

**CORRECTING DISORDERS OF PAROTID GLAND SECRETION IN PATIENTS WITH  
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*The salivary glands are highly sensitive to neural influences, which is why the study assessing their conditioned reflex activity is quite relevant. Nonetheless, their reactive changes that occur as a result of such generalized disorders as neuropathy are the least studied among all of the salivary gland diseases. Today, the number of neuropathy patients is growing steadily due to the active development of the technosphere. In fact, extrafocal neuropathy reflects reactions in response to stressful situations and the development of functional disorders in all parenchymal organs as a result of these factors (including large salivary glands with subsequent chronic inflammation). The issue of neurogenic salivary adenitis (NSA) is given very little attention in the modern body of literature. The research aims to develop a differentiated approach to correcting functional disorders of the parotid glands in patients with elevated psychological responses. Depending on the severity of neurogenic salivary adenitis, the following treatment measures were prescribed to patients with the parotid gland dysfunction: duct bougienage of the studied glands, their massage, ectericide and proteolytic enzyme (trypsin) instillation into the ducts, electrophoresis of the affected gland area with 5% ascorbic acid solution, professional oral cavity hygiene procedures at the dentist's office, Persen-forte, Drotaverine, retinol acetate, and AlfaVit multivitamin supplement. The treatment and prevention programs that were prescribed to NSA patients contributed to the elimination of the pathological process in the affected salivary glands in most patients (according to cytological secretion examination), improving their morphofunctional state, as well as the general somatic condition of patients (by reducing anxiety level).*

**Key words:** neurogenic salivary adenitis, correction, treatment.

**The connection of the publication with planned research works.** The present work is a fragment of integrated research topic of the Department of Surgical Dentistry and Maxillofacial Surgery with Plastic and Reconstructive Surgery of Head and Neck "Algorithm for surgical and conservative treatment of patients with cosmetic defects of tissues of the maxillofacial area, involuntal ptosis of the skin of face and neck, pain syndromes of face, and prophylaxis of the formation of pathological cicatrically modified tissue" (state registration No. 0114U001910).

**Introduction.** The salivary glands are highly sensitive to neural influences, which is why the study assessing their conditioned reflex activity is quite relevant [1, 2, 3]. Nonetheless, their reactive changes that occur as a result of such generalized disorders as neuropathy are

the least studied among all of the salivary gland diseases [4, 5, 6]. Today, the number of neuropathy patients is growing steadily due to the active development of the technosphere [7, 8, 9]. In fact, extrafocal neuropathy reflects reactions in response to stressful situations and the development of functional disorders in all parenchymal organs as a result of these factors (including large salivary glands with subsequent chronic inflammation) [10, 11]. The issue of neurogenic salivary adenitis (NSA) is given very little attention in the modern body of literature [12, 13].

**The research aims** to develop a differentiated approach to correcting functional disorders of the parotid glands in patients with elevated psychological responses.

**Objects and methods of the research.** 114 patients with sialadenitis were examined, among them there were 44 men and 68 women. Depending on the intensity of NSA clinical signs (changes in parotid gland volume, the degree of xerostomia, cellular composition of parotid gland secretion, duct system anatomical disorders, the level of anxiety), the studied patients were divided into 3 groups:

Group I – patients with mild NSA (14 male and 30 female patients);

Group II – patients with moderate degree (21 men and 27 women);

Group III – patients with severe NSA (10 male and 11 female patients).

All research was conducted according to generally accepted principles, which included general, special, and research-specific methods.

General clinical studies such as survey, examination, salivary gland palpation, duct probing were applied in all the patients. We have found out their complaints, medical history; possible triggers for changes in the salivary glands (the state of psycho-emotional stress such as family and social problems, phobias, etc.); previous treatment and its effectiveness, as well as past medical history and other somatic and dental diseases.

Localized complaints included dry mouth, the nature and frequency of exacerbations, the nature of changes in the salivary gland volume and how they progressed, dysfunction associated with salivation (chewing, swallowing, speech), etc. The complaints related to the state of emotional stress included sleep and appetite disorders, blood pressure changes, excessive perspiration, irritability, etc.

We also took into account previous pathological conditions such as comorbidities, acute and chronic intoxications, as well as childhood infections, which may have contributed to the dysfunction of major salivary glands.

