results. The threshold of sound perception was 90 dB in 2 (6%) patients, 100 dB in 14 (39%), 110 dB in 16 (44%), 120 dB and more in 4 (11%). The diameter of the cochlear passage was different at varying levels of increase in the threshold of sound perception: at a level of 90 dB the diameter of the right and left cochlea passage was 1.8±0.39 mm; 100 dB – right 1.69±0.33 mm, left 1.74±0.28 mm; 110 dB – right 1.61±0.14 mm, left 1.63±0.18 mm; 120 dB – on both sides 1.5±0.2 mm. There was no significant difference ($p > 0.05$). The diameter of the cochlear passage at the age of 1 to 2.5 years was: the right – 1.58±0.25 mm, the left – 1.68±0.23 mm; over 2.5 years: right – 1.78±0.13 mm; left – 1.68±0.18 mm. There is no age dependence of the diameter of the cochlear passage of the right and left cochlea. The diameter of the right cochlear

passage is larger at the age of over 2.5 years compared with the age group from 1 to 2.5 years, but not significant.

The size of the inner part of the cochlear implant is (according to Neurelec): electrode length 25 mm; base diameter 1.05 mm, top diameter 0.5 mm. Cochlear implant cannot be installed if the cochlea is smaller than the diameter of its inner part and in cases of bone growth into the cochlea.

Conclusions. 1. The threshold of sound perception has not significant difference from the diameter of the cochlear passage.

2. The diameter of the cochlear passage is individual for each person.

3. The CT of the cochlea is necessary to determine contraindications to cochlear implantation.

LONG-TERM RESULTS OF LARYNGEAL CANCER SURGICAL TREATMENT

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Introduction. Laryngeal cancer ranks 10th (1-4%) among all malignant diseases, first (50-60%) – among tumors of the upper respiratory tract. Metastases to the lymph nodes of the neck occur in 25% of patients, distant metastases – in 2-20% of cases, tumor recurrence after treatment – in 20-50% of patients. The prognosis for life deteriorates sharply with the appearance of a relapse of the disease, metastasis.

The purpose. To study the course of the disease in patients with laryngeal cancer after surgical treatment

Material and methods. We studied 95 outpatient records of oncological patients after surgical treatment on the larynx in 2009-2016 from Grodno University Clinic. Partial resection of the larynx was performed in 64 cases, laryngectomy in 31 cases. Tumor stage T1N0 – 20%, T2N0 – 47.4%, T3N0 – 26.3%, T4N0 – 1%, T3N1 – 5.3%.

Results. 64 (67.4%) patients had tumors at the T1 and T2 stages. Only surgical treatment (partial resection) was performed in 24 (37.5%) patients, surgical treatment (partial resection) and radiation therapy – 34 (52.3%) patients, only radiation therapy – 6 (9.2%) patients. Metastases were detected after treatment in 11 (17.2%) patients, tumor recurrence in the larynx – in 17 (25%) patients. Laryngectomy was subsequently performed in 15 (23.1%) patients due to relapse of tumor.

Thirty-one (32.6%) patients had tumors at T3 and T4 stages. Only surgical treatment (laryngectomy) was performed in 2 (6.5%) patients, surgical treatment (laryngectomy) and radiation therapy – 20 (64.5%) patients, surgical treatment, radiation therapy and chemotherapy – 4 (12.9%) patients , chemoradiation therapy at the first stage and laryngectomy due to tumor recurrence – 5 (16.1%) patients. Metastases were detected in 9 (29%) patients, relapse tumor in the larynx, spread to the trachea, esophagus and thyroid gland – in 9 (29%) patients.

Conclusions.

1. Relapse of the tumor in the larynx and spread to the surrounding tissue, metastases to the lymph nodes of the neck and distant organs are more common after surgical treatment of patients with advanced cancer (T3 and T4).
2. Laryngectomy is a chance to save life in case of treatment ineffectiveness in patients with localized forms of laryngeal cancer (T1 and T2).

IMPROVEMENT OF FALLING ASLEEP IN THE PATIENTS WITH EAR NOISE IN REMOTE ACCESS MODE

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Introduction. A significant proportion of patients with tinnitus have sleeping disorders, primarily caused by disturbance of falling asleep. Tinnitus Retraining Therapy (TRT) is most common option of medical help for the patients with tinnitus. It is of interest to study the possibilities of TRT to improve sleep function in these patients by the mode of telemedicine consultation. Today telemedicine is rapidly developing area of medical practice and regulation on telemedicine consulting was approvedby the order of the Health Ministry of Belarus No. 1250 dated October 21, 2017.

Research objective: development of the method to improve falling sleep in patients with tinnitus in remote access mode.

Materials and methods. 37 patients of both sexes, aged 30 to 58 years with tinnitus without hearing dysfunction were included. At the first stage, the frequency of tinnitus was determined using our original application. Then, according to the data obtained, an acoustic masker was designed, which was recorded on a digital device and listened to by the patient for 15 minutes before bedtime. The analysis was performed before and 10 days after treatment. The effectiveness of tinnitus masking was assessed using the Tinnitus Severity Index questionnaire. To assess the influence of the method on the process of falling asleep, we used a questionnaire for subjective scoring sleep characteristics proposed by Ya. I. Levin (1995).

Results. Before treatment, the volume of the noise was 6.99±1.03 points, after treatment – 3.18±0.41 points ($p=0.012$). Before starting treatment, the subjective assessment of falling asleep was 2.32±0.53 points, after treatment – 3.88±0.91 points ($p=0.032$).

The findings have shown that the use of the proposed technique provides a reliable decrease of ear noise intensity and improves falling asleep. There is no need for the patient to spend time visiting a medical institution which is especially important during the epidemic period.

Conclusion. The presented technique realized in remote access mode provides non-drug ear noise correction and reduces sleep disorder improving falling asleep.

EXPERIENCE IN THE TREATMENT OF PHLEGMON OF THE MAXILLOFACIAL AREA AND DEEP NECK INFECTIONS USING PHOTODYNAMIC THERAPY

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Introduction. Phlegmons are the most common forms of pyoinflammatory processes in the maxillofacial area and neck.

Aim of research to improve outcomes in the treatment of odontogenic phlegmons of maxillofacial area and deep neck infections by implementing photodynamic therapy.

Material and methods. The treatment practice of 62 patients aged from 18 to 70 years having phlegmons of maxillofacial area and deep neck infections has been described in the present study. All patients underwent clinical laboratory investigation considering microbiological and immunological aspects, cytological investigation of wound discharge being performed as well. The patients were divided into two groups according to the treatment method. The first group included 30 patients who were given standard treatment. The second groups of 32 patients in addition to traditional treatment were administered photodynamic therapy. [Photolon®] (chlorin e6) was used asa photosensitizer. This was infused into cellular spaces of maxillofacial area and neck.

Photosensitizer was activated applying LLLT (Low Level Light Therapy) with the use of therapeutic laser [Rodnik-1] (Belarus).LLLT was started one hour after the infusion of [Photolon®] inside a wound.

Results. The analysis of the research results has demonstrated high efficiency of the suggested treatment for patients with phlegmons of maxillofacial area and neck. According to the data of clinical observation the application of photodynamic therapy in comparison with traditional method of treatment showed:

a) reduction of cleaning terms of wound area from purulent-necrotic masses – 2,5 fold,
b) granulation increase – 2,3 fold,
c) acceleration in epithelization – 2,1 fold.

Microbiological research demonstrated diminution of microbial seeding already on the third day in patients receiving photodynamic therapy. According to cytological analysis of wound exudates following photodynamic therapy the activation of phagocytosis and diminution of inflammatory tissues infiltration were observed.

Conclusion. Photodynamic therapy in comparison with traditional method of treatment reduce terms of cleaning of wound from purulent-necrotic masses, increase process of granulation, acceleration in process of epithelization and as a result: reduction of recovery terms.

EVALUATION OF THE CONTRIBUTION OF MICROORGANISMS TO THE DEVELOPMENT OF PHLEGMON OF THE MAXILLOFACIAL AREA AND NECK

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Introduction. Despite definite progress in the therapy of pyoinlfammatory diseases of maxillofacial area and deep neck infections they still have high incidence showing no tendency to decrease. This problem still remains quite topical in spite of wide implementation of modern antimicrobial agents (considering the microflora and sensitivity to the latter).

Aim of research to study the microbiological picture of wound discharge in patients with phlegmon of the maxillofacial area and neck.

Material and methods. The study of the microbial flora of the wound discharge was carried out in 92 patients with phlegmons of the maxillofacial region at the age from 18 to 70 years.

Results. The bacteriological studies carried out by us showed that the bacterial contamination of the majority of the examined during the operation was 10^5-10^6 CFU/ml. The microbial landscape of the phlegmon contents of the maxillofacial area was characterized by pronounced heterogeneity and was represented by facultative anaerobic and opportunistic microflora. The dominant group of pathogens was made by bacteria of the family of staphylococci and streptococci, which were found in 77.2% of patients. Monoculture was found in 88% of cases, microbial associations of pathogens were isolated in 12% of cases. The synergism of aerobes and anaerobes leads to an increase in the virulence of microflora and contributes to the aggressive course of the inflammatory process, rapid tissue melting and severe intoxication. According to the results of a microbiological study, microorganisms were not isolated in 2.2%, although according to clinical data, during the opening and drainage of phlegmons of the maxillofacial area and neck, there were all the signs characteristic of anaerobic infection. In patients with phlegmon, spreading to several cellular spaces, associations of microorganisms were more often observed. With the damage of the deep cellular spaces of the face and neck, gram-negative flora was often sown. In the study on day 3 against the background of traditional treatment, the quantitative contamination in the wound remained at the same level of 10^5-10^6 CFU/ml. A significant decrease in microbial contamination was observed on day 9 ($p < 0,05$).

Conclusion. The microbial landscape of phlegmon contents is characterized by pronounced heterogeneity and determines the prevalence and severity of the disease.

MICROBIOLOGICAL MONITORING OF MICROORGANISMS ISOLATED FROM CLINICAL MATERIAL IN THE PAEDIATRIC PURULENT OTORHINOLARYNGOLOGICAL UNIT FOR THE YEAR 2020 AND THEIR SENSITIVITY TO ANTIBACTERIAL DRUGS

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Topicality ineffective use of antibiotics is one of the global causes of the emergence and spread of antibiotic resistance. Improperly selected antibiotic or its regimen causes ineffectiveness of initial treatment, the need for repeated visits to the doctor and repeated courses of therapy, which leads to a significant increase in the cost of therapy [1]. In 2020, the occurrence of micro-organisms and their sensitivity to antibiotics was monitored in order to further justify the prescription of optimal antibiotic therapy for a particular patient.

Study objective to conduct microbiological monitoring of microflora from clinical material in a paediatric purulent otorhinolaryngological unit and to determine sensitivity to antibacterial agents used in the unit.

Materials and methods in 2020, a total of 916 biomaterial samples from patients of the purulent otorhinolaryngological department for children were examined and sensitivity of all clinically relevant microorganisms to antibacterial agents used in the department was determined. We analysed the inpatient records of 916 patients and analysed the results of microbiological investigations.

Results. Among the microorganisms isolated in pathology of ENT organs in children, the main part falls on gram-positive flora. Among which Staphylococcus aureus accounts for (36%), Streptococcus pneumoniae (9%), and Streptococcus pyogenes (8%). Staphylococcus aureus strains isolated from patients in this ward showed high levels of sensitivity to all drugs tested, except benzylpenicillin (S-37%) and erythromycin (S-63%). No methicillin-resistant strains were isolated. A wide range of antibacterial agents can be used to treat patients.When treating pneumococcus, the drugs of choice are second- and third-generation cephalosporins, "respiratory" fluoroquinolones (in older children), and macrolides.Of the Gram-negative flora isolated in this unit, Pseudomonas aeruginosa had the greatest clinical significance (14 isolates -14% of all microorganisms isolated). Isolates were 100% sensitive to colistin, amikacin, piperacillin-tazobactam; 84.6% to imipenem; 83.3% to cefepime; 76.9% to gentamicin; 62.5% tobramycin; 69.2% toceftazidime; 40% to meropenem.

Conclusions. Among pathogens in ENT pathology in children, Gram-positive microflora has the greatest importance, among which the main role is played by

Staphylococcus aureus. Strains of this microorganism showed high sensitivity to all the antibiotics tested.

An unquestionable advantage of this study is that no methicillin-resistant strains were isolated. Among the Gram-negative flora, Pseudomonas aeruginosa is the most clinically significant, as it is also sensitive to most antibiotics used in the paediatric purulent otorhinolaryngological unit.

THE COMPARISON OF THE HISTOLOGICAL PICTURE OF A PURULENT WOUND IN GUINEA PIGS WITH FURUNCLES OF THE HEAD AND NEEK AREA WITH THE STANDARD METHOD AND IN CONJUNCTION WITH REFLEXOLOGY

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Introduction. The problem of treating patients with furuncles of the maxillofacial region is becoming increasingly important. The use of reflexotherapy devices allows you to speed up the healing process, reduces the pharmacological burden on the body and contributes to the rapid restoration of health.

Research objectives are to compare the effectiveness of reflexology on the local inflammatory process based on histological analysis with different treatments.

