DOI 10.26724/2079-8334-2023-4-86-40-44
UDC 616.33-002+616.342-002]-007.251-053.9:616.8-009.17]-089.168

M.B. Danyliuk, S.M. Zavhorodniy, M.A. Kubrak, O.V. Kapshytar, L.M. Bambyzov, N.O. Yareshko, A.V. Bachurin
Zaporizhzhia State Medical and Pharmaceutical University, Zaporizhzhia

EFFECT OF SENILE ASTHENIA ON THE SEVERITY OF THE POSTOPERATIVE PERIOD IN ELDERLY AND SENILE PATIENTS WITH GASTRIC AND DUODENAL ULCER PERFORATION

e-mail: em_de@ukr.net

The study evaluates the effect of senile asthenia on the severity of the postoperative period in elderly and senile patients with perforation of gastric and duodenal ulcers. The total number of patients was 80 (100.0 %) aged 60 to 89 years. The condition was assessed using the P-POSSUM scale, and senile asthenia syndrome was assessed using the Edmonton Frail scale. Based on the diagnosis of asthenia, the distribution was made: group A – 30 (37.5 %) patients without asthenia and group B – 50 (62.5 %) patients with asthenia. The groups were comparable in terms of diagnosis and performed surgery. When comparing, it was determined that senile asthenia significantly affects the severity of the condition according to P-POSSUM in the group without asthenia (group A) – 32±6.8, in the group with asthenia (group B) – 49±6.7, $p<0.0001$, $U=84.5$. Senile asthenia syndrome increases the frequency of postoperative complications: in group A – 5 (16.7 %) patients, while in group B – 24 (48.0 %), $p=0.0198$, $U=515.0$ and mortality: in group A accounted for 3 (10.0 %) cases, while in group B – 18 (36.0 %), $p=0.0112$, $U=555.0$.

Key words: senile asthenia, ulcer, peritonitis, old age

М.Б. Данилюк, С.М. Завгородній, М.А. Кубрак, О.В. Капшитар, Л.М. Бамбизов, Н.О. Ярешко, А.В. Бачурін

ВПЛИВ СТАРЕЧОЇ АСТЕНІЇ НА ВАЖКІСТЬ ПРОТІКАННЯ ПІСЛЯОПЕРАЦІЙНОГО ПЕРІОДУ У ПАЦІЄНТІВ ПОХИЛОГО ТА СТАРЕЧОГО ВІКУ З ПЕРФОРАЦІЄЮ ВИРАЗКИ ШЛУНКА ТА ДВАНАДЦЯТИПАЛОЇ КИШКИ

У роботі оцінено впливу старечої астенії на важкість післяопераційного періоду у пацієнтів похилого та старечого віку з перфорацією виразки шлунку та дванадцятипалої кишки. Загальна кількість пацієнтів 80 (100,0 %) віком від 60 до 89 років. Оцінка стану проведена за шкалою P-POSSUM, синдром старечої астенії за допомогою шкали “Edmonton Frail”. На основі діагностики астенії проведено розподіл: група А – 30 (37,5 %) пацієнти без астенії та група В – 50 (62,5 %) пацієнтів з астенією. Групи були співставні за діагнозом та виконаною операцією. При порівнянні визначено, що стареча астенія значно впливає на важкість стану за P-POSSUM у групі без астенії (група А) – 32±6,8, в групі з астенією (група В) – 49±6,7, $p<0,0001$, $U=84,5$.Синдром старечої астенії збільшує частоту післяопераційних ускладнень: в групі А 5 (16,7 %) хворих, тоді як у групі В – 24 (48,0 %), $p=0,0198$, $U=515,0$ та смертності: у групі А становила 3 (10,0 %) випадки, тоді як у групі В – 18 (36,0 %), $p=0,0112$, $U=555,0$.

Ключові слова: стареча астенія, виразка, перитоніт, похилий вік

The study is a fragment of the research project “Perioperative treatment of elderly and senile patients”, state registration No. 0117U006955.

Surgical treatment of gastric and duodenal ulcer perforation is one of the urgent problems of surgical gastroenterology. Despite the significant achievements of modern pharmacotherapy in treating peptic ulcer disease, the proportion of complications reaches 8.0–15.0 % [4, 6]. Perforation can be considered the most severe complication of peptic ulcer disease, with a postoperative mortality rate of about 10.0 % [4, 6, 8].