The main attention was paid to the clinical study of salivary glands. The examination assessed facial pattern disruption in the area of parotid glands, the condition of the skin above them, the condition of the vermilion border and oral mucosa and how well they were moisturized, changes in the duct openings, the presence of inclusions, etc. The palpatory examination of glands revealed their size and consistency, their relation to surrounding tissues, as well as areas of painful sensations. Duct patency was established using probing.

The following research-specific methods were used to fulfil the set tasks: general sialometry with and without triggering factors, sialometry of parotid glands to determine their functional state, examination of physicochemical properties of oral fluid and parotid secretion (pH, viscosity, transparency), and cytological characteristics of parotid gland secretion.

Special methods of research included parotid gland sialography, determining the level of anxiety using the Taylor Manifest Anxiety Scale (TMAS) as adapted by M.M. Peisakhov [14].

The control group consisted of 19 healthy volunteers aged 35-43 years with a sanitized oral cavity, who had no history of salivary gland disease.

Patients with mild NSA received the following set of treatments: daily bougieurage of ducts of the studied glands for 5 days, massaging them for 5 minutes before and after meals over the course of 5-7 days, professional hygiene and oral cavity sanitation at the dentist's office. Due to increased anxiety level (23 subjects had an average value  $14.35 \pm 0.05$  points), and 10 subjects had high scores ( $43.40 \pm 0.05$  points) 33 patients were additionally prescribed a two-week course of *Persen-forte* in the dosage of 1 capsule 3 times a day after meals. 1 capsule of this drug includes 125 mg of valerian root extract, 25 mg of peppermint extract, and 25 mg of lemon mint extract (lemon balm). They were also prescribed a 5-day course of *Drotaverine* to relieve the spasm of duct apparatus of the parotid glands in the dosage of 1 pill 3 times a day to be taken 20 minutes before meals.

Patients with moderate NSA underwent a 5-7 day course of daily duct bougieurage and 5-minute massage of the studied glands before and after meals, as well as professional hygiene and oral cavity sanitation at the dentist's office. Additionally, ectericide was daily instilled into the ducts of the affected glands over the course of 5-7 days and galvanization of the affected gland areas №5 was performed in 39 patients. There were prescribed a 3-week course of *Persen-forte* in the dosage of 1 capsule 3 times a day after meals, a 7-day course of *Drotaverine* in the dosage of 1 pill 3 times a day for 20 minutes before meals, and a 14-day course of retinol acetate to activate the protective functions of all oral mucosa, gastrointestinal tract, etc. in the dosage of 5000 IU 1 time per day.

All patients with severe NSA were prescribed a full range of treatment and prevention measures: daily bougieurage of ducts for 5 days, massaging them for 5 minutes before and after meals over the course of 7-10 days, 5 procedures of ectericide and proteolytic enzyme (trypsin) instillation into the ducts of the studied glands every other day, gland electrophoresis with 5% ascorbic acid solution № 5. The above-mentioned measures were taken to improve the microcirculatory tract, to make a positive impact on glands' functional condition

needed to prevent secretion stagnation in their cavities, and to activate local immune mechanisms. Patients observed hygiene and performed oral cavity sanitation at the dentist's office. There were prescribed a 4-week course of *Persen-forte* in the dosage of 1 capsule 3 times a day after meals and a 10-day course of *Drotaverine* in the dosage of 1 pill 3 times a day for 20 minutes before meals. A complex multivitamin drug *Quadevit Active* was prescribed in the dosage of 1 pill per day for 1 month to increase the homeostasis of the oral cavity which included the following ingredients: taurine – 200 mg; L-tyrosine – 100 mg; L-carnitine – 50 mg; nicotinamide (B3) – 20 mg; vitamin E – 15 mg; zinc – 15 mg; vitamin B6 – 5.4 mg; calcium D-pantothenate (B5) – 5 mg; vitamin B2 – 4.8 mg; vitamin B1 – 3.9 mg; copper – 1000 mcg; vitamin A – 750 mcg; folic acid (B9) – 400 mcg; iodine – 150 mcg; selenium – 70 mcg; chromium – 50 mcg; biotin (B7) – 30 mcg; vitamin B12 – 3 mcg.

The effectiveness of comprehensive differentiated treatment of NSA patients was analyzed over the period of up to 2 years.