Materials and methods. A model of the furuncle of the head and neck area had been created for 20 guinea pigs. The animals had been divided into 2 equal groups. The first group received standard treatment. In addition to the standard treatment, the second group underwent reflexology. Tissues of experimental animals had been collected from the purulent focus on 3, 7, 14, 21 days.

Results. In all sections taken from two groups of experimental animals on the 3 and 7 days after the occurrence of a furuncle, histological analysis determines purulent inflammation. On the fourteenth day, on sections taken from experimental animals of the first histological analysis determines purulent inflammation. On all sections taken from experimental animals of the second group, histological analysis determines productive inflammation. On the twenty-first day, on sections taken from experimental animals of the first group 71.4% of histological analysis determines productive inflammation, in 28.6% is absence of inflammation. The morphological conclusion indicates the absence of inflammation in animals of the second group.

Conclusion. The results of histological analysis demonstrate the positive effect of reflexotherapy on the course of the local inflammatory process in the studied disease.

DOES THE HEARING LOSS AFFECT THE BALANCE FUNCTION IN CHILDREN?

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Introduction. Childhood hearing impairment is a common condition that may significantly impact speech, social and physical development. Based on literature data, 80% of children with SNHL (sensorineural hearing loss) and MEE (middle ear effusion) may suffer from balance control deficits.Despite the fact that, vestibular impairment can lead to balance deficit and disturb normal motor development, balance evaluation is not routinelyperformed in the pediatric population.

Research objectives. To evaluate the balance function with BOT – 2 test (Bruininks-OseretskyTest of Motor Proficiency, Second Edition) in children with SNHL and MEE and compare it with normally hearing controls.

Methods. Research participants were recruited from the Department of Otorhinolaryngology of Lithuanian University of Health Sciences. The audiology tests assessed the hearing status. All subjects underwent the Balance subset of the BOT – 2 test, consisting of nine balance-related tasks performed with eyes opened and eyes closed.

Results. Study group consisted of 93 children, age range 4 – 15 years (mean 7.51±2.9): 31 children (33.3%) with SNHL, 32 (34.4%) children with MEE, and 30 (32.3%) healthy children. Groups matched in age and gender. Balance abilities performing one leg standing tasks on a line and one leg standing on a balance beam with eyes opened and closed were statistically significantly better in the control group when compared with the SNHL ($p<0.05$) and MEE ($p<0.05$) groups. During the tasks mentioned above, all groups stood shorter with eyes closed than with eyes opened. However, children with SNHL and MEE performed these tasks statistically significantly poorer with eyes closed than healthy children.

Conclusion. Children with SNHL and MEE showed significantly lower balance abilities than the control group. One-leg standing tasks with eyes closed and eyes opened are appropriate to identify the balance dysfunction in children with SNHL and MEE. BOT – 2 test is a feasible tool to detect balance disorders in children.

THE RESULTS OF RECONSTRUCTIVE OPERATIONS IN PATIENTS WITH CHRONIC PURULENT OTITIS MEDIA

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Introduction in the structure of ENT diseases 44-50% are diseases of middle ear.

A special place is occupied by chronic purulent otitis media. Most people suffering from this disease are working-age population.

Purpose to improve the morphological and functional outcomes in the postoperative period in patients with chronic purulent otitis media.

Materials and methods 64 patients (41 women and 23 men) were examined on the basis of purulent ENT department for children (and adults) of Grodno Regional Hospital during the period from 2010 to 2016. The data of MSCT temporal bones of 26 patients were studied. Mean age was 32.1 +\-3.2. 45 patients had chronic epitimpano-antral otitis and 19 patients hadtubotympanal otitis.

Results. All patients have undergone the reconstructive operation on the middle ear. According to MSCT 20 patients had the diagnosis of cholesteatoma and during the operation it was confirmed in 18 patients. Evaluation of morphological and functional state in the postoperative period after 1 month showed that 56 patients obtained good results and 8 patients had satisfactory results. After 6 months we conducted out a repeat examination and it showed that 62 patients had good results, 1 patient had negative result, 2patient had satisfactory result.

Conclusion. 1) The method of reconstruction new tympanic cavity's walls with using cartilage plate and bone chips allows to get good morphological and functional results. 2) The use of MSCT on presurgical stage allows to plan surgical intervention.

THE TECHNIQUE RECONSTRUCTION OF NEW TYMPANIC CAVITY

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Introduction according to statistical data the amount of patients with chronic purulent otitis media (CPOM) doesn't decrease. The problem of reconstruction of newtympanic cavity's walls hasn't been solved yet and it continues to be discussed among the surgeons in the field of otorhinolaryngology.

The purpose of our investigation is to improve the way of reconstruction of newtympanic cavity's walls.

Materials and methods 34 patients were examined (24 women and 10 men) with the diagnosis of chronic purulent otitis media (tubotympanic otitis – 8 persons, epitympano-antral otitis – 26 persons). The age of patients is from 9 till 51 years. During the operation we performed the restoration of newtympanic cavity's walls to all patients using our method of treatment.

Results. It was established that the patients had disturbance of ventilating function of auditory tube that had various degree (1-3), audibility reduction of whispered speech, changes at carrying camertonal tests, presence of bony-air interval at audiogram. Reconstructive functional operation on a middle ear was made to all patients. During the operation the lateral wall of attic was removed at the stage of sanation for the purpose of tympanic cavity's inspection. At the final stage of operation we offered and used cartilaginous plate with notches and bone chips for reconstruction of newtympanic cavity's walls.

In 2 months after operation we repeatedly performed audiometry, tympanometry and otomicroscop to all patients. We got the following results: newtympanic rag of grey-pink color, equal, whole; retraction in the area of attic and back wall of external acoustic meatus was absent,
pathological separated was absent in external acoustic meatus, reduction of bony-air interval is marked on 10-15 dB at pure tone audiometry; at tympanogram is type B. A good morfo-functional result is received in all patients.

Conclusion. The improved way of reconstruction of the lateral wall of attic with use of cartilaginous plate and bone chips allows to receive a good morfo-functional result and to prevent occurrence of retractions of newtympanic rag.

EVALUATING CRITERIA FOR IMPAIRED VOICE FUNCTION FOR PATIENTS WITH POSTOPERATIVE LARYNGEAL PARESIS

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Introduction. The main clinical symptom of unilateral laryngeal paresis is impaired vocal function.

Research objectives. Deviseevaluatingcriteria forvoice function disorders for patients with postoperative laryngeal paresis by using the acoustic voice analysis program.

Materials and methods. Analyzed: 51 voices from patients with postoperative laryngeal paresis, 50 voices from patients with secondary dysphonia as a result of

thyroidectomy without laryngeal mobility impairment, and 36 healthy voices. Results of subjective and objective voice analysis and their correlation were compared. Subjective voice evaluation was undertaken according to the Yanagihara Chart by three independent experts. Acoustic voice analysis was undertaken by using the Vospector module of "lingWAVES", Version 2.5 (WEVOSYS, Germany). Statistical data analysis was conducted.

Results. Results of correlation analysis in group of patients with postoperative laryngeal paresis differ significantly from results in group of patients with postoperative secondary dysphonia:

- shimmer parameter is at first place, it has very high correlation with subjective evaluation;
- maximum phonation time (MPT)parameter didn't show high correlation for patients with paresis as in group of patients with secondary dysphonia, although its value is still high and statistically significant;
- noise parameters (Noise, GNE), their significance and connection with subjective evaluation are much higher than in group of patients with secondary dysphonia;
- connection is completely absent between parameters of Fundamental frequency and subjective evaluation of voice, though such connection was in group of patients with secondary dysphonia;
- most significant indicators of voice acoustic analysis which can serve as evaluating criteria for impaired voice function for patients with postoperative laryngeal paresis, have been determined: MPT, GNE, Noise, Irregularity, Overall Severity of dysphonia.

Conclusion. Evaluating criteria for impaired voice function allow valuing objectively severity of dysphonia, as well as dynamics of voice function restoration for these patients.

UNFAVORABLE FACTORS FOR BALLOON DILATATION OF THE AUDITORY TUBE IN PATIENTS WITH CHRONIC EXUDATIVE OTITIS MEDIA

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Introduction. Obstructive auditory tube dysfunction is one of the causes of chronic exudative otitis media. Today, balloon dilation of the auditory tube is the main method of treatment for this disease, but it is not always effective.

Research objectives. To study a group of patients with a negative result of balloon dilatation of the auditory tube who have chronic exudative otitis media and to identify unfavorable factors affecting the outcome of balloon dilatation.

Materials and methods. The study included 37 patients, mean age of 42.7±2.01 (M±m), 12 men (32.4%) and 25 women (67.6%). After conservative the rapy all patients had obstructive auditory tube dysfunction without positive dynamics. A comparative analysis of ETDQ-7 questionnaire data before treatment, the results of pathomorphological examination of the exudate and the mucosa of the medial wall of the tympanic cavity, computed tomography of the auditory tube, and the autonomic status of the patient in the subgroups with a positive (n=29) and negative (n=8) result have been performed; the factors contributing to the unfavorable outcome of treatment have been determined.

Results. The unfavorable factors were revealed:

- the score on the ETDQ – 7 scale more than 4 ($p<0.05$);
- exacerbation of general chronic somatic pathology (bronchial asthma, reflux disease) and diseases of the upper respiratory tract in the early postoperative period;
- the diameter of the pretympanic part of the auditory tube is less than 5 mm according to computed tomography ($p<0.05$);
- the presence of mucous exudate with fibroplastic changes in the mucous membrane of the tympanic cavity;
- imbalance of the autonomic status in the patient-vagotonia (LF/HF< 2), ($p<0.05$).

There were no significant differences in age and sex in the subgroups ($p>0.05$).

Conclusion. The factors established in the course of studying will afford to determining the treatment method of obstructive auditory tube dysfunction for a patient with exudative otitis media and to predict the outcome of balloon dilation.

OUTCOMES OF NASAL RECONSTRUCTION USING CARTILAGE ALLOGRAFTS

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Introduction. Rib cartilage is a standard scaffold material for nasal reconstruction (NR). Material can be obtained both from the patient and from a cadaver donor. Analysis of outcomes of NR using allogeneic cartilage is of interest for comparison with alternative materials.

Research objectives. Aim was to analyze the immediate and long-term results of NR using allogeneic cartilage.

Material and methods. The results of 58 NRwere evaluated. The rate of postoperative complications, cosmetic results (CR) and functional results (FR) according to 10-pointed visual analogue scale (VAS) were analyzed. Evaluation of CR and FR was performed 6 months after completion of NR.

Results. In our material, loss of one nasal subunit was observed in 7 cases, two subunits – in 32 cases, three or more subunits – in 19 cases. Defect of outer skin only was presented in 20 patients; full-thickness defect was presented in 38 patients. Skin restoration was performed using a forehead flap (32 cases), medial cheek flaps (22 cases) and nasal dorsum flaps (4 cases). Fresh frozen allogeneic rib cartilage was used for support grafting.

Postoperative complications developed in 6 patients (10.3%) including flap necrosis (4 cases), bleeding (1 case) andcartilage graft extrusion (1 case). It was the single graft related complication in our material (1.7%). The average CRscore was 8.4±1.2 pointsby VAS. The optimal result (9 or 10 points) was in 28 patients (48.3%). Suboptimal CR (7 or 8 points) was observed in 24 patients (41.4%). Unacceptable CR (6 points or less) was obtained in 6 patients (10.3%) due to significant displacement or wedge deformity of nasal alar or a through defect of the nasal dorsum. The average score of the FR was 9.0±1.2 points according to VAS. Optimal result was achieved in 47 patients (81.0%). SuboptimalFR was registered in 6 patients. Unacceptable FR in 5 patients were caused by pronounced impairment of nasal breathing or forming of mucosal crusts.

Conclusion. The rate of graft related complicationswas 1.7%after NR using cartilage allograft. The average CR was 8.4±1.2 pointsby the VAS. Optimal or suboptimal CR was achieved in 89.7% of patients. The average FR was 9.0±1.2 points. Optimal or suboptimal FR was achieved in 91.4% of patients.

SUTURING TECHNIQUES AS THE OPTION FOR SURGICAL TREATMENT IN PATIENTS WITH SLEEP APNEA

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Introduction. Surgical treatment of oropharyngeal obstruction, based on suturing methods, is characterized by little surgical trauma and quite high effectiveness, which leads to decrease of apnea events and daytime sleepiness level with sleep quality improvement in patients with OSAS. The low risk of complications after low-traumatic operations enables simultaneous surgical correction in other obstruction sites.

Research objectives. Different types of suturing techniques depending on direction and degree of oropharyngeal obstruction were done. In patients with antero-posterior obstruction with partial (less than 50%) oropharyngeal collapse anterior UPPP was done. In case of subtotal and total oropharyngeal closure (50%-100%) modified anterior UPPP which included the application of mattress sutures was the treatment option. In those with lateral or concentric oropharyngeal obstruction anterior and modified anterior UPPP was added by lateral suturing techniques.

Materials and Methods. The study included 180 patients with OSAS, among them 140 (77.78%) – men and 40 (22.22%) – women. All patients had oropharyngeal obstruction site, which was diagnosed by DISE procedure. For evaluation of the early follow-up Visual Analogue Scale (VAS) was used. The rates of local swelling/hyperemia and pain intensity scores in each group were estimated.