Perforation of a gastric and duodenal ulcer occurs more often at the age of 20–40 years, but the percentage of fatal cases in people over 75 years old reaches 20.0–46.0 % [6, 12]. At the same time, the percentage of early and separate postoperative complications reaches 36.0–50.0 %. A significant increase in mortality with this pathology in the elderly and senile indicates a significant impact not only on the primary disease but also on concomitant pathology and senile asthenia. This syndrome is actively discussed in the world literature, but today, its influence on the effectiveness of treatment, frequency of complications and mortality of patients is not sufficiently studied [7, 8].

Studying the syndrome of senile asthenia and developing methods of timely diagnosis and modification of treatment protocols in elderly and senile patients will ensure a decrease in the frequency of postoperative complications and mortality. It will lead to an improvement in the effectiveness of treatment for this age category of patients.

The purpose of the study was to determine the influence of senile asthenia on the severity of the postoperative course in elderly and senile patients with perforation of gastric and duodenal ulcers.

Materials and methods. To determine the influence of senile asthenia on the course of the postoperative period, we included 80 (100.0 %) patients with perforation of a gastric and duodenal ulcer

aged 60 to 89 years. This group is part of the main group of patients for writing a dissertation on the "topic:" Surgical aspects of treatment of elderly and senile patients in emergency abdominal surgery.

All patients were treated based on the emergency hospital: Municipal non-profit enterprise "City Hospital of Emergency and Rapid Medical Care" of the Zaporizhzhia city council from 2020 to 2023. Exclusion criteria were: age under 60 or over 90, refusal of surgical intervention, perforation of the stomach and duodenum against the background of a malignant tumor process, and patients with end-stage peritonitis.

At the stage of hospitalization, all patients underwent tests: general blood analysis with a hematological analyzer Mythic 18, "Orphee S.A." (Switzerland), oesophagogastroduodenoscopy with the Olympus GIF – H170 device (Japan) and X-ray examination of the abdominal cavity with the REX-650RF X-ray diagnostic system (Korea). After confirming the diagnosis, all patients were operated on urgently. The total duration of preoperative preparation was 1.8±0.4 hours, corresponding to this clinic's standards and clinical protocols. The mean age of the patients was 71.4±8.1 years. According to the gender structure, the number of patients was almost equal: 41 (51.3 %) women and 39 (48.7 %) men. In the preoperative period, the severity of the patient's condition was assessed using the P-POSSUM score, which helped assess the risk of complications and mortality [3, 9].

To determine the presence of senile asthenia syndrome, all patients were diagnosed using the Edmonton Frail scale before surgery. The choice of this scale for emergency abdominal surgery lies in its wide-scale assessment of asthenia factors and speed in determination, which is very important in acute peritonitis [5, 10].

The statistical evaluation of the obtained study results was carried out using the STATISTICA 13.0 software, TIBCO Softwareinc. (License JPZ804I382130ARCN10-J) and MICROSOFT EXEL 2013 (License 00331-10000-00001-AA404) using parametric and non-parametric criteria. The reliability of the difference in indices in groups was assessed by non-parametric statistical analysis methods: the Mann-Whitney (U) test for unrelated groups. Data in the text and tables are presented in the form of M±SD (arithmetic mean ± standard deviation) in the case of a normal distribution of the investigated characteristic and Me (Q1; Q3) (the median of the sample with the index of the upper (75 %) and lower (25 %) quartiles) – with a distribution that differs from the mean. Statistically significant results were considered if $p<0.05$.

Results of the study and their discussion. To assess the impact of senile asthenia on the severity of the postoperative period, all patients were divided into two groups: group A, patients without asthenia – 30 (37.5 %) and group B – 50 (62.5 %) patients with asthenia syndrome, according to by age group, the groups were statistically equivalent, $p=0.1129$, $U=590.0$.

At the preoperative stage, we assessed the severity of the condition using the P-POSSUM score and obtained the following results (Fig. 1).

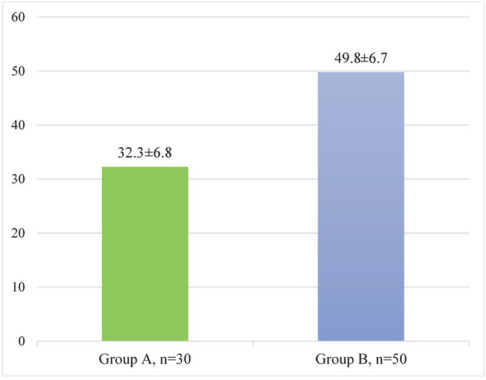

Fig. 1. Evaluation of the average value of the sum of points on the P-POSSUM score.