**The results of the research and their discussion.** The analysis of treatment outcomes of NSA patients who applied a set of treatment and prevention measures aimed at improving the functional state of the salivary glands and stabilizing oral homeostasis, showed that among 44 patients with mild NSA, 40 patients (90, 91%) have recovered and 4 subjects (9.09%) have improved their condition over a short-term period (6 months after treatment). This was confirmed by the results of research-specific and specialized studies. In particular, the unpleasant sensations were completely eliminated, including occasional enlargement of one of the parotid glands, dry mouth, and slight dryness of the oral mucosa, which occurred very rarely in 5 patients. 37 patients had a symmetrical face; 7 people had facial asymmetry due to slight swelling in the area of one of the studied parotid glands. When palpated, parotid glands were painless, up to 3-5 cm in size, and had soft-elastic consistency in 37 people; they were slightly enlarged in 3 patients; glandular swelling due to the subcutaneous tissue edema was observed in 4 patients. In all patients, the vermilion border of the lips was normal in color and showed no signs of epithelial exfoliation. In terms of the oral cavity condition, the mucous membrane of the cheeks, tongue, gums was pale pink and moderately moist in all subjects.

The hygienic condition of all patients' oral cavity has markedly improved and amounted to  $1.7 \pm 0.2$  (good). PMA index =  $17.5 \pm 2.1\%$ .

The increase in the general secretory function to the normal values was statistically significant ( $p < 0.001$ ) (before treatment –  $5.75 \pm 0.03$  ml in 10 minutes; after –  $6.08 \pm 0.12$  ml in 10 minutes of the study (the normal values are  $6,25 \pm 0.09$  ml)). Normalization of parotid secretion from  $1.70 \pm 0.016$  ml in 10 minutes of study to  $1.74 \pm 0.10$  ml was noted (the normal values are  $1.80 \pm 0.05$  ml). Physicochemical property indices of oral fluid and parotid secretion (transparency, viscosity, pH) have also normalized (**table 1**).

Cytological examination of the smears of the affected parotid glands' secretion revealed a small number of squamous epithelial cells and single neutrophilic leukocytes, which was close to normal.

**Table 1 – Physico-chemical properties of oral fluid in mild NSA patients in 6 months after completing treatment and prevention program**

| Index           | Healthy (n=19) | Subjects                    |                            | p*  |
|-----------------|----------------|-----------------------------|----------------------------|---|
|                 |                | before the treatment (n=44) | after the treatment (n=44) |   |
| Viscosity (sPs) | 2,55±0,2       | 2,63±0,1                    | 2,57±0,1                   | p <sub>1</sub> >0,05<br>p <sub>2</sub> >0,5 |
| pH              | 7,35±0,05      | 7,18±0,2                    | 7,32±0,2                   | p <sub>1</sub> <0,05<br>p <sub>2</sub> >0,5 |

Note: \* p<sub>1</sub> – the comparison of patients before and after treatment; \* p<sub>2</sub> – the comparison of patients after treatment and healthy.

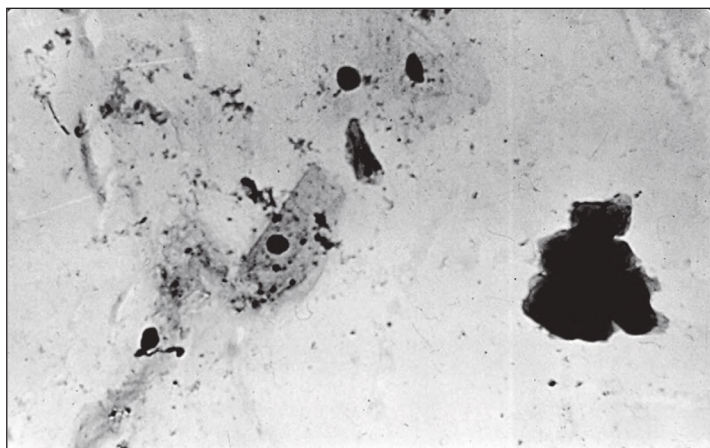


Figure 1 – Photomicrograph of the smear area of the parotid gland secretion of 37-year-old patient K., (case history №32456) with medium NSA severity reveals individual cells of the squamous epithelium. Amplification: x200.

Determining the level of anxiety according to the Taylor Manifest Anxiety Scale (TMAS) as adapted by M.M. Peisakhov in patients with mild NSA found low values of 1.53±0.05 points in 19 people and medium values of 9.27±0.05 points in 3 patients, which signifies decreased anxiety rates in most patients.