Results. The rates of edema and hyperemia on 1st, 5th and 10th day after anterior UPPP and modified anterior UPPP were 6.16, 4.69, 2.94 points and 4.84, 2.95, 1.36 points, correspondingly. The intensity of pain was estimated as 5.88, 4.57 and 2.51 points in patients after anterior pharyngoplasty and 5.22, 3.31 and 1.51 points in patients after modified anterior technique. The intensity of swelling on 1st, 5th and 10th day after antero-lateral UPPP and modified lateral UPPP were 6.33, 4.35, 2.77 points and 6.5, 4.39,2.22 points, correspondingly.

The VAS pain scores in patients after modified antero-lateral suturing techniques were as 5.46, 4.37 and 2.3pointsand 7.0, 5.83and 3.0points, accordingly.

Conclusions. In our study different suturing techniques were applied depending on direction and severity/degree of oropharyngeal collapse. Early follow-up after suturing techniques applied as the treatment option in patients with sleep apnea has been done. In all examined groups early post-op was characterized by low rates of swelling/hyperemia scores (maximum – 6.5 points) and low trauma effect (maximum – 7 points). These methods may be applied as the treatment option in patients with OSAS because of low tissue traumatization due to suturing techniques which leaded to relatively low swelling, hyperemia rates.

EARLY DIAGNOSIS HEARING LOSS ON THE BASIS OF RELATED MARRIAGES AND METHODS OF REHABILITATION OF PATIENTS

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Introduction. Among certain ethnic groups, there are marriages between close relatives, which in many countries are undesirable or prohibited by law. Related marriages in Tajikistan have a long tradition, although they are prohibited under the

laws of Tajikistan. According to the Ministry of Health of our republic, 26 thousand 43 children live in the country – a disabled person under the age of 18 years, according to experts, 35% of these children are born of related marriages.

The purpose of the study. Diagnosis and treatment of sensoneural hearing loss on the basis of closely related marriage in children.

Material and research methods. In the conditions of the ENT- clinic, 52 of a child with hearing and speech disorders was examined on the basis of a closely related marriage of parents, aged 3 to 12 years. Of these, 28 were boys and 24 were girls, 22 were urban and 30 were rural. Testing consisted of methods of tonal threshold audiometry with an assessment of air and bone sound conduction in the standard frequency range, game audiometry and the so-called computer audiometry (registration of OAE and ABR).

Results obtained. Audiological studies showed that 36 (69.2%) children had sensoneural hearing loss with secondary speech underdevelopment. Of these, 6 – sensoneural hearing loss of I degree, in 8-II degree, in 10-III degree and in 12 children – IV degree. When analyzing the data, it was found that hearing loss in children developed on the basis of a related marriage of parents. As a result, 10 (19.2%) children were diagnosed with conductive and 6 (11.6%) children had a mixed form of hearing loss on the basis of adenoid vegetation.

After subjective research methods, all children were registered with OAE and ABR. When recording short-range auditory induced brain potentials, the "V peak" was determined in response to sound stimulation with an intensity of 50 dB in children with the 1st degree of hearing loss – in 70 dB in children with the P degree of hearing loss, in 90 dB in children with the III degree of hearing loss and not at all determined in children with the IV degree of hearing loss. After conducting an appropriate course of comprehensive "anti-neurite" treatment, or hearing aid, hearing improved in children with the I-III degree of hearing loss, they were recommended further classes with sign language pedagogues, in children with the IV degree of hearing loss, surgery was recommended – cochlear implantation.

Conclusion. The use of these subjective and objective audiological methods of research allows the timely and accurate identification of genetic hearing disorders in children and the necessary targeted rehabilitation measures.

TOPICAL ISSUES OF THE PATHOLOGY OF THE LARYNX

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Introduction. Early diagnosis and treatment of patients with benign and neoplastic diseases of the larynx is an urgent problem due to the wide spread of this pathology. In the larynx, there are tumor-like formations, benign and malignant

tumors. Diagnosis of hyperplastic processes and tumor-like formations in the larynx can be difficult, since in the early stages this disease may be asymptomatic. Timely detection and treatment of chronic processes and obligate conditions of the larynx plays one of the key roles in the prevention of malignant tumors.

Research objectives. Analyze the structure of laryngeal pathology and establish the importance of using microlaryngoscopy and identify indications for direct microlaryngoscopy with targeted biopsy in patients with chronic laryngitis.

Materials and methods. An analysis of outpatient records and medical history was carried out, including the results of histological examination of postoperative material from 172 patients with laryngeal pathology. The group included patients with chronic inflammation in the larynx with and without tumor and tumor-like neoplasms.

Results. 172 patients were analyzed, of which 164 patients underwent direct microlaryngoscopy for the purpose of diagnosis, biopsy or complete removal of the laryngeal neoplasm; 8 patients did not require surgical treatment and were treated conservatively. It was revealed: polyps– 26, fibromas – 32, angiofibromas– 43, cysts – 10, nodules –1, chronic inflammation – 16, papillomas – 17, hemangiomas – 3, cancer –17. All patients were divided by sex and age: out of 172 patients, 115 (66.86%) were men, 57 (33.14%) women.

Conclusion.1. Larynx diseases are more common in men than in women (66.86%). 2. The average age is 30-60 years in 71.51% of the total number of patients. 3. If precancerous changes are detected, patients with laryngitis should be included in the risk group for laryngeal cancer, undergo regular endoscopic examination with morphological control of the degree of dysplasia.

PRESERVING RHINOPLASTY

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Introduction. In the past few years, it is the “preserving” rhinoplasty that has attracted more and more interest among surgeons, which explains the relevance of this topic.

The aim of our work is to analyze the relationship between the violation of the anatomical structure of the external nose and the choice of technique and tactics of surgical correction and treatment in this category of patients, as well as the choice of the technique of surgical correction.

Materials and methods. The material for the study was 67 patients who applied for treatment to the otorhinolaryngology department of the City Clinical Hospital No. 2 Grodno in the period from 2017 to 2020. The prerequisites for

selection for this work were: the presence of a functional impairment of nasal breathing and cosmetic dissatisfaction of the external nose. The key cosmetic defects for this category of persons were the following changes: the presence of a hump of the nasal dorsum – 25 (37,3±5,9%) patients, displacement of the nasal pyramid – 18 (26,9±5,4%), two pathologies simultaneously (hump and lateral displacement of the nasal dorsum) – 24 (35,8±5,9%) the patient.

Results. When using preserving rhinoplasty (preserving rhinoplasty), the elimination of the hump and lateral deviation of the nasal dorsum was performed using the pushdown / let down technique – 52 patients (77,6±5,1%). A modified cotton technique was used to correct the nasal septum. Nasal breathing, as the main functional element, was restored in all patients. Evaluation of the aesthetic result received a positive conclusion in all patients.

Conclusion. All stages of management of this category of patients have been analyzed, the following advantages of preserving rhinoplasty can be distinguished: preservation of the own osteochondral structures of the nasal dorsum; preservation of the internal nasal valve; natural and natural look of the nasal bridge; maintaining the sensitivity of the back and tip of the nose; maintaining the normal functioning of the sweat and sebaceous glands of the skin; shortening the duration of the operation; reduction of the period of postoperative rehabilitation.

A CASE FROM THE PRACTICE DESMOID FIBROMATOSIS OF NASAL CAVITY AND PARANASAL SINUSES

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Introduction. Desmoid fibromatosis is a rare benign fibroblastic tumor. Its main characteristics are aggressive local growth, frequent relapse, lack of ability to metastasize. Desmoids of the head and neck appear in 7-15% of patients, and they are extremely rare in the nasal cavity and paranasal sinuses. Nowadays, surgical treatment, radiation therapy, chemotherapy, hormone therapy, immunotherapy and their combination are used for treatment of desmoids. We described the case of patient S. with a neoplasm of the nasal cavity and paranasal sinuses, previously diagnosed as chronic polyposis sinusitis. The neoplasm spread from the nasal cavity to the maxillary sinus, ethmoid labyrinth, frontal sinus on the left and left orbit. After radical surgical treatment, the results of a histological conclusion were obtained: desmoid fibroma.

Clinical case. Patient S. 43 years old was hospitalized to the ENT- department for adults of Grodno University Hospital in 2020 with following complaints:

difficulty in nasal breathing for 4 years, displacement of the left eyeball for 1 year. Since 2016 she was treated for the chronical polypous-purulent hemisinusitis. On the CT of the facial skull of 15/05/2018: total filling of the left maxillary and frontal sinus with a tissue component, filling of anterior ethmoid bone cells with destruction of the septa, destruction of the medial wall of the orbit, spread of the tissue component into the cavity of the left orbit, dislocation of the left eyeball anteriorly and laterally. Radical operation was performed in this patient with histological study of removed tissue. The final diagnosis was Desmoid fibromatosis of nasal cavity and paranasal sinuses on the left side.

Discussion. Desmoid fibroma of nasal cavity is a dangerous tumor because of its aggressive local growth and localization near anterior cranial fossa and skull base. Clinically and radiologically it was considered as inflammatory process and only histologically a final diagnosis was set.

Conclusion. There is no generally accepted treatment method due to the rarity of the pathology. In this case only surgical treatment was performed. The recurrence rate is 27-72%. CT and endoscopic control was recommended to the patient to reveal the first signs of relapse.

PLASTIC SURGERY OF DEFECTS OF THE FRONTAL SINUS IN THE GRODNO UNIVERSITY HOSPITAL

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Introduction. The frequency of facial skull injury has increased in recent years. Moreover the destruction of the walls of the frontal sinuses also occurs during polyposis processes. The aim of surgery is not only a cosmetic issue, but also, the repair of these defects helps to overcome the psychological issues of a person and helps to facilitate his social interactions. There are a lot of different types of materials which are used to repair frontal sinus defects, for example, demyelinated bone matrix, polytetrofluoroethylene and others. But there is still no consensus about the best material.

Purpose. Describe the methods of reconstruction the frontal sinus defects on the example of cases in our clinic.

Materials and Methods. Medical records and results of computed tomography of patients from the purulent otorhinolaryngological department for adults, Grodno University Hospital, period from 2020 to 2021.

Discussion. During this period, we have had 3 cases of frontal sinus plastic surgery- Endoscopic surgery on the paranasal sinuses of the third level of complexity: endoscopic revision frontotomy with plastic of the frontal sinus with auto graft. It

should be mentioned, that one of the ways to prevent the retraction of the frontal area tissues are revision, the removal of the entire sinus mucosa with obliteration of the lumen of the frontal sinuses by the patient's own adipose tissue, which contributes to the sinus overgrowth with scar tissue. After such interventions, the frontal sinuses as anatomical and functional formations of the facial scull don't exist. In the preoperative period, all patients had computed tomography (CT) that was the necessary condition for determining the degree, localization and boundaries of the destructive process. The monitoring of the patient's condition was after 3, 6 months.

Conclusion. After all surgical interventions, there was a positive clinical effect: exclusion of recurrency of pathology, inflammation and a good significant aesthetic result.

RECONSTRUCTIVE MICROTIAS` OTOPLASTY. CLINICAL CASE

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Introduction. According to WHO, the number of congenital defects of the ear development hasn`t reduced during last years. According to the domestic and foreign authors, 1 from 7000-15000 newborns have congenital defects of the outer and middle ear. Several teratogenic factors are identified to influence on the ear defects development: exogenous, biological, psychogenic, endogenous.

Research objectives. Evaluation of the ear defects (microtia) development surgical treatment effectiveness by performing reconstructive otoplasty.

Materials and methods. Medical records of 7-32 year old inpatients with congenital defects of the ear, which were operated on the basis of the Otorhinolaryngology Department of the Healthcare Establishment «Grodno University Hospital».

Results. There were performed 4 three-stage Brentuotoplastys and 13 two-stage Nagata otoplastys. At the first stage, the cartilage has been harvesting, the auricle has been simulating. In the postoperative period, the auricle was formed correctly and was in line with other anatomical landmarks.

Conclusion. For patients who underwent three-stage reconstructive otoplasty, it was possible to form an absent auricle and its various anatomical structures (tragus, antihelix, lobe). The use of various modifications of the Brent and Nagata methods for the auricle reconstruction in case of its development defects makes it possible to obtain a positive psychoemotional result for the patient

ON THE CASUISTRY OF FOREIGN BODIES IN THE RESPIRATORY TRACT

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Introduction. Aspiration of foreign bodies poses increased requirements for doctors involved in diagnostics and treatment if the peripheral lumen of the airways is completely closed, and also, based on the properties of a foreign body (sharp metal edges, chemically active substances), makes it difficult to remove them.

Aim of research. Was summarized more than 40 years of clinical experience in this area and evaluated the advantages of modern equipment.

Material and мethods. We analyzed 66 cases of removal of foreign bodies of the respiratory tract in patients admitted to the clinic in the last five years, as well as three cases of death over the last 40 years.

