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EFFECTIVENESS OF VARIOUS OPTIONS OF AXILLARY MYOPLASTY IN PATIENTS WITH BREAST CANCER

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ЭФФЕКТИВНОСТЬ РАЗЛИЧНЫХ ВАРИАНТОВ МИОПЛАСТИКИ ПОДМЫШЕЧНОЙ ВПАДИНЫ У ПАЦИЕНТОВ С РАКОМ МОЛОЧНОЙ ЖЕЛЕЗЫ

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The randomized prospective study included 48 patients with breast cancer (BC) with metastases to regional lymph nodes. All patients underwent radical mastectomy with axillary lymph node dissection (ALDE). The patients were divided into four groups. Group A (n=11) included patients who underwent covering of the axilla with the pectoralis minor muscle. Group B (n=13) included patients who underwent covering of the axilla with the serratus anterior muscle. Group C (n=10) included patients who underwent covering of the axilla with the latissimus dorsi muscle. Group D (n=14) included patients who did not undergo axillary closure after ALDE (control group). The advantage of surgical intervention in covering the axilla with the serratus anterior muscle after ALDE has been demonstrated compared to other types of myoplasty. Thus, performing myoplasty of the axillary