Of the 48 patients with a moderate severity of the disease, 35 patients (72.91%) have recovered, 11 subjects (22.92%) have improved and 2 people (4.17%) have not changed their condition, which is confirmed by the normalized clinical signs: 28 patients had no complaints, 6 people noted occasional (up to 2-3 times a year) unpleasant phenomena in the affected parotid glands (sensation of heaviness, tingling, sometimes itching), which was always associated with nervous breakdowns of any origin.

Objectively, 30 subjects had symmetrical faces, soft-elastic consistency, normal size, and experienced no pain on palpation. In terms of the oral cavity condition, vermilion border had normal color with no signs of dryness, mucous membrane of the mouth, gums, cheeks, tongue was pale pink and sufficiently moisturized. No issues were found when probing the excretory ducts. 4 patients had enlarged parotid glands (2 people had unilateral enlargement, 2 patients had bilateral enlargement). The vermilion border of the lips in these patients was normal in color and showed no signs of epithelial exfoliation. Probing of duct openings of the affected parotid glands revealed insignificant duct spasms in these patients.

Normalization of the oral cavity hygienic condition indices and the secretory activity of salivary glands in general and parotid glands in particular was noted. Physicochemical parameters of oral fluid and parotid gland secretion were normalized.

Cytological examination of the studied parotid gland secretion revealed an increased number of neutrophilic leukocytes, individual lymphoid cells, macrophages, cylindrical epithelial cells. In some patients, the cell composition was represented by a small number of squamous epithelial cells and single neutrophilic leukocytes (fig. 1).

The sialographic picture of parotid glands revealed no abnormalities in only 3 people (out of 9 study subjects). In 6 patients, there were various narrowings of the main duct, I-II-III order ducts, bulbous and spherical ectasias of II-V order ducts, impaired filling of II-V order ducts due to almost the entire gland volume being narrowed, which was accompanied by individual sialectasis (3 patients) (fig. 2).

The level of anxiety tended to decrease.

Out of 21 patients with severe NSA, recovery was noted in 13 (61.91%), improvement in 6 (28.57%), and unchanged condition in 2 (9.52%), which is also confirmed by the clinical signs, significant improvement in hygienic condition of the oral cavity, the increase in the secretory activity of the affected parotid glands, and normalization of the physicochemical properties of oral fluid and parotid secretions.

Cell composition was not numerous according to cytological examination of the parotid gland secretion in 8 people with severe NSA in the long term, occasional cells of squamous epithelium have been registered in the samples, as well as sporadic cylindrical epithelium cells with altered structure. A small amount of mucus, reticuloendothelial cells, single macrophages, groups of lymphocytes were noted in 4 patients.

Sialography performed on 5 patients revealed unchanged duct system in 3 patients and the presence of

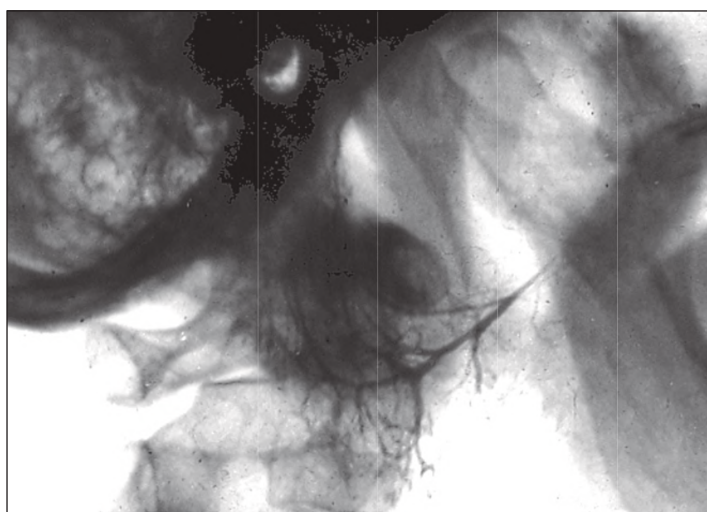


Figure 2 – Sialogram of the right parotid gland of a 49-year-old patient Yu., (case history № 3279). Diagnosis: severe NSA. Narrowing of the main duct near the opening, widening of II-III order ducts.



II-V order duct narrowing in 2 subjects, as well as some sialectases.

Determination of the level of anxiety revealed that 9 people had low values of  $2.18 \pm 0.05$  points and 3 patients had medium values ( $8.67 \pm 0.05$  points), which reflects a decrease in anxiety rates in most patients.