Results. Modern diagnostic methods (including CT and MRI) allow in most cases to determine the localization and shape of foreign bodies. In one case, occlusion of the right main bronchus by a smooth stone in a 2-year-old girl and difficult removal of a foreign body was fatal 8 hours after removal from the effects of hypoxia and cerebral edema. In the second case, a smooth billiard ball pinched in the middle part of the larynx in a patient delivered to the emergency room also ended in death after short attempts to remove it. The third death was due to the obstruction of the airways with a piece of meat in a restaurant in a healthy athlete and the failure to provide assistance to him, although there is a certain technique for this.

Conclusions. For tracheobronchoscopy, today, depending on the indication, two preferred technical approaches are available: with a rigid bronchoscope and a flexible fibrobronchoscope. The advantage of a rigid bronchoscope is a large working channel through which forceps can be inserted, better manipulated, sucked out the contents and, using angled optics, obtain a better optical picture. Flexible bronchoscopy can be performed under local anesthesia, in case of intubation difficulties and provides a more clear peripheral picture than the angled optics of a rigid brochoscope, as well as display it on the screen (video endoscopy).

VOICE DISODER IN PATIENTS WITH CORONAVIRUS (COVID-19) INFECTION

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Introduction. A voice disorder is characterized by the abnormal production and/or absence of vocal quality, pitch, loudness, resonance, and/or duration, which is inappropriate for an individual's age and/or sex. The underlying cause of a voice disorder can be organic or functional. Organic voice disorders result from acquired morphological changes of the vocal cords (e.g. cysts, nodules, papilloma, polyps) of the larynx. However, a functional voice disorder occurs when vocal quality deteriorates in the absence of anatomic and neurological factors. Functional dysphonia is a multifactor disease. One of reasons of functional voice disorders are acute respiratory viral infections. The novel coronavirus (2019-nCoV, or COVID-19) epidemic first broke out in Wuhan and has been spreading in whole China and the world. The most common clinical presentation of severe COVID-19 is acute respiratory failure consistent with the acute respiratory distress syndrome. Airway, lung parenchymal, pulmonary vascular, and respiratory neuromuscular disorders all feature in COVID-19. However, patients with COVID-19 come to otorhinolaryngologist with ENT related symptoms associated with functional changes in the ENT organs and upper respiratory tract as the early and primary manifestations of the disease [3].Studies found past coronavirus COVID-19 infection provides some changes in the ENT organs and upper respiratory tract. The most common ENT manifestations for coronavirus COVID-19 infection is one of the most actual ENT issues nowadays. Guidelines for the diagnosis, treatment and prevention of the ENT manifestations for coronavirus COVID-19 infection are needed. With the rapid global spread of the acute respiratory syndrome coronavirus 2, urgent health-care measures have been implemented. From November, 1, 2020 was setted up a coronavirus disease 2019 triage unit in the Emergency Medical Clinical Hospital in Vitebsk.

Research objectives. The aim of this study was to evaluate the phonatory function of the larynx in patients with confirmed coronavirus (COVID-19) infection.

Materials and methods. This research was approved by the ethic committee of Vitebsk state medical university (VSMU) (protocol № 7 from 02.12.2020). A total of 188 (121 women and 67 men, range = 23 to 92 years, mean age = 53.5 years) patients with confirmed COVID-19 were screened between 02.12.2020 and 25.01.2021 at the triage unit. The inclusion criteria were confirmed COVID-19 (positive SARS-CoV-2 RNA, chest CT scan showing bilateral multilobar ground-glass opacities with a peripheral, asymmetric, and posterior distribution, the ELISA test detected IgM-positive) [4]; signed informed consent of the study. The exclusion

criterion was refusal to participate in the study. All patients underwent objective and subjective evaluation of the larynx (laryngoscopy) and its phonatory function (VHI-10 RUS, DSI, VAS). Voice quality was assessed by means of the dysphonia severity index (DSI). The DSI is based on the combination of the following set of voice measurements: maximum phonation time (MPT), highest frequency, lowest intensity, and jitter. The DSI for perceptually normal voices equals +5 and for severely dysphonic voices -5. The duration of the observation period was 2 months.

Results. Voice disorder was found in 152 (81%), sore throat in 151 (80%) patients with confirmed COVID-19. The average DSI in patients with dysphonia was – 5,9. The VAS value was analyzed in patients with confirmed coronavirus infection COVID-19. The average VAS in patients with voice disorder was 3,8 points, in patients with sore throat 3,5 points. It is mentioned that when the VAS value is more than 5, there is a significant decrease in the quality of life. Therefore, the clinical manifestation of coronavirus infection in the form of voice disorder and sore throat were attributed to conditions that did not reduce the quality of life of patients. The average value of data of questionnaire VHI – 10 RUS was 40.05±1,6 (physical degree of vocal impairment), 39.45±2,6 (functional degree of vocal impairment), 41.86±1,5 (emotional degree of vocal impairment). 92% patients who had dysphonia while infected with COVID-19 completely recovered phonatory function within two months, 8% patients incompletely recovered phonatory function. The DSI from the negative values passed to the positive spectrum to 2,4. The study showed that the treatments that have been most used for voice disorder were vitamins "Complivit", Zn, vitamin C per os that were used by 37% patients. The patients did not use correcting voice therapy techniques in order to restore their voice since they did not know about this technique.

Conclusion. One of the leading manifestations of ENT pathology in patients with confirmed COVID-19 was voice disorder in 81% patients. According to the objective and subjective evaluation of the larynx and its phonatory function voice was completely recovered in 92% patients, incompletely in 8% patients within two months. To restore the phonatory function, drugs were used in 37% of patients. The accurate diagnosis of phonatory function in the ENT practice should include the objective and subjective evaluation of the larynx and its phonatory function as one of reasons of functional voice disorders are acute respiratory viral infections. Prompt and accurate diagnosis allows appropriate management to be initiated.

INVESTIGATION OF OLFACTORY FUNCTION IN PATIENTS WITH CORONAVIRUS INFECTION COVID-19

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Introduction. The novel coronavirus (2019-nCoV, or COVID-19) epidemic first broke out in Wuhan and has been spreading in whole China and the world [1, 2]. The most common clinical presentation of severe COVID-19 is acute respiratory failure consistent with the acute respiratory distress syndrome. Airway, lung parenchymal, pulmonary vascular, and respiratory neuromuscular disorders all feature in COVID-19. However, patients with COVID-19 come to otorhinolaryngologist with ENT related symptoms associated with functional changes in the ENT organs and upper respiratory tract as the early and primary manifestations of the disease.

Research objectives. The aim of this study was to evaluate olfactory function in patients with confirmed COVID-19.

Material and methods. Ethical approval for this study was obtained by VSMU (protocol No. 7 dated 02.12.2020). The study included 188 subjects (121 women and 67 men, range = 23 to 92 years, mean age = 53.5 years) with confirmed COVID-19. All patients underwent chemosensory (smell) testing – olfactometry test. The duration of the observation period was 2 months (from 02.12.2020 to 25.01.2021). The inclusion criteria were confirmed COVID-19 (positive SARS-CoV-2 RNA, chest CT scan showing bilateral multilobar ground-glass opacities with a peripheral, asymmetric, and posterior distribution, the ELISA test detected IgM-positive); signed informed consent of the study. The exclusion criterion was refusal to participate in the study. All patients underwent olfactometry test. The duration of the observation period was 2 months. The degree of reduction in the sense of smell was assessed by using a visual analogue scale (VAS), which may be used to assess both local subjective symptoms and the general condition of patients.

Results. Smell impairment was found in 162 (87%) patients with confirmed COVID-19. In the group of patients with smell impairment 141 (87%) patients had a taste disorder. In the group of patients with taste impairment 141 (97%) patients had impaired sense of smell approved by chemosensory (smell) testing. Recovery of smell during the first week had 20 (11%) patients, during the first two weeks had 29 (15%) patients. Reassessment of olfactory function was carried out in 2 months after the onset of the disease. Analyzing the results showed that 98% patients improved or recovered their sense of smell and only 2% indicated that anosmia continued. Objective olfactometry test showed that the sense of smell was fully recovered in

83% of patients, not completely in 9% of patients, a decrease smell acuity of was observed in 6% of patients, the sense of smell was not restored in 2% of patients. The study also analyzed the mean time period taken to recover the olfactory function. The following time periods were selected: 1-7 days, 8-14 days, 15-21 days, 22-28 days, 29-31 days, more than 31 days. 43% patients noted a significant improvement in overall olfactory function in the period of 1-7 days, 25% patients – in 8-14 days period, 11% patients in 15-21 days period, 2% patients – in 22-28 days period, 15% patients – in 29-31 days period, 2% patients – in more than 31 days. The data analysis showed that smell impairment was the earliest symptom associated with changes in the ENT organs in 28 (15%) patients with confirmed COVID-19. The data analysis also showed that smell impairment was the longest symptom associated with changes in the ENT organs in 21 (11%) patients with confirmed COVID-19. Objective olfactometry test showed smell impairment in 82 (44%) patients. In 30% of patients, smell impairment was detected in the absence of complaints about its change. The results demonstrated a significant smell impairment in overall olfactory function test score, three, in 36 (44%) patients, two – in 29 (35%) patients and one in 17 (21%) patients. The VAS value was analyzed in patients with confirmed coronavirus infection COVID-19. The average VAS in patients with loss of smell was 5.9 points. It is mentioned that when the VAS value is more than 5, there is a significant decrease in the quality of life. Therefore, the clinical manifestation of coronavirus infection in the form of smell impairment may be attributed to a condition that reduces the quality of life of patients.

The study showed that the treatments that have been most used for olfactory dysfunction were nasal spray "Aqua Maris", "Salin", "Rinolux", nasal lavage with 0.9% sodium chloride solution, furacilini solution; vitamins "Complivit", Zn, vitamin C per os that were used by 37% patients. 12% patients used smell training (sometimes called olfactory training). The following odorous substances were used: essential oils, vinegar 9%, ground coffee. 88% patients did not use the olfactory training technique since they did not know about this technique) in order to restore their sense of smell.

Conclusion. The leading manifestation of ENT pathology in patients with confirmed COVID-19 was smell impairment in 162 (87%) patients. According to the objective chemosensory (smell) testing the sense of smell was completely recovered in 83%, incompletely in 9%, a decrease smell acuity was observed in 6%, the sense of smell was not recovered in 2% patients within two months. To restore the olfactory function, drugs were used in 37% of patients. Olfactory training was used by 12% of patients. The accurate diagnosis of nasal olfactory function in the ENT practice should include chemosensory (smell) testing that is the available technique for objective measurement and is important in the aspect of early diagnosis of coronavirus infection. Prompt and accurate diagnosis allows appropriate management to be initiated.

INVENTIVE ACTIVITY OF GRODNO SCIENTISTS IN THE FIELD OF OTORHINOLARYNGOLOGY

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Introduction. The problems of clinical otorhinolaryngology are widely covered in the medical literature. However, the sources of information did not reflect the issues of patenting inventions on the research topic.

Research objectives. The aim of the study was to assess the inventive activity of Grodno scientists in the development of new methods of treating otolaryngological diseases.

Materials and methods. To achieve this goal, a quantitative analysis of author's certificates for inventions from the corresponding database of the USSR State Committee for Inventions and Discoveries and from the National Center for Intellectual Property of the Republic of Belarus (Belgospatent) was used.

Results. The inventive activity of Grodno otorhinolaryngologists began in 1981, when the first author's certificate of the Patent Office of the former USSR was received (SU No. 888955 «The method of plastic surgery of the auricle with transverse cleft». Inventor – Prof. M. I. Ovsyannikov). In total, the indicated patent office issued 3 author's certificates for inventions. In subsequent years, 13 patents were received, issued by the National Center for Intellectual Property of the Republic of Belarus. The authors of the inventions were employees of the Department of Otorhinolaryngology of the Grodno State Medical University, as well as members of the scientific school "Otology". The highest inventive activity was shown by Prof. Oleg Khorov. In total, Grodno scientists received 16 titles of protection for inventions.

Conclusion. Grodno scientists have been actively involved in the development and patenting of inventions for use in clinical otorhinolaryngology. It should be emphasized that participation in inventive activity contributes to the enhancement of the international image of the research team.

3D PRINTING FOR PREOPERATIVE PLANNING AND SURGICAL TREATMENT IN OTORHINOLARYNGOLOGICAL PRACTICE

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Introduction. Recently, 3D modelling and printing technology have been used in a variety of medical applications, such as surgical planning, design of implants and tissue for individual patients, research and as an educational and training tool1. 3D modelling and printing technology have also been used for the planning of implants and operations for craniofacial and skull base pathologies. In addition, the technology has been used in the planning of head and neck tumour surgery. The technology also offers vast possibilities in the field of reconstructive surgery. To date, however, not all the possibilities offered by 3D printing technology have been utilised in clinical practice. For example, due to the complicated anatomy of the nose, 3D printing technology has not yet been used for modelling of the anatomy of the nasal cavities for clinical purposes or as a tool for the planning of nasal surgical procedures.

Research objectives. The aim of the study was to assess the ability of 3D printing of the nasal cavity for preoperative planning and surgical treatment for endoscopic endonasal surgical treatment.