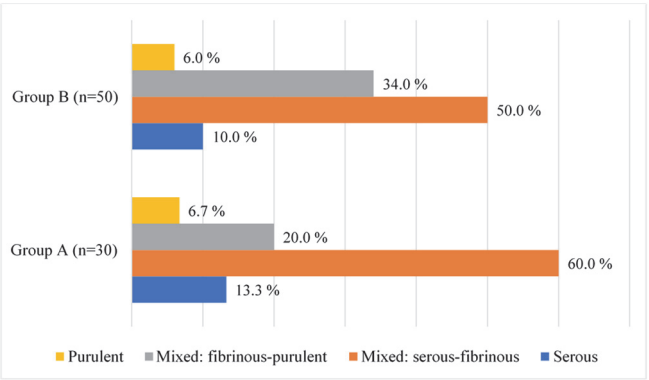

Fig. 2. Character of the exudate in subgroups.

According to the mean value results by groups, a significant increase in the sum of points was determined in the group of patients with senile asthenia syndrome, $p<0.0001$, $U=84.5$.

During surgery, patients in both groups had only chronic ulcers. Gastric ulcer in group A was diagnosed in 7 (23.3 %), and in the remaining 23 (76.7 %) patients, duodenal bulb ulcer perforation. According to the location of the ulcer in group B: stomach in 16 (32.0 %) patients and duodenal ulcer in 34 (68.0 %) patients, $p=0.5215$, $U=685.0$.

Considering the duration of the disease and the terms of preoperative preparation, most patients were in the reactive stage of peritonitis – 92.0 %. Therefore, we did not differentiate by stages, and the prevalence of the latter is presented in Fig. 2.

Analyzing Fig. 2, it can be seen that in the vast majority of patients with peritonitis, the exudate was serous and fibrinous: in group A –60.0 % and in group B – 50.0 %, $p=0.4591$, $U=675.0$, its prevalence is indicated in Fig. 3.

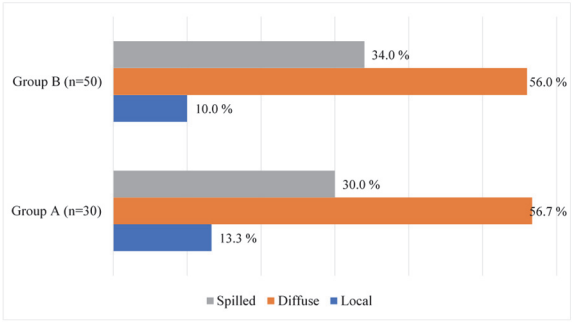

Fig. 3. Prevalence of peritonitis by groups.

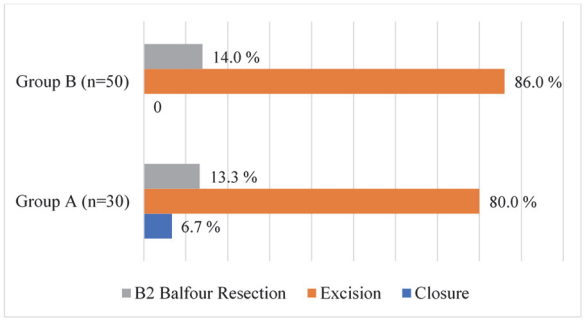

Fig. 4. Structure of surgical interventions.

According to Fig. 3, the prevalence of peritonitis was comparable, and diffuse peritonitis prevailed in the structure: in group A – 56.7 % and in group B – 56.0 %, p=0.6983. There were no differences in the prevalence of peritonitis in both groups.

In the structure of surgical intervention, ulcer excision with pyloroduodenoplasty prevailed (Fig. 4).

Surgical intervention in all patients was performed under total intravenous anesthesia with artificial ventilation (AV). In group A, 6 (20.0 %) patients required a stay in the intensive care unit and prolonged mechanical ventilation in the early postoperative period, while in group B, there were 32 (64.0 %) such patients, p=0.011, U=420.0.

In the postoperative period, treatment of all patients was continued according to our clinic's standard clinical protocols. The following postoperative complications are also found in Table 1.