The long-term results (up to 2 years) of applying treatment and prevention program in patients with NSA are shown in **table 2**.

**Conclusions.** Thus, the treatment and prevention programs that were prescribed to NSA patients caused the anatomical and functional changes of the parotid glands (increase in the general parotid secretion, reduction of saliva's viscosity and transparency, normalization in pH of oral fluid and parotid secretions, improvements in the oral hygiene) and contributed to the elimination of the pathological process in the

**Table 2 – Long-term results of the application of treatment and prevention program in patients with NSA**

| Disease severity, number of subjects | Recovery |            | Improvement |            | No changes |            |
|--------------------------------------|----------|------------|-------------|------------|------------|------------|
|                                      | number   | percentage | number      | percentage | number     | percentage |
| Light<br>n=22                        | 19       | 86,36%     | 3           | 13,64%     | -          | -          |
| Medium<br>n=34                       | 22       | 64,71%     | 9           | 26,47%     | 3          | 8,82%      |
| Severe<br>n=12                       | 7        | 58,34%     | 3           | 25,00%     | 2          | 16,66%     |

affected salivary glands in most patients (according to cytological secretion examination), improving their morphofunctional state, as well as improving the general somatic condition of patients (by reducing the level of anxiety).

**Prospects for further research.** To investigate anatomical and functional changes of parotid glands in patients with sialadenitis depending on sex, age and duration of the disease.

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### КОРЕКЦІЯ РОЗЛАДІВ СЕКРЕЦІЇ ПРИВУШНИХ ЗАЛОЗ У ПАЦІЄНТІВ З СІАЛОАДЕНІТОМ НЕВРОГЕННОГО ПОХОДЖЕННЯ

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**Резюме.** На сьогоднішній день кількість пацієнтів з невротатіями в зв'язку з активним розвитком техносфери неухильно зростає [2,6,8]. Фактично позаосередкові невротатії – це своєрідне відображення реакцій у відповідь на стресові ситуації і, як наслідок цього впливу, розвиток функціональних порушень у всіх паренхіматозних органах, в тому числі і у великих слинних залозах з наступним виникненням в них явищ хронічного запалення.

**Метою нашої роботи** стала розробка диференційованого підходу до корекції функціональних порушень з боку привушних залоз у пацієнтів з підвищеними психологічними реакціями.

**Об'єкти та методи дослідження.** Всі пацієнти були розподілені на 3 групи: I група – пацієнти з легким ступенем важкості (44 чоловіки); II група – пацієнти з середнім ступенем (48 чоловік); III група – пацієнти з важким перебігом СНП (21 чоловік).

Всім пацієнтам була проведена професійна гігієна та санація порожнини рота. Пацієнти з легким ступенем СНП отримували наступний комплекс лікування: бужування проток зацікавлених залоз щодня протягом 5 днів, їх масаж по 5 хв. перед та після їжі 5-7 днів. Додатково до зазначених заходів призначався «Персен-форте» по 1 капсулі 3 рази на добу протягом 2 тижнів та «Дротаверин» для зняття явищ дохоспазму протоко-

вого апарату привушних залоз по 1 табл. 3 рази на добу за 20 хв. до їжі протягом 5 днів. Хворим з середнім ступенем СНП проводилося бужування проток щодня протягом 5-7 днів та масаж зацікавлених залоз по 5 хв. перед та після їжі 5-7 днів. 39 особам додатково до перерахованих заходів проводилася інстиляція в протоки зацікавлених залоз ектерициду щодня протягом 5-7 днів, гальванізація ділянок уражених залоз № 5, «Персен-форте» по 1 капсулі 3 рази на добу протягом 3 тижнів та «Дротаверин» по 1 табл. 3 рази на добу за 20 хв. до їжі протягом 7 днів, ретинолу ацетат по 5000 МО 1 раз на добу протягом 14 днів.