Material and methods. Sinonasal CT of 12 patients with symptoms of postnasal drip were examined. For CT imaging we ussed a computer tomograph GE Lightspeed Pro 32, Chicago, USA. The following imaging parameters were used: 1,25 mm CT slice thickness, voxel size 0.2 mm, 90 kVp, 8 mA and 4 s radiation time. The inclusion criteria were: gender – male and female; age – from 18 to 66 years (an average age was 49 years old), symptoms of postnasal drip. The sinonasal CT scans were used to print plastic 3D prints of the nasal cavities. The process of developed the 3D model for planning the operation consisted of four stages. The first stage included collecting a set of medical images obtained during CT scanning of the facial skull and storing as 2D cuts in DICOM data format. The second stage involved processing of the received 2D images in DICOM format. Axial types were studied by an observer, layer by layer, and axial reconstructions were modified and anatomically accurate computer 3D models were created using InVesalius 3.1 (Tridimensional Technology Division, Brazil) and Meshmixer (Autodesc Inc, USA). The third stage created a 3D reconstruction with further printing a computer 3D model. The fourth stage focused on the study of the morphology of the main intranasal guidance using the 3D model: a greater palatine foramen, an opening posterior to the middle nasal concha, posterior head of the middle turbinate, the place of attachment of the inferior turbinate to the lateral wall of the nasal cavity, crista ethmoidalis from the posterior

aspect of the middle meatus, distal branches of the Vivian nerve, inferior and middle turbinate, as well as the spatial relationship between them.

Results. The average distance between the crista ethmoidalis and the posterior end of the inferior turbinate was 0.5±0.2 cm (horizontal line). The average distance from the greater palatine foramen to the posterior end of the inferior turbinate was 0.7±0.1 cm (diagonal line). The point of intersection of these lines corresponded to the exit location of the distal branches of the Vivian nerve. The diameter of the greater palatine foramen was 0.3±0.1 cm ($P<0.05$).

Conclusion. 3D printing proved to be a suitable and fast method for replicating nasal cavity structures and for preoperative planning and surgical treatment in otorhinolaryngological practice. It can be used as a complementary examination tool for endoscopic endonasal surgical treatment will be carried out with greater accuracy and safety due to the spatial relationship between intranasal structures.

THE ROLE OF AUDITORY NEUROPATHY IN THE HEARING IMPAIRMENT IN PATIENTS WITH ARTERIAL HYPERTENSION

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Introduction. Pure tone audiometry is an insensible method for hearing examination in patients with Arterial Hypertension. What necessitates the search for the diagnostic of the level of hearing disorders.

Objective 35 patients with low-risk primary hypertension with normal hearing threshold and 35 healthy patients studied at Audiology department of the "The Republican Center for Research and Practice in Otolaryngology", from 2018 to 2020 year.

The aim to determine the topographic and functional level of damage of the hearing organ in patients with Arterial Hypertension.

The methodology mathematical statistics, Student t-test, Fisher test. All patients underwent DPOAE, TEOAE, tympanometry, acoustic reflexometry, Auditory Brainstem Response, high-frequency audiometry, Speech Intelligibility Tests.

The results. The study involved 70 individuals an equal men (N=38) and women (N=32) in the middle age at 35,31±10 years (95% CI 18-55 years). All patients (N=70) were divided into 2 groups: 1 group (experience) – patients with hypertension, 2 group (control) –patients without hypertension.The experience group patients showed lower results by passing DPOAE. It was significantly revealed an elongation of the interval I-V with an increase in the amplitude and the latency of the

wave I in the first group. Monosyllabic Speech intelligibility test, Rapidly Alternating Speech Perception Test were 65±5%(t≥0,95) with an extremely low percentage of passing digital dichotic tests- 25±5%(t≥0,95) in patients of the first group.

Conclusion. Arterial hypertension causes damage to the hearing organ at the central and peripheral levels. Auditory Synaptopathy leads in the Hearing Impairment in Patients with Primary Arterial Hypertension. Speech intelligibility tests and Dichotic Digits Test should be used for diagnosing hearing impairment in addition to the standard battery tests.

HEARING SCREENING PROGRAM OF PRIMARY SCHOOL CHILDREN IN THE FIRST FORM IN «SCHOOL №23» IN GRODNO CITY

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Introduction. According to the World Health Organization, about 466 million people suffer from hearing loss, 34 million of them are children. The most frequent congenital sensory disorder is a hearing problem. In 2011 A European Consensus Statement on Hearing, Vision, and Speech Screening for Pre-School and School-Aged Children was endorsed. The first research was conducted in Poland and according to the results hearing problems were diagnosed in 13,9% of the examined children.

Research objectives. To perform audio logical screening for the early detection, diagnosis, and treatment of hearing problems of primary school children.

Materials and methods. The study engaged pupils of the first form from educational institutions «School №23» in Grodno city. Audio logical screening has been performed with the software «Petralex» – an app for a smartphone as an analogue of audiometry. A positive result of audio logical screening was marked levels 25 dB and more at 1 or more frequencies in one or both ears.

Results. 96pupils of the first form took part in the hearing assessment, 77of them received consent from their parents. A total of 74 children (148 ears) of the first form were examined. There were 2 main reasons why children weren't examined: 3 children weren't in school on the day of examination, 19 – didn't receive consent from parents. The coverage rate was 77,08%. 117 examinations were made, a repetition rate was 1,58. There were revealed 14 children (18,92%) with suspect of hearing problems. Unilateral hearing loss was diagnosed in 8 children (5 children on the left ear and in 3 children on the right ear), 6 children had bilateral hearing loss.

Conclusions. According to the results of audio logical screening of primary school children in the first form, a considerable number of children have hearing problems. Hearing loss is a very actual and frequent problem, which is often unnoticed by parents. It leads to problems with education and integration in social life. An audio logical screeninghas great potential to enable an early diagnosis and treatment of hearing problems and to prevent hearing loss progression.

PATHOLOGICAL CHANGES IN THE STAPES IN PATIENTS WITH OTOSCLEROSIS

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Introduction. Otosclerosis is a disease that is a primary metabolic lesion of the bone capsule of the ear labyrinth, expressed by a special form of osteodystrophy with mainly bilateral focal lesion of the enchondral layer of the capsule. Histologically, the focus of otosclerosis is a limited area in which bone structures of varying degrees of maturity randomly alternate. Along with the areas of the compact structure, zones of bone sponging are found. The predominantly spongy structure of the focus is characteristic of the active process, the prevalence of compact areas is observed during its stabilization.

Research objectives. Investigation of the pathomorphological features of the stapes in patients with otosclerosis.

Materials and methods. The stapes removed during surgery from 61 patients were examined. The bone was fixed in a 10% solution of neutral formalin for 24 hours, then it was immersed in a decalcination solution for 48 hours. Then, tissues were dehydrated and compacted in a vacuum processor and paraffin blocks were produced. Histological sections 5 μm thick were applied to adhesive coated glasses and stained with hematoxylin and eosin. At the light-optical level, the histological changes in the stapes tissue were assessed.

Results. The following structural changes were revealed among the 61 stapes analyzed:

- Lacunar changes in bone tissue – 46 (75.4%)
- Bone defects due to tissue lysis – 59 (96.7%)
- Availability of cementation lines – 56 (91.8%)
- Changes in cartilage tissue (hyperplasia or thinning) – 42 (68.9%)

- Fibrosis and thickening of synovial tissue – 55 (90.2%)
- Presence of fibrous adhesions – 22 (36.1%)
- Replacement of bone tissue sites with granulation or connective tissue – 33 (54.1%)
- Irregularity of the contours of the legs – 56 (91.8%)
- Signs of bone hyperplasia – 43 (70.5%)

Conclusion. A pathomorphological study revealed changes in the bone tissue of the stapes, which were characterized by signs of active bone lysis, active bone formation or the "resting" stage of otosclerosis.

MANAGEMENT STRATEGIES OF NODOSE DISEASES OF THE VOCAL FOLDS DURING THE COVID-19 PANDEMIC

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Introduction. The availability of specialized care for patients with nodose formations of the vocal folds during the COVID-19 pandemic has deteriorated due to the re-profiling of otorhinolaryngology departments and quarantine measures.

Research objectives. To analyze the effectiveness of a new algorithm for the treatment of nodose formations of the vocal folds.

Materials and methods. We used the following algorithm to treat patients with nodules, polyps, and Reinke's disease in 23 women and 20 men over the past 11 months. Dexamethasone 1-2 ml was injected into one or both vocal folds at the initial outpatient appointment after obtaining informed consent. 1-3 procedures for 10-14 days per course. A month later, we made a decision on the further management of the patient.

The injection was carried out through the cricoid-thyroid membrane through the submucosa a 25 g with a needle bent at an angle of 45 ° without anesthesia of the laryngeal mucosa. The examination was carried out before treatment and one month later according to the protocol of the Committee on Phoniatrics of the European Laryngological Society.

Results. When examined one month later, in 15 (35%) patients, the clinical and functional state of the vocal apparatus was restored. In 11 (26%) patients after injections, the clinical picture remained practically unchanged. These patients were operated on. A significant improvement was found in the remaining 17 (39%) patients. They were assigned dynamic observation or, continuation of the course of injections or phonopedics.

Conclusion. Thus, in the majority of patients – 74% with nodose formations of the vocal folds after injections, the clinical and functional state was restored or

improved. Therefore, if the availability of surgical and phonopedic care is limited, a management strategies of nodose diseases of the vocal folds, which begins with injections of dexamethasone into the vocal folds and a delayed decision on the further management of the patient, is acceptable.

THE RESULTS OF ALTERED CHEMORADIOTHERAPY FOR LOCALLY ADVANCED ORAL, TONGUE, AND PHARYNX CANCER

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Introduction. The results of chemoradiotherapy for head and neck cancer remain unsatisfactory.

Research objectives to improve the effectiveness of chemoradiotherapy for locally advanced cancer of the oral cavity, tongue and pharynx using a new altered fractionation by dynamic accelerated hyperfractionation with concomitant boost.

Materials and methods. The study included 280 men with squamous cell carcinoma of the oral cavity, tongue, oropharynx and hypopharynx III and IVA, B stage, treated in 2009-2013. Patients were randomized into 2 groups, completely comparable in age, stage and other parameters. In the main group, was used radiotherapy by dynamic accelerated hyperfractionation with concomitant boost for 5 weeks. In the control group, conventional radiotherapy was used for 7 weeks.

Results. Statistically significant differences ($p<0.001$) with the best survival rates were obtained in the group with altered fractionation radiotherapy. One-, three- and five-year overall survival was 84.9% (SE 3), 63.7% (SE 4) and 46.2% (SE 5) respectively in the main group, and 61.7% (SE 4), 30% (SE 4) and 20.9% (SE 4) respectively in the control group. The median of observations in the control and main groups corresponded to 57 and 56 months, and the median of survival – 16 months and 53 months. One-, three- and five-year cancer-specific survival in the main group corresponded to 91% (SE 3), 72% (SE 4) and 59% (SE 5), in the control group, respectively 63% (SE 4), 31% (SE 4) and 23.5% (SE 4). The median cancer-specific survival rate was 17 months in the control group and 76 months in the main group. One-, three- and five-year disease-free survival in the study group was 93.4% (SE 2), 77.6% (SE 4) and 58.2% (SE 6), in the control group – 51.6% (SE 6), 26.2% (SE 6) and 21.9% (SE 6), respectively. The cumulative incidence (5 years) of death from cancer is statistically significantly lower in the main group – 41.16% (SE 0.2), compared with the control group – 74.55% (SE 0.14). The cumulative incidence of death from second cancer and other diseases was comparable across the groups.

Conclusion. Chemoradiotherapy using dynamic accelerated hyperfractionation with accompanying boost improves long-term results of treatment for locally advanced cancer of the oral cavity, tongue and pharynx.

CHANGES IN THE HYDROGEN INDEX OF THE ORAL FLUID IN THE PRESENCE OF THIRD MOLARS AND IN THEIR ABSENCEIN PATIENTS WITH AND WITHOUT TRAUMATIC MANDIBULAR FRACTURE

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Introduction. The third molar is often "causal" in the development of odontogenic infectious and inflammatory processes.

The aim of the work is to study the hydrogen index (pH) of the oral fluid in the presence of third molars and in their absence in patients with and without traumatic mandibular fracture.

Materials and methods. 170 patients aged 18-50 years, divided into 4 groups, were examined. Group 1 – control (60 people) who had no third molars and no mandibular fracture Group 2 (60 people) who had third molars but no mandibular fracture. Group 3 (25 people), who were missing the third molars, but had a fracture of the lower jaw. Group 4 (25 people), who had third molars and a fracture of the lower jaw. These individuals did not have a history of surgery, somatic diseases, and in the oral cavity – factors that can affect the result of the study. They had a high level of caries intensity and satisfactory oral hygiene. The pH of the oral fluid was determined by the device "PH TDS meter". The obtained data were processed statistically.

Results. The pH of the oral fluid of group 1 was 7.08 (6.99-7.12), in group 2 – 6.77 (6.70-6.84), in group 3 – 6.66 (6.48-6.72), in group 4 – 6.19 (6.12-6.33). These values with multiple comparisons and the influence of the Kruskal-Wallis test H=157.89, p=0.000 revealed significant differences in groups 1 and 2 (z1-2=3.68, p=0.002), in groups 1 and 3 (z1-3=7.91, p=0.000), in groups 1 and 4 (z1-4=10.61, p=0.000). At the same time, a significant difference was determined when comparing the results of groups 2 and 4 (z2-4=4.37, p=0.000).