Table 1

Structure of postoperative complications in the studied groups

Complications	Group A n=30 (37.5 %)		Group B n=50 (62.5 %)	
	number	%	number	%
surgical				
Postoperative wound suppuration	0	-	2	4.0
Failure of plastic or anastomosis sutures	2	6.7	2	4.0
Anastomosis	0	-	1	2.0
Incisional hernia	2	6.7	0	-
non-surgical				
Pneumonia	1	3.3	3	6.0
Pulmonary edema	0	-	2	4.0
Hydrothorax	0	-	9	18.0
Pleuritis	0	-	1	2.0
Pulmonary embolism	0	-	3	6.0
Post-operative delirium	0	-	1	2.0
Total	5	16.7	24	48.0

According to the results, we determined that in the group of patients with asthenia, the total number of postoperative complications increased significantly – 24 (48.0 %) patients, while in group A, only 5 (16.7 %), p=0.0198, U= 515.0. It was determined that the number of surgical complications was equal: in group A – 4 (13.3 %), in group B – 5 (10.0 %) patients, p=0.8076, U=725.0, while the number of surgical complications is significantly different: in group A – 1 (3.3 %), in group B – 19 (38.0 %), p=0.0099, U=490.0.

The mean duration of treatment of patients in the group without asthenia (group A) was 10.6 (7.00; 25.00) and in the group with asthenia (group B) – 13.2 (7.00; 35.00) days, p= 0.0456, U=632.0.

Mortality in group A was 3 (10.0 %) patients, while in group B it was 18 (36.0 %), p=0.0112, U=555.0. The cause of mortality in group A in two (6.7 %) patients was the failure of the anastomotic sutures, which led to repeated surgical interventions and, as a result, the development of acute cardiopulmonary failure in the early postoperative period. In one fatal case (3.3 %), the cause of death was endotoxic shock on the background of diffuse purulent peritonitis. The structure of mortality in group B is described in Table 2.

According to the results, it was determined that in 11 (22.0 %) patients, the cause of mortality was non-surgical complications, and only in 2 (4.0 %) – surgical complications, namely the failure of anastomosis, which led to repeated surgical interventions and acute cardiopulmonary failure in the early postoperative period. In 5 (10.0 %) patients, mortality occurred as a result of endotoxic shock caused by diffuse purulent peritonitis.

Table 2

Structure of mortality in group B

Group B, patients with asthenia; n = 50		
Cause of fatal accident	Number of patients	%
Pulmonary embolism	3	6.0
Bilateral focal draining bronchopneumonia	6	12.0
Endotoxic shock on the background of purulent peritonitis	5	10.0
Failure of anastomosis sutures	2	4.0
Pulmonary edema	2	4.0
Total	18	36.0

Analyzing the obtained results of the assessment of the general condition of patients during hospitalization, we determined that the general condition according to the P-POSSUM scale in patients with asthenia (group B) is significantly worse than in patients without asthenia, p<0.0001, U=84.5, which is also evidenced by literature data [2, 11].

Despite the comparability of the groups in terms of the main diagnosis and volume of surgical intervention, we determined that patients in group B, to a greater extent, required prolonged mechanical ventilation and a stay in the intensive care unit. In group A, there were 5 such patients (16.7 %), then as in group B – 32 (64.0 %) patients, p=0.0004, U=395.0. This confirms the need for patients with senile asthenia to stay in the intensive care unit in the early postoperative period for intensive observation, treatment and prevention of complications [1].

Based on the assessment of the frequency of postoperative complications, we determined a significant increase in the frequency of postoperative complications in patients with senile asthenia – 24 (48.0 %) patients, while in group A, there were only 5 (16.7 %) such patients, p=0.0198, U=515.0. Also, an important fact is that non-surgical complications, which are not related to surgery, were found in group A in 1 (3.3 %) patient, and in group B there were 19 (38.0 %) such patients, p= 0.0099, U=490.0. Such results not only prove the influence of asthenia on the increase in the frequency of postoperative complications but also allow us to conclude that early diagnosis of asthenia in a patient in a hospital can allow the doctor to take additional measures to prevent non-surgical complications.

The severity of the general condition and the increase in the frequency of postoperative complications in patients with senile asthenia affected the length of stay in the hospital: group A –10.6 (7.00; 25.00), group B –13.2 (7.00; 23, 00) days, p=0.0456, U=632.0 and an increase in postoperative mortality, which in group A was 3 (10.0 %) cases, while in group B – 18 (36.0 %), p=0.0112, U=555.0. Analyzing the structure of mortality in group A, the main causes were surgical complications in 2 (6.7 %) patients and in 1 (3.3 %) endotoxic shock on the background of diffused purulent peritonitis. In group B, the central part of deaths – 11 (22.0 %) were caused by non-surgical complications, and only 2 (4.0 %) – surgical complications, namely the failure of the anastomosis, which led to repeated surgical interventions and acute cardiac pulmonary insufficiency in the early postoperative period.