Всім хворим з тяжким ступенем СНП було призначено повний комплекс лікувально-профілактичних заходів: бужування проток щодня протягом 5-7 днів, масаж уражених залоз по 5 хв. перед та після їжі 7-10 днів, інстиляція ектерициду та протеолітичних ферментів (трипсин) в протоки зацікавлених залоз через день по 5 процедур, електрофорез на ділянки залоз 5% розчину аскорбінової кислоти № 5, «Персен-форте» по 1 капсулі 3 рази на добу протягом 4 тижнів та «Дротаверин» по 1 табл. 3 рази на добу за 20 хв. до їжі протягом 10 днів. Для підвищення гомеостазу ротової порожнини призначався «Квадевіт Актив» по 1 таблетка на добу протягом 1 місяця. *Результати дослідження.* Аналіз результатів лікування пацієнтів, показав, що у 44 хворих з легким ступенем перебігу СНП у 40 (90,91%) осіб констатовано одужання, у 4 (9,09%) – покращення. Підтвердження чого стали результати власних і спеціальних досліджень. Наблизилися до норми показники фізико-хімічних властивостей ротової рідини та паротидного секрету (прозорість, в'язкість, рН). При цитологічному дослідженні секрету уражених ПВЗ в мазках визначали малочисельні клітини плоского епітелію та поодинокі нейтрофільні лейкоцити, що наближалося до норми. Визначення рівню тривожності за шкалою Дж. Тейлора виявило, що у 19 осіб він був низьким і склав  $1,53 \pm 0,05$  бали, у 3 – середній ( $9,27 \pm 0,05$  бали), що відображує зниження рівню тривоги у більшості хворих. Із 48 пацієнтів з середнім ступенем важкості одужання відмічено у 35 (72,91%), покращення – у 11 (22,92%), без змін – у 2 осіб (4,17%), що підтверджено нормалізацією клінічної картини. Відмічалася нормалізація показників гігієнічного стану ротової порожнини, секреторної діяльності слинних залоз в цілому та привушних зокрема. Нормалізувалися фізико-хімічні показники ротової рідини та секрету привушних залоз. Цитологічне дослідження секрету зацікавлених ПВЗ виявило підвищену кількість нейтрофільних лейкоцитів, одиничні лімфоїдні клітини, макрофаги, клітини циліндричного епітелію. У частини хворих клітинний склад був представлений малочисельними клітинами плоского епітелію і одиничними нейтрофільними лейкоцитами. Рівень тривожності мав тенденцію до зниження. Із 21 пацієнта з тяжким ступенем СНП одужання відмічено у 13 (61,91%), покращення – у 6 (28,57%), без змін у 2 (9,52%), що також підтверджено клінічною картиною, значним покращенням гігієнічного стану порожнини рота, підвищенням секреторної активності уражених ПВЗ, нормалізацією фізико-хімічних властивостей ротової рідини та паротидного секрету. При цитологічному дослідженні секрету ПВЗ у 8 чоловік клітинний склад був малочисельний, в препаратах визначалися поодинокі клітини плоского епітелію, одиничні клітини циліндричного епітелію зі зміненою структурою. У 4 пацієнтів було відмічено незначну кількість слизу, ретикуло-ендотеліальні клітини, одиничні макрофаги, групи лімфоцитів. Сіалографія, проведена 5 пацієнтам, виявила у 3 незмінену протокову систему, у 2 – наявність звуження проток II-V порядків, окремі сіалектази. Визначення рівню тривожності виявило, що у 9 осіб він був низьким і склав  $2,18 \pm 0,05$  бали, у 3 – середній ( $8,67 \pm 0,05$  бали), що відображує зниження рівню тривоги у більшості хворих.

Таким чином, лікувально-профілактичний алгоритм, який був застосований у пацієнтів СНП, сприяв ліквідації патологічного процесу в уражених слинних залозах, покращенню їх морфофункціонального стану, а також призводив до позитивних змін загально-соматичного стану пацієнтів.

**Ключові слова:** сіалоаденіт неврогенного походження, лікувальний алгоритм.

#### **CORRECTING DISORDERS OF PAROTID GLAND SECRETION IN PATIENTS WITH NEUROGENIC SALIVARY ADENITIS** Havryliiev V. M., Ivanytska O. S., Boiko I. V., Bukhanchenko O. P., Khattu V. V.

**Abstract.** Today, the number of neuropathy patients is growing steadily due to the active development of the technosphere. In fact, extrafocal neuropathy reflects reactions in response to stressful situations and the development of functional disorders in all parenchymal organs as a result of these factors.

**The research aims** to develop a differentiated approach to correcting functional disorders of the parotid glands in patients with elevated psychological responses.