Conclusion. The results obtained allow us to conclude that the preventive removal of the third molars in persons whose activities are associated with the possibility of jaw injuries, the preventive removal of the third molars should be considered as the prevention of the development of inflammatory complications in injuries of the maxillofacial region.

CHARACTERISTICS OF PATIENTS ON THE DISPENSARY REGISTER FOR CHRONIC PURULENT OTITIS MEDIA

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Introduction. Chronic purulent otitis media (CPOM) remains one of the main reasons of hearing loss and of intracranial complications.

Research objectives. To study the characteristics of patients with CPOM under dispensary observation.

Materials and methods. An Excel table was developed for patients registration and it was suggested to district otorhinolaryngologists. The date analysis was carried out using Excel table tools.

Results. Adult patients were analyzed from 10 district of the Grodno region. There are 620 people are dispensary, 295 of them are women (47.58%), 325 are men (52.42%). Among urban residents are revealed 365 patients (58.87%), while among rural residents – 255 (41.13%). Chronic purulent medial otitis is fixed in age of 18 to 25 – in 49 (7.9%) people, from 26 to 35 ages – in 113 (18.23%), from 36 to 45 – in 135 (21.77%), from 46 to 55 – in 122 (19.68%), from 56 to 65 – in 131 (21.13%), from 66 to 75 – in 48 (7.74%), from 76 to 85 – in 17 (2.74%), older than 85 – in 5 (0.81%). The number of patients with epitympanitis (epimesotympanitis) – 217 (35%), with mesotympanitis – 281 (45.32%), with chronic otitis after surgical treatment – 118 (19.03%), after treatment of an intracranial complication – 3 (0.49%), after damage of the facial nerve or labyrinth – 1 (0.16%). 360 (58.06%) people were consulted in the regional hospital, at the department – 50 (8.07), in the Republican scientific and practical center – 39 (6.29%), did not need consultation – 171 (25, 58%). In 126 (20.32%) a sanitizing operation was performed, in 100 (16.13%) – functional reconstructive operation, and in 32 (5.16%) an unknown type of surgical treatment. The conservative treatment was used in 239 (38.55%) patients. 123 (19.84%) people are registered, but have not been operated.

Conclusions. Urban residents are more likely to get sick (58.87%), and people with mesotympanitis prevail (45.32%). The average age varies in the age group from 36 to 45 (21.77%). Morbidity among men and women is almost the same.

TREATMENT OF PHARYNGOSTOMA PATIENTS BASED ON A CLINICAL CASE RESEARCH

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Introduction In Belarus, laryngeal cancer ranks first among malignant tumours of the head and neck (60-75%), whereas among all malignancies, laryngeal cancer accounts for 3-4%. Males suffer most (80-95%), female cases occur 15-20 times less often. Most patients are aged 40-60.

Research objectives. Patient Z. has been ill since 2002. Diagnosis: C-r of the suprasplastic and pleat parts of the larynx. In 2003, he underwent a course of combined treatment with horizontal laryngeal resection for histologically verified laryngeal cancer at the state institution "N. N. Alexandrov National Cancer Centre of Belarus".

Due to the continued growth of the tumour, laryngectomy with circular resection of the pharynx and esophagus was performed on 01.10.2003.
Since 2008, the patient has not been observed by the oncologist.

In mid-March 2019, when his condition worsened, he sought medical help and was hospitalized. While staying in the clinic, the patient underwent a CT scan: the hyoid bone remains intact, from its level and downwards there is an irregular thickening of the walls of the incisional funnel – rear contour up to 13 mm, where it is not demarcated from the anterior longitudinal ligament at the level of C4-C6 vertebrae for approx. 38 mm, the lateral walls thickening up to 17-18 mm, the front wall thickening spreads through the superficial cervical fascia as a tissue-like, well vascularized formation with overall dimensions approx. 38 x 39 x 32 mm; distal level of changes in the pharyngeal funnel is at 16 mm above the tracheostoma; adjacent fatty tissue is stringy. CT conclusion: signs of relapse at the level of the pharyngeal funnel.

On 21.03.2019, a recurrence of a pharyngeal tumour (squamous cell carcinoma with G2 keratinization) was verified. During the operation on 05.04.2019 the neck tumour was removed with pharyngoplasty, intra-tissue high-dose brachytherapy was performed with individual applicator ROD=5, 2 G SOD= = 41.6 G 8 sessions, which is equivalent to 70 G.

At the time of discharge from the hospital the nasoesophageal probe was fixed well, breathing through the tracheostoma was free. The pharyngostoma was gaping. Fibrin was observed on the root of the tongue and on the larynx. Outpatient observation lasted for three months.

On 18.08.2019, against the background of complete well-being, the patient was delivered by an ambulance team to the health-care institution "Grodno University hospital" at about 22.00. The patient's condition was severe, with bleeding from the pharyngostoma area. A consultation was held in the reception department with the

participation of an otorhinolaryngologist, resuscitator, therapist, and oncologist. Indications for emergency surgical treatment were determined.

Intraoperatively: revision of the pharyngostoma under the vacuum aspirator control was performed; a massive bleeding area was revealed in the lower wall, on the left of the inner surface of the pharyngostoma. Tight tamponade was applied to the site. The bleeding was stopped. Further treatment of the patient was performed in the intensive care unit.

19.08.2019 a CT scan of the neck was performed: the postoperative funnel and oropharynx cavity was shaped with the use of plugging foam material; the funnel walls were thickened, infiltrated; there was a local bay-like protrusion on the medial wall of the common carotid artery below the bifurcation of the common carotid artery, which was considered to be a wall defect; there was no convincing evidence of opacified content extravasation at the time of the study. The patient was discharged for outpatient treatment on 28.08.2019 (after 10 days).

Results. On 17.09.2019, the patient died in the intensive care unit of the health-care institution "Grodno University hospital" with a repeated episode of pharyngostoma bleeding.

Final diagnosis (excluding non-core ones): C32 Cancer of the suprasplastic and pleat larynx T3 N0 M0, stage: III. Condition after combined treatment (laryngectomy + remote radiotherapy) in 2002-2003.Tumour relapse (March 2019). Condition after combined treatment (resection of tumour recurrence + brachytherapy).Continued growth of the recurrent tumour. Decay, bleeding from pharyngostoma from 18.08.2019, clinical group: IV.

Conclusions. This example demonstrates the need for regular monitoring of such patients after treatment by a specialized specialist for five or more years. This is necessary to prevent and timely treat relapses or metastasis of the tumour, possible complications, such as massive uncontrolled bleeding.

SPEECH REHABILITATION OUTCOMES AFTER TOTAL LARYNGECTOMY

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Introduction. Laryngeal carcinoma remains the most common malignant tumor of the upper respiratory tract worldwide and approximately 60% of patients present with advanced disease (stage III or IV) at the initial workup. Total laryngectomy is a widely used surgical procedure that is usually reserved for the treatment of advanced laryngeal cancer when the patient is not eligible for

conservative techniques or in case of their failure. Loss of voice has a major impact on the quality of life of laryngeal cancer patients. Therefore, it is important to provide laryngectomee patients with reliable voice and speech rehabilitation options.

Research objectives. To determine if the quality of speech generated by using voice prosthesis is comparable to the speech after organ preserving surgery, i.e. partial laryngectomy.

Materials and methods. The study applied auditory perceptual and acoustic analysis to 18 speech samples from patients who underwent total laryngectomy with speech rehabilitation by implantation of voice prosthesis and 11 patients after partial laryngectomy. Same patients were asked to fill out a self-reported Speech Handicap Index questionnaire to determine how they perceive their speech impairment.

Results. Auditory perceptual and acoustic evaluation results were not statistically significantly different between the total and partial laryngectomy groups ($p=0.576$ and $p=0526$). Patients after total laryngectomy self-reported greater speech handicap than patients after partial laryngectomy ($p=0.009$).

Conclusion. Speech after total laryngectomy is comparable to speech after partial laryngectomy on the auditory perceptual and acoustic levels. On the other hand, patients after total laryngectomy self-report greater speech handicap.

SOCIAL ADAPTATION OF CHILDREN WITH NEUROSENCIAL HEALTH OF HEARING ON THE MATERIALS OF THE «GRODNO UNIVERSITY CLINIC»

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Introduction. Sensorineural hearing loss is socially significant disease as it affects all age groups of the population. According to statistics, 6% of the world population suffers hearing loss. Being not cured hearing impairments are accompanied by huge financial losses.

A deaf child is both medical and social issue, a problem of upbringing, education and adaptation of a child.

Research objectives. The aim of the research is to assess the social adaptation of children of different ages after surgical treatment (based on the materials of outpatient cards).

Materials and methods. 491 medical records (outpatient records) of patients with sensorineural hearing loss were analyzed. All of them are registered with an audiologist. The research is made on the basis of the polyclinic in Grodno.

Results. The analysis of outpatient cards demonstrates following results:1st degree is 108 people – 22%, 2nd degree 81 people -16.4%, 3rd degree 72 people – 14.7%, 4th degree 144 people – 29.4%,Deaf 86 people – 17.5%. Out of 491 patients, 169 people receive conservative treatment, 34.5%, and 28% – 138 people need hearing aids. 95 children have cochlear implant and it is 19.3%. 55.6% of children who underwent cochlear implant under 5 years of age attend secondary school. Screening of newborns on the basis of perinatal centers is of great importance. In 2020, 575 newborns with hearing pathology were identified, 7 of which were children with sensorineural hearing loss.

Conclusion. Audiological screening of newborns in perinatal centers is the basis for the diagnosis of sensorineural hearing loss and deafness. Early detection of children's hearing impairment is of great importance, since the earlier the treatment is carried out, the greater the chance for normal adaptation of the child in the speech-speaking environment. Nowadays, cochlear implant is the only effective treatment for sensorineural hearing loss.

GLOMUS TUMOR (PARAGANGLIOMA) OF THE EAR. THE CASE FROM PRACTISE

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Introduction. The number of patients with ear tumor shasin creased markedly over the past decades. However, the localization of neoplasms, despite other interesting studies on the part of otorhinolaryngologists, is less studied than that of tumors of the ENT organs. The issues of early diagnosis of neoplasms were and remain relevant, since the results of treatment of patients depend on this. From benign neoplasms of the tympanic cavity, glomus tumors are often found.

Research objectives. Analyze a clinical case of a rare tumor of the tympanic cavity.

Materials and methods. Medical record data analysis of resident patient. The study was conducted on the basis of purulent otorhinolaryngology department for adults Grodno university clinic in 2020.

Results. The patient was admitted to the department with complaints of a pulsating noise in the left ear, deafness, periodic discharge from it. According to the patient, she has been sick for 40 years. She noted the deterioration of her condition for several months. In 1981, the lesion was removed from the left ear, the histological report of 12.02.1981-angioma. Received radiation therapy in the left ear. Embolization performed a. meningea media sin. calibrated PVA microparticles. Next, the ear formation was removed.

Conclusion. This case shows that this pathology is rare, but it does occur. The uniqueness of the case. With timely detection of a tumor, in our clinic we are able to operate on it with a good result.

PROBLEMS OF RECONSTRUCTIVE SURGERY IN OTORHINOLARYNGOLOGY

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Introduction. Reconstructive surgery is a modern trend in otorhinolaryngology. Its development is in the pursuit of improving the use of the tissue plate. This trend is developing in all fields of head and neck surgery.

Discussion. The main problem in transplant surgery and the reason of most of the complications directly or indirectly caused by organ transplantation is transplant rejection.

Tissue grafting is widely used in ear microsurgery, facial contouring and paranasal sinus surgery. For these purposes more often cartilage is used, less often bone tissue. The indispensable conditions for a plastic material are: high bioplastic properties, low antigenic activity, resistance to pathogenic microflora and ease of mechanical processing. According to the literature, the best results were obtained using cartilage autografts (A. E. Kitsera, A. A. Borisov, 1974, B. Brend, 1985). The main source for its receipt is the area of synchondrosis of the 6 and 7 ribs. Until recently, the main methods of tissue and organ preservation were:

1. Cryopreservation – preservation at low temperatures with quick freezing (from -183 C to -273 C) and storage at temperatures from -25 C to -30 C;
2. Preservation in special solutions containing antibiotics or antiseptics followed by storage in the recipient's plasma or blood or refrigerated solution;
3. Lyophilization – freezing followed by drying under vacuum. Used for preserving bones and tendons. The method is widespread enough, however, its disadvantage is the incomplete suppression of the antigenic properties of the tissue; 4) Preservation in paraffin;
4. Preservation in aldehyde solution (glutaraldehyde, formaldehyde). After conservation, the material is stored under special conditions in transplant centers, creating an organ and tissue bank.

Conclusion. Recently, the method of preservation in aldehydes has been criticized, since the version about its carcinogenic properties has become popular, and the method of preservation in weak solutions of aldehydes has been questioned. Accordingly, the question about creating a solution with the same ideal preservation properties as formalin has been raised again.

EXPERIMENTAL JUSTIFICATION OF EAR TAMPONADE AFTER SURGERY

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Introduction. An experimental preclinical animal study was conducted to study the biocompatibility of a cellulose-based tampon.