Conclusions

1. Senile asthenia significantly affects the severity of the condition of patients with gastric and duodenal ulcer perforation, the mean value of the sum of points on the P-POSSUM scale in the group without asthenia (group A) is 32±6.8, in the group with asthenia (group B) – 49±6.7, p<0.0001, U=84.5.

2. Senile asthenia syndrome increases the frequency of postoperative complications in group A – 5 (16.7 %) patients and group B – 24 (48.0 %), p=0.0198, U=515.0.

3. It was determined that the increase in the frequency of complications is not related to surgical intervention: the share of surgical in group A was 13.3 %, in group B –10.0 % of patients, p=0.8076, U=725.0, then as the number of non-surgical complications differs significantly: in group A – 3.3 %, in group B – 38.0 %, p=0.0099, U=490.0.

4. Early diagnosis of asthenia in a patient in a hospital can allow the doctor to take additional measures to prevent the occurrence of these complications and reduce the frequency of deaths.

References

1. Biblioteka “Zdorovya Ukrayiny”. Standarty ta klinichni protocoly nadannya medychnoyi dopomogy zi soecialnosti “Khirurgia”. Nakaz No. 297 vid 2010 Kvit 02. Dostupno: https://www.dovidnyk.org/dir/24/130/. [in Ukrainian]

2. Danyliuk MB, Zavgorodniy SM, Rylov AI. Kubrak MA, Pertsov IV. Starecha asteniya yak predyktor yakosti perebigu peredoperatsiynoho periodu v patsiyentiv pokhyloho ta starechoho viku. Patholohiya. 2022;3(56):189–94. doi: https://doi.org/10.14739/2310-1237.2022.3.260273. [in Ukrainian]

3. Danilyuk MB, Zavgorodniy SM, Rylov AI, Kubrak MA, Tielushko YaV, Shchurov MF. Mozhlyvosti vykorystannya shkaly P-POSSUM u patsiyentiv pokhyloho ta starechoho viku z hostrym kholetsystytom Bulletin of Problems of Biology and Medicine. 2022;1(163):127–131. doi: 10.29254/2077-4214-2022-1-163-127-131 [in Ukrainian]

4. Maksymchuk DV, Mamchyn VI, Maksymchuk VD. Vybir sposobu hirurgichnoho likuvannia perforatyvnoyi piloroduodenalnoyi vyrazky. Kharkiv surgical school. 2021;88(1-2):8–13. doi: 10.26779/2522-1396.2021.1-2.08. [in Ukrainian]

5. Skibchik VA, Bablyak SD. Syndrom ctarechoi astenii (frailty) – suchasna problema herontolohichnoyi medytsyny. 2018;4(60):12–17. doi: 10.22141/2224-1485.4.60.2018.141770 [in Ukrainian]
6. Smetcko DO, Goncharova NM, Teslenko SM, Svirepo PV, Sivozhelizov AV, Sikal MO, et al. Suchasni pohliady shcho do likuvannia perforatyvnykh piloroduodenalnykh vyrazok. Kharkiv surgical school. 2012;2(107):33–6. doi: https://doi.org/10.37699/2308-7005.2.2021.06. [in Ukrainian]
7. Kasian VV, Cherkun OYu, Tkachenko OA, Sheiko VD. Efficiency of drainage of ascit-peritonitis in different difficulty of acute pancreatitis. World of medicine and biology. 2020;1(71):69–72. doi: 10.26724/2079-8334-2020-1-71-69-72.
8. Kharchenko AV, Yelinska AM, Shepitko VI, Stetsuk EV. Chronic periodontitis in patients with chronic duodenal ulcer. World of medicine and biology. 2022;1(79):232–236. doi:10.26724/2079-8334-2022-1-79-232-236.
9. Ngulube A, Godfrey I, Muguti, Edwin GM. Validation of POSSUM, P-POSSUM and the surgical risk scale in major general surgical operations in Harare: a prospective observational study. Annals of Medicine and Surgery. 2019; 41:33–39. https:// doi.org/10.1016/j.amsu.2019.03.007.
10. Sunyoung K, Miji K, Hee-Won J, Chang WW. Development of a frailty phenotype questionnaire for use in screening community-dwelling older adults. Journal of the American Medical Directors Association. 2020;21(5):660–664. https://doi.org/10.1016/j.jamda.2019.08.028.
11. Faller JW, Pereira DN, Souza S, Nampo FK, Orlandi FdS, Matumoto S. Instruments for the detection of frailty syndrome in older adults: A systematic review. PLOS One. 2019;14(4):55–64. doi: 10.1371/journal.pone.0216166.
12. Weledij EP. An Overview of Gastroduodenal Perforation. Front Surg. 2020;9(7):5. doi: https://doi.org/10.3389/fsurg.2020.573901.