**Objects and methods of the research.** Depending on the intensity of neurogenic salivary adenitis (NSA) clinical signs, the studied patients were divided into 3 groups: group I – patients with mild NSA (44 persons); group II – patients with moderate degree (48 people); group III – patients with severe NSA (21 people). All patients observed hygiene and performed oral cavity sanitation at the dentist's office. Patients with mild NSA received the following set of treatments: daily bougieurage of ducts of the studied glands for 5 days, massaging them for 5 minutes before and after meals over the course of 5-7 days. Due to increased anxiety patients were additionally prescribed a two-week course of *Persen-forte*. They were also prescribed a 5-day course of *Drotaverine* to relieve the spasm of duct apparatus of the parotid glands in the dosage of 1 pill 3 times a day to be taken 20 minutes before meals.

Patients with moderate NSA underwent a 5-7 day course of daily duct bougieurage and 5-minute massage of the studied glands before and after meals. Additionally, ectericide was daily instilled into the ducts of the affected glands over the course of 5-7 days and galvanization of the affected gland areas №5. There were prescribed a 3-week course of *Persen-forte*, a 7-day course of *Drotaverine*, and a 14-day course of retinol acetate in the dosage of 5000 IU 1 time per day.

All patients with severe NSA were prescribed: daily bougieurage of ducts for 5 days, massaging them for 5 minutes before and after meals over the course of 7-10 days, 5 procedures of ectericide and trypsin instillation into the ducts of the studied glands every other day, gland electrophoresis with 5% ascorbic acid solution № 5. There were

prescribed a 4-week course of *Persen-forte* and a 10-day course of *Drotaverine*. A complex multivitamin drug *Quadevit Active* was prescribed in the dosage of 1 pill per day for 1 month.

**Results of the research.** The analysis of treatment outcomes of NSA patients who applied a set of treatment and prevention measures aimed at improving the functional state of the salivary glands and stabilizing oral homeostasis, showed that among 44 patients with mild NSA, 40 patients (90, 91%) have recovered and 4 subjects (9.09%) have improved their condition. This was confirmed by the results of research-specific and specialized studies. Cytological examination of the smears of the affected parotid glands' secretion revealed a small number of squamous epithelial cells and single neutrophilic leukocytes, which was close to normal. Determining the level of anxiety according to the Taylor Manifest Anxiety Scale (TMAS) in patients with mild NSA found low values of  $1.53 \pm 0.05$  points in 19 people and medium values of  $9.27 \pm 0.05$  points in 3 patients, which signifies decreased anxiety rates in most patients.

Of the 48 patients with a moderate severity of the disease, 35 patients (72.91%) have recovered, 11 subjects (22.92%) have improved and 2 people (4.17%) have not changed their condition. Physicochemical parameters of oral fluid and parotid gland secretion were normalized. Cytological examination of the studied parotid gland secretion revealed an increased number of neutrophilic leukocytes, individual lymphoid cells, macrophages, cylindrical epithelial cells. The sialographic picture of parotid glands revealed no abnormalities in only 3 people. In 6 patients, there were various narrowings of the main duct, I-II-III order ducts, bulbous and spherical ectasias of II-V order ducts, impaired filling of II-V order ducts due to almost the entire gland volume being narrowed, which was accompanied by individual sialectasis (3 patients). The level of anxiety tended to decrease.

Out of 21 patients with severe NSA, recovery was noted in 13 (61.91%), improvement in 6 (28.57%), and unchanged condition in 2 (9.52%). Cell composition was not numerous according to cytological examination of the parotid gland secretion in 8 people with severe NSA, occasional cells of squamous epithelium have been registered in the samples, as well as sporadic cylindrical epithelium cells with altered structure. A small amount of mucus, reticuloendothelial cells, single macrophages, groups of lymphocytes were noted in 4 patients. Sialography performed on 5 patients revealed unchanged duct system in 3 patients and the presence of II-V order duct narrowing in 2 subjects, as well as some sialectases. Determination of the level of anxiety revealed that 9 people had low values of  $2.18 \pm 0.05$  points and 3 patients had medium values ( $8.67 \pm 0.05$  points), which reflects a decrease in anxiety rates in most patients.

Thus, the treatment and prevention programs that were prescribed to NSA patients caused the anatomical and functional changes of the parotid glands in the affected salivary glands in most patients, as well as improving the general somatic condition of patients.

**Key words:** neurogenic salivary adenitis, treatment algorithm.

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#### Conflict of interest:

The Authors declare no conflict of interest.

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Рецензент – проф. Аветіков Д. С.  
Стаття надійшла 23.08.2021 року  
Стаття прийнята до друку 15.02.2022 року