The aim is to improve the ear rehabilitation process in the early postoperative period, by using a cellulose tampon for the ear tamponade.

Research material imprints of the external auditory canal of laboratory animals.

Research methods cytological study of imprints of the external auditory canal of laboratory animals. Rabbitsspecies Shinshilla 36 pcs were divided into 3 groups of 12 pcs each and a control group of 6 pcs. After performing miringotomy, various types of tampons were placed in the auditory canal of rabbits – a pulp tampon, a Merocel tampon, and a gauze tampon. On the 7th, 14th and 21st days after the operation, wound prints of the external auditory canal of laboratory animals were examined. In each group changes in cell elements in the inflammation focus were evaluated in dynamics.

In the control group, corneal cells of the epidermis were found in swabs from NSP.

On the 7th day after the operation, the small amount of corneal cells of the epidermis and polymorphic flora in imprints were observed in all groups. On day 14, seedling epidermis cells and polymorphic flora were observed in moderate amount in all groups, neutrophil leukocytes in the cellulose tampon and Merocel tampon group were (+), in the gauze tampon group (+ + +). On the 21st day, in all groups, the seedling cells of the epidermis were observed, in groups with the Merocel tampon and the gauze tampon polymorphic flora was shown in a small amount.

Cytological analysis of the cellular composition of rabbit ear canal imprints showed that the inflammatory process in three groups of laboratory animals passed the same.

Conclusions. Cellulose is a bioinert material, and cellulose tampon is a safe item, which does not cause disruptive homeostasis and severe local reaction in the auditory passage of the rabbit. Taking into account the experimental data obtained and the successful experience of application in other fields of surgery, cellulose can be considered as a material for the manufacture of a tampon for tamponade of the external auditory canal, followed by clinical trials.

HISTOLOGICAL EXAMINATION OF THE TISSUES OF THE EAR OF THE EXTERNAL AUDITORY CANAL WITH DIFFERENT TYPES OF TAMPONS

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Introduction. An experimental preclinical animal study was conducted to study the biocompatibility of a cellulose-based tampon.

Research objectives: improving the effectiveness of surgical treatment of patients with chronic purulent otitis media by improving the management of the surgical ear in the early postoperative period.

Materials and methods: tissues of the external auditory canal of laboratory animals. Morphological examination of the tissues of laboratory animals of the external auditory canal.

On the basis of the stationary vivarium of the RL GrSMU, a scientific experiment was conducted using laboratory animals. For the experiment were used 36 Chinchilla rabbits. After performing the miringotomy, various types of tampons were placed in the rabbit's ear canal – a cellulose tampon, a Merocel tampon, and a gauze tampon. Rabbits were withdrawn from the experiment on the 7th, 14th and 21st days after the operation. Lymphoid and eosinophilic infiltration of ear tissues was evaluated.

On the 7th day after the operation, lymphoid and eosinophilic infiltration of the ear tissues was moderately pronounced in all groups. On the 14th day, lymphoid infiltration of ear tissues was moderately pronounced in all groups, eosinophilic infiltration of ear tissues was weakly pronounced in the group with a cellulose tampon, moderately pronounced in the group with a Merocel tampon, and highly pronounced with a gauze tampon. On the 21st day, lymphoid infiltration of the ear tissues was weakly expressed in the group with a cellulose tampon, moderately expressed in the groups with a Merocel tampon and a gauze tampon. Eosinophilic infiltration of ear tissues is moderately pronounced in all groups.

Results: the evaluation of the results of the experiment showed that on the 7th, 14th and 21st days after the operation, the cellulose tampon affects the morphology of the rabbit ear canal tissues at the contact point to the same extent as the Merocel tampon and the gauze tampon.

Conclusions: Cellulose is a bioinert material, and a cellulose tampon is safe, doesn’t cause violations of homeostasis and a pronounced local reaction in the rabbit's auditory canal. Taking into account the experimental data obtained and the successful experience of application in other areas of surgery, cellulose can be considered as a material for making a tampon for tamponade of the external auditory canal, with subsequent clinical trials.

THE FORECASTING OF REFLUX ESOPHAGITIS IN PATIENTS WITH OBSTRUCTIVE SLEEP APNEA

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Introduction. Literature data suggest that about 70% of patients with obstructive sleep apnea (OSA) suffer from gastroesophageal reflux disease (GERD). However GERD in patients with OSA often remains undiagnosed due to absence of typical symptoms like heartburn and regurgitation.

Research objectives. To develop a method of forecasting of reflux esophagitis presence in patients with OSA.

Materials and methods. 143 patients have been examined at Grodno city hospital №2, Belarus. The average age was 48 (42; 54) years old. The expressiveness of GERD symptoms was estimated with the help of gastroesophageal reflux disease questionnaire (GerdQ). For visualization of upper gastrointestinal canal esophagogastroduodenoscopy (EGD) was used. Also morphological examination was provided by means of biopsy of the lower third of the esophagus. The diagnosis of OSA was established by means of respiratory monitoring with calculation of apnea/hypopnea index (AHI). Patients were divided into 4 groups: group 1 – patients with GERD (n=35), group 2 – patients with GERD and OSAHS (n=40), group 3 – with OSAHS (n=38), group 4 – comparison group (n=30). For analyzing data nonparametric statistical methods were used. For development of mathematical model ROC curve analysis was performed.

Results. The severity of clinical symptoms in patients of group 1 was statistically significantly higher in comparison with other groups (p1-2=0,012, p1-3=0,001, p1-4=0,0001). Patients with GERD and OSA are characterized by a low severity of typical clinical symptoms, comparable to the group 4 (p2-4 = 0,863). According to the logistic model and ROC analysis we got that patients with AHI equal or more 7 per hour have a high risk of asymptomatic reflux esophagitis (Acc=74,24%, Se=78,57%, Sp=71,05%).

Conclusion. According to the results of the research patients with GERD and OSA have lower value of GERD symptoms expressiveness in comparison with patient without OSA. Patients with OSA and AHI equal or more 7 per hour in the result of respiratory monitoring have high risk of asymptomatic reflux esophagitis and should be undergone EGD for timely diagnosis of reflux esophagitis and prevention of complications.

OROPHARYNGOMYCOSIS IN CHILDREN WITH TRACHEOBRONCHIAL PATHOLOGY

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Introduction. The problem of the defeat of the fungal infection of the oropharynx area at the moment is very common and significant among mycoses of the ENT localization. At the same time, bronchopulmonary pathology in children is a major problem because of its high prevalence and the tendency towards the increase of such diseases. In general this issue needs in-depth research.

The purpose of the study. Evaluation of mycogenic sensitization of children with oropharyngomycosis on the background of broncho pulmonary pathology by analyzing their humoral immunity.

Materials and methods. At the base of pediatric pulmonary department of Homiel Regional Clinical Hospital we have selected 121 thematic clinical cases. The following research methods were used: ENT – examination, microscopic, microbiological, blood ELISA with the determination of the concentration of serum immunoglobulins A, M, G and E. The results of the research: According to our study of 121 children in 3 (2.48%) were diagnosed laryngotracheobronchitis, 7 (5.79%) children had laryngotracheitis, 15 (12.34%) children had tracheobronchitis, 62 (51.24%) children had bronchial asthma, and 34 (28.1%) children had otherbronchopulmonary diseases. When assessing the frequency of occurrence of opportunistic Candida fungi in the oropharynx among children, we obtained the following data: the frequency of opportunistic Candida titer (up to 10 * 3 inclusive) is detected in 70 children, pathogenic titer (more than 10 * 3) – in 49 children; that is 57.9% and 40.5%, respectively. Only 2 children had clinical manifestations of pharyngeal mycosis without laboratory confirmation. The biota analysis of the oropharynx among children with bronchopulmonary pathology showed, that the frequency of occurrence of fungal-bacterial association was 65 cases, fungal – 54, what is 54.6% and 45.4%, respectively. When assessing the humoral immune status of children with oro pharyngomycosis on the background of bronchopulmonary pathology by determining the concentration of serum immunoglobulins A, M, G and E by enzyme immunoassay, it was found that Ig G deviation is observed in 29.17% of children, Ig E – in 72.60% of children, Ig A – in 7.69% of children, Ig M – in 5.43% of children.

Conclusions. In the course of the study, a rather high prevalence of the combined course of bronchial asthma with oropharyngomycosis was found, what arouses certain scientific interest for an in-depth study of this issue. The results of the assessment of the biota in the study group may indicate a high influence of the fungal infection of the oropharynx on the features and duration of the course of trachea broncho pulmonary pathology among this category of children. The evaluation of the humoral immune status of children with oropharyngomycosis on the background of

broncho pulmonary pathology revealed a deviation from the norm of Ig E in 73% of cases, which may indicate a high degree of sensitization of the child's body in response to a fungal infection of the oropharynx on the background of respiratory

AUDITORY IMPLANTS – CONTEMPORARY POSSIBILITIES

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Introduction. Contemporary possibilities of hearing implant applications in the treatment of different kinds of hearing disorders affect the many years of research and scientific programs conducted in multiple centers around the world. Since 1992, the hearing implant program initiated by H. Skarzynski in the Institute of Physiology and Pathology of Hearing (IPPH) introduced in Poland practically all newest achievements in hearing implant surgery. The first implemented devices were cochlear implants for patients with nearly total deafness – adults and children. The program of auditory brainstem implants started in 1998; 10 years later, in the World Hearing Center, the first in the world patient received auditory brainstem implants bilaterally. Since 1997, H. Skarzynski has begun developing an innovative minimally invasive ear surgery concept ("Skarzynski's 6 step technique"), enabling preservation of preoperative low-frequency residual hearing and inner ear structures. In 2002, the first surgery where electric hearing through the cochlear implant complemented existing normal hearing below 500 Hz, performed by H. Skarzynski, has shown a new direction in the treatment of partial deafness. With time, H. Skarzynski et al. have elaborated the concept of qualification of homogenous groups of patients with different hearing disorders. Combined with further development of the partial deafness treatment method (PDT), it has led to a broadening of the target groups of patients. These new methods and approaches were implemented internationally, which today enables conducting multicenter meta-analyses.

Research objectives. This presentation aims to introduce the present possibilities of treating different kinds of hearing disorders, with particular attention given to the PDT method. It will also present an overview of hearing implants applied in adults and children in the IPPH, including present indications for each implant system and patient inclusion criteria.

Materials and methods. The material comprises documents of the IPPH's World Hearing Center – one of the largest medical databases of patients with different types of hearing implants, including the partial deafness treatment.

Results. In the years 1992–2020, the program of hearing implants in the IPPH encompassed more than 10 thousand ears; the whole otosurgery program involves 15 thousand procedures per year, comprising various hearing improving surgeries. Before 2020, the IPPH has introduced to clinical practice all hearing implant systems: cochlear implants (since 1992) with different types and lengths of electrodes, bone conduction implants such as BAHA Connect (since 1997) and BAHA Attract (since 2003), OSIA100 (since 2018), middle ear implants like Vibrant Soundbridge (since 2003), Bonebridge BCI601 (since 2012) and BCI602 (since 2020), CODACS (since 2012), MET (since 2014), as well as auditory brainstem implants. Patients were from 8 months to 85 years old.

Direct and indirect effects of the IPPH's hearing implant program and related activities are diverse and were especially noticeable in the development and directions of global ear and implant surgery. These effects include elaboration by H. Skarzynski et al., a novel concept of qualification of homogenous groups of patients. Another effect is the development of methods and possibilities of assessment of hearing in the program of partial deafness treatment – hearing preservation qualification according to Skarzynski et al. is a hearing assessment method in all surgical cases with preserved preoperative residual hearing and inner ear structures. The system is independent of the implant user's level of hearing before implantation and considers the relative change of hearing threshold, which is vital in assessing different patient groups. The development of the PDT method has shown that the benefits of electric-acoustic stimulation of the hearing receptor are higher than the benefits of using only electric stimulation with a cochlear implant, or only acoustic, with a hearing aid.

Further development of the program of partial deafness treatment involved refining the surgical method and expanding indications for cochlear implantation in further, wider target patient groups. These activities significantly impacted new technology development, such as the design of thin, very flexible cochlear implant electrodes. Consequently, it is presently possible to use an appropriate, limited electric stimulation for each patient group, with 19-20 mm or 24-25 mm electrodes as complementation of normal hearing preserved up to 0.5 kHz, 0.75 kHz, 1 kHz, and kHz. The newest approach involves deeper insertion (up to 28 mm) and preservation of existing hearing up to 250 Hz, which creates a real chance for its effective amplification during postoperative rehabilitation with acoustic stimulation with a Duet or Hybrid speech processor. One of the electrodes thus applied, designed by H. Skarżyński, was a Cochlear manufacture model (SRA, CI422, CI522, CI622). The Med-El company offers the widest selection: flexible electrodes Flex20, Flex24, Fleks26, Flex28, and special electrodes. Recently, flexible electrodes HiFocus^{TM}SlimJ are produced by Advanced Bionics, and NeuroZti EVO electrodes by Oticon.

Conclusions. Contemporary progress of audiology, otology, ear surgery, and modern technologies enable providing effective help to practically any patient with a hearing problem.