Стаття надійшла 14.12.2022 р.

DOI 10 26724/2079-8334-2023-4-86-44-48
UDC [616-053.5+616.211]:616.314-089.23

I.V. Diedykova, S.A. Shnaider[1], O.V. Andrieiev, D.O. Kibalchich[1]
Odesa National Medical University, Odesa, [1]State Establishment "The Institute of stomatology and maxilla-facial surgery National academy of medical sciences of Ukraine", Odesa

OPTIMIZATION OF TREATMENT OF PATIENTS WITH DENTOALVEOLAR ANOMALIES DEPENDING ON THE CLINICAL AND FUNCTIONAL CHARACTERISTICS OF THE NASOPHARYNGEAL ZONE

e-mail: irshka@ukr.net

The purpose of the study was to improve the results and reduce the treatment time for children with dentoalveolar anomalies with a constantly open mouth. The study involved 69 boys and 51 girls aged 5 to 14 years, divided into two groups (84 patients – main group; 36 patients – comparison group). Adenotomy, in all cases, preceded orthodontic treatment. 82.14 % of patients in the main group showed positive results in the form of a correct bite one year after the end of orthodontic treatment. At the same time, only 36.11 % of patients in the comparison group showed the same treatment results. It also turned out that the factor of deterioration of treatment results is a combination of several reasons on the part of the nasopharyngeal zone in a particular patient (allergic rhinitis, displacement of the nasal membrane), which complicates the course of the disease with less guaranteed correction of bite pathology (42.11 %).

Key words: dentoalveolar abnormalities, mouth breathing, impaired nasal respiratory function, chronic nasopharyngitis, pharyngeal tonsil hypertrophy, displacement of the nasal septum, allergic rhinitis.

І.В. Дєдикова, С.А. Шнайдер, О.В. Андрєєв, Д.О. Кібальчіч

ОПТИМІЗАЦІЯ ЛІКУВАННЯ ПАЦІЄНТІВ ІЗ ЗУБОЩЕЛЕПНИМИ АНОМАЛІЯМИ В ЗАЛЕЖНОСТІ ВІД КЛІНІКО-ФУНКЦІОНАЛЬНИХ ОСОБЛИВОСТЕЙ НАЗОФАРИНГЕАЛЬНОЇ ЗОНИ

Метою цієї роботи було покращення результатів та скорочення термінів лікування дітей з зубощелепними аномаліями з постійно відкритим ротом. У дослідженні взяли участь 69 хлопчиків та 51 дівчинка віком від 5 до 14 років, яких було поділено на дві групи (84 пацієнта – основна група; 36 пацієнтів – група порівняння). Аденотомія у всіх випадках передувала ортодонтичному лікуванню. 82,14 % пацієнтів основної групи через рік після закінчення ортодонтичного лікування фіксувалися позитивні результати у вигляді правильного прикусу. В той же час тільки 36,11 % пацієнтів групи порівняння відмічалися такі ж результати лікування. Також виявилося, що фактором погіршення результатів лікування є поєднання декількох причин з боку назофарингеальної зони у конкретного пацієнта (алергічний риніт, зміщення носової перетинки), що ускладнює перебіг хвороби з менш гарантованим усуненням патології прикусу (42,11 %).

Ключові слова: зубощелепні аномалії, ротове дихання, порушення дихальної функції носа, хронічний назофарингіт, гіпертрофія глоткового мигдалика, зміщення носової перетинки, алергічний риніт.

The work is a fragment of the research project "Development of differential diagnostic criteria and etiopathogenetic methods of treatment of allergic, inflammatory and tumor diseases of the upper respiratory tract and ear", state registration No. 0121U100260.

The prevalence of orthodontic pathologies in Ukraine is quite significant and ranges from 67.8 % to 87.5 % in children and from 64.3 % to 84.3 % in adolescents and adults [3, 4, 8], and among some categories, such as children with hearing loss, it is 100 % [9]. Reduced airway patency contributes to malocclusion and temporomandibular dysfunction [11, 13]. Mouth breathing affects respiratory tract and