CALCULAR CANALITIES – DIFFICULTIES OF DIAGNOSTICS

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Introduction. Canaliculitis is an inflammatory disease of the lacrimal tubules, which accounts for about 2.4% of cases among ophthalmic pathology. Patients are sent to the hospital with complications after prolonged inadequate treatment and late diagnosis.

Purpose of the study. To focus the attention of practical ophthalmologists on the problem of canaliculitis.

Material and methods. 6 patients with diagnoses of chronic dacryocystitis, neoplasm of the lacrimal opening, neoplasm of the upper eyelid were sent to the eye microsurgery department of the Grodno University Clinic. No patient was diagnosed with canaliculitis at the outpatient stage. The terms of outpatient treatment at the place of residence ranged from 4 months to 1 year. The average age is 59.5 years. Men – 2, women – 4.

Results and discussion. Clinical manifestations were accompanied by constant lacrimation, purulent discharge, hyperemia, edema in the area of the lacrimal tubules, lacrimal opening and conjunctiva on one side. The protracted course of the inflammatory process, not amenable to treatment, led to edema and deformation of the position of the eyelid and lacrimal opening. In a hospital patients underwent standard ophthalmic examination and diagnostic lavage lacrimal system.

There was no obstruction of the nasolacrimal canal. All patients were diagnosed with canaliculitis and underwent surgical treatment. During canaliculotomy, dacryolites of dense consistency of various sizes were removed from the tubule, which were localized in the tubule and in the lacrimal opening with purulent and mucopurulent contents. The number of calculi varied (from 1 to 8). The size ranged from 1-2 mm to 6 mm. The tubules and the lacrimal opening were distended. Patients have achieved complete recovery after surgical treatment. Actinomycetes were isolated among the pathogens in 82% of cases.

Conclusions. Canaliculitis is a rare disease and requires correct diagnosis by an ophthalmologist in the early stages of the disease. In the presence of calculi in the lacrimal tubules and chronic inflammation, the only effective treatment is surgery.

CLINICAL DIAGNOSTICS CORNEAL ULCERS

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Introduction. Corneal ulcer is a serious disease characterized by the presence of a defect and in the case of perforation, leading to loss of function of the organ of vision or death of the eye.

Purpose of the study. To assess the structure of the cornea using optical coherence tomography (OCT) of the anterior segment for the clinical diagnosis of the depth of the lesion in corneal ulcers.

Material and methods. Patients diagnosed with corneal ulcer were examined. OCT of the anterior segment was performed on the «SOCT Copernicus» device of the «Carl Zeiss» company at the Eye Microsurgery Department of the Grodno University Clinic. The thickness of the cornea and changes in the morphometric structure of the cornea were assessed. The study included 12 patients (12 eyes). The average age is 62.5 years. Men – 8, women – 4.

Results and discussion. Biomicroscopy (BM) showed diffuse epithelial and stromal edema in patients with impaired integrity and transparency of the cornea. Visual acuity was reduced to light perception in 4 eyes, from 0.01 – 0.04 in 8 eyes.In 9 eyes (75%), ulcers occupied a central position. The size of the ulcer was more than 4.5 mm. The ulcer was complicated by the presence of hypopyon in 8 eyes. According to OCT data, microcystic edema with multiple or single small cysts in 7 eyes was diagnosed in the corneal epithelium zone. Crater-like defects in the superficial and middle layers of the cornea were detected in 66.7% of cases – 8 eyes, slit-like defects were found in 4 eyes (33.3%), which were clinically the most severe. Diffuse thickening was determined in the corneal stroma in all patients; the corneal thickness in the edema zone averaged 706 μm. Single macrocysts with the threat of perforation and thinning of the cornea up to 100 μm were detected in 4 eyes. Folds of Descemet's sheath of the cornea were present in all patients. Upon detection of slit-like defects, patients underwent therapeutic keratoplasty with an amniotic membrane, which made it possible to preserve the organ of vision and reduce the duration of hospital stay.

Conclusions. OCT is a highly informative non-contact method that allows one to assess structural changes in the layers of the cornea, obtain a high-quality image of tissues with a resolution close to the cellular one, and determine the timing of keratoplasty in case of a threat of corneal perforation.

SUBJECTIVE VISUAL VERTICAL IN NEUROLOGICAL PATIENTS WITH MULTIPLE SCLEROSIS

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Introduction. Although abnormal visual dependence has been documented in other neurological disorders, it is not known whether multiple sclerosis leads to visual dependence, and whether such dependence is related to disease progression, clinical disability, or neuro-inflammatory burden in the central nervous system.

Research objectives. We aimed to evaluate subjective visual vertical and visual dependence using a novel mobile virtual reality-based system for subjective visual vertical assessment (VIRVEST), which was created by the authors of the presentation and evaluate its relationship with the Expanded Disability Scale Score (EDSS), multiple sclerosis (MS) course and clinical findings.

Materials and methods. The study included 59 patients with MS and 59 controls. Four tests were integrated in VIRVEST system and performed by each patient: a static subjective visual vertical (SVV), dynamic SVV with clockwise and counter-clockwise background stimulus rotation, and SVV in a virtual reality background – a boat floating in the wavy water – to be adjusted vertically. Visual dependence was evaluated as a function of dynamic SVV.

Results. Patients with MS manifest larger biases in both static and dynamic SVV than healthy controls ($p<0.001$), in addition to higher visual dependence scores ($p<0.05$). MS patients with an EDSS score >4.5 had larger values of dynamic SVV and when compared to MS patients with lower EDSS scores ($p<0.01$), and visual dependence was related to disease severity. Patients with progressive MS disease course demonstrated statistically significantly larger dynamic SVV and visual dependence scores when compared to MS patients with relapsing-remitting disease ($p<0.01$).

Conclusion. We suggest that this real-world paradigm, which is used in our system, is effective at identifying visual dependence in neurological patients, and may have application in clinical settings, given high system usability scores.

ALTERATIONS OF INTERLEUKINS FOR PATIENTS WITH CHRONIC RHINOSINUSITIS WITH NASAL POLYPS IN DIFFERENT AGE GROUPS

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Introduction. Chronic rhinosinusitis (CRS) is a heterogeneous, multi-factorial disease affecting 10.9% of the European population and 13.4% of the American population. In the context of CRS, biomarkers indicating tissue inflammation are currently used in only research and clinical trials, but may be used in everyday practice to diagnose CRSwNP and evaluate treatment responses. There is no single validated biomarker that can reliably determine whether a patient has CRSwNP, CRSsNP, acute sinusitis or no sinus disease at all. In addition there‘s lacking data on how biomarkers may affect quality of life in context of CRSwNP. This, to our knowledge, is the first study in Europe that sought to determine correlation between age and local inflammatory markers.

Research objectives. To determine age related changes of inflammatory markers concentration in the polyp tissue of CRSwNP patients and in the mucosa of the middle turbinate of the control group.

Materials and methods. A total of 111 patients treated in the Department of Otorhinolaryngology, Hospital of the Lithuanian University of Health Sciences KaunoKlinikos between 2017-2019 years were enrolled into this study.Participants were divided into 3 age groups: 18-30, 31-50 and 51 years and more.Concentrations of 10 differentserum cytokines – interleukin-1beta (IL-1β), IL-2, IL-4, IL-5, IL-6, IL-7, IL-10, IL-13, IL-21, and IL-22 – were quantified using a magnetic bead-based multiplex assay by a Luminex® 100 Analyzer according to the manufacturer’s instructions.

Results. Only concentration of IL-21 was significantly higher in 31–50-year olds than those aged 51 years and more (p=0.0013).

Conclusion. No differences were found in most of inflammatory markers concentrations when comparing concentrations in different CRSwNP patients age groups. Except IL-21 alone concentration was significantly higher in the 31-50 age group if compared with elderly (≥51 years).

ANALYSIS OF PEDIATRIC TRACHEOSTOMIES IN THE HOSPITAL OF LITHUANIAN UNIVERSITY OF HEALTH SCIENCES KAUNAS CLINICS

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Introduction. Tracheostomy is a much less common procedure in the pediatric intensive care unit, being performed in less 3% of patients. Children with tracheostomy have a higher risk of adverse events and mortality, which are largely secondary to their comorbidities rather than tracheostomy.

Research objectives. To analize cases of pediatric tracheostomies in the Hospital of Lithuanian University of Health Sciences Kaunas Clinics in 2014-2018.

Materials and methods. A retrospective study was performed and the histories of patients diseases were analyzed. Statistical analysis of the data was performed using IBM SPSS 13.0 program. Work participants: Patients who underwent tracheostomy were treated in the Pediatric Surgery Department.

Results. The sample consisted of 64 patients. The majority of patients were 1 to 12 months old – 32,8% (n=21). All children were diagnosed with a pathology that developed respiratory failure and were an indication for the formation of a tracheostomy. 50% (n=32) cases had a constant need for artificial lung ventilation (ALV). Otorhinolaryngological diseases that caused respiratory failure accounted for 17,1% (n=11) cases. The outputs are known in 62 cases. It was found that 50% (n=31) subjects were still live with tracheostoma. All deaths were due to underlying disease.

Conclusion. The most common tracheostoma in children is formed at 1 to 12 months old. The most common indication for the formation of tracheostomy is respiratory failure, the constant need for ALV, caused by the underlying disease. Otorhinolaryngological causes acounted for 17,1% (n=11) in all cases. Complications after tracheostomy surgery occur in more than half of the patients, and the most common of these is lower respiratory tract infection. Half of the patients still live with tracheostoma. All patients deaths are associated with the underlying disease

VOICE PATHOLOGY SCREENING TROUGH THE SMARTPHONE

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Introduction. Currently, the concept of 'mobile health' is rapidly evolving. The easy availability of health care-related apps to patients and healthcare providers stimulates their potential use in clinical practice.

Research objective. To elaborate the application suitable for mobile communication devices for estimation of Acoustic Voice Quality Index (AVQI) and evaluate its applicability in the clinical setting.

Materials and Methods. The elaborated AVQI automatization and background noise monitoring functions were implemented into a mobile *VoiceScreen* application running iOS operating system. Consequently, the *VoiceScreen* application allows voice recording, automatically extracting acoustic voice features and displaying the AVQ. The purpose of this application is to differentiate between pathological and normal voice and to generate a recommendation to the user. A study group of 103 adult individuals with normal voices (n= 30) and 73 patients with pathological voices was asked to read aloud a standard text and sustain the vowel /a/. Voice recordings were performed in the clinical setting with *VoiceScreen* app using iPhone 8 microphones. To evaluate the diagnostic accuracy differentiating normal and pathological voice, the receiver-operating characteristic statistics i.e. area under the curve (AUC), sensitivity and specificity, and correct classification rate (CCR) were used.

Results. A high level of precision of AVQI in discriminating between normal and dysphonic voices was achieved with the corresponding AUC=0.937. The AVQI cut-off score of 3.4 demonstrated a sensitivity of 86.3% and specificity of 95.6% with a CCR of 89.2%.

Conclusion. The *VoiceSreen* app represented an accurate and robust tool for dysphonia severity detection and can be used in clinical settings as a sensitive measure for voice pathology screening. Currently, the *VoiceScreen* app is available in several languages: Lithuanian, English, French, German, Spanish, Portuguese, Russian, Polish, Japanese, and Arabic. Due to the portability, user-friendliness, and applicability the VoiceScreen app may be preferred by patients and clinicians for voice assessment and data collection in both home

DIAGNOSTIC VALUE OF GENERAL IMMUNITY FACTORS FOR ALLERGIC RHINITIS

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Introduction. The commonality of the symptoms of allergic and non-allergic rhinitis causes difficulties in diagnosis. Currently there are a variety of methods for diagnosing allergic rhinitis(AR) but, as practice shows, none of them is absolutely reliable.

Research objectives. The aim of the study was to evaluate the diagnostic value of general immunity factors: total immunoglobulin (Ig) E, secretory IgA, interferon-gamma (IFNγ), interleukin-4 (IL-4), complement activity in blood serum for the diagnosis of AR.

Materials and methods. The study included 30 patients with AR, 30 patients with signs of AR, and 20 healthy individuals. The content of IgE, sIgA, IL-4, and IFNγ was determined in the blood serum, and the activity of the complement system was evaluated. We used a set of reagents for the enzyme-linked immunsorbent assay (ELISA)- a set of reagents A-8660, manufactured by JSC "Vector-Best", Russia. The complement activity was determined by the minimum amount of serum required for 50% hemolysis of sheep red blood cells by the hemolytic system.

Results. In patients with established diagnosis of AR, the concentration of general IgE in blood serum − 87,5 (54,4; 117,8) IU/ml is significantly higher (U= 73, p =0,00) compared to the group of healthy individuals − 23,7 (11,5; 50,0)IU/ml. The level of IgE general in the blood serum of patients with signs of AR – 31,0 IU/ml (25,3; 55,4)and those in the group of healthy individuals do not have statistically significant differences (U= 254, p= 0,36).

There was no significant difference in the level of sIgA, the activity of the complement system in the blood serum in patients of all three study groups (p>0,05).IFNγ and IL-4 were detected in the serum of only several patients of each group.

Conclusion. Determination of total IgE in blood serum may be recommended for verifying the diagnosis of AR. Determination of sIgA, IFNγ, IL-4, the activity of the complementin the blood serum are not informative for the diagnosis of AR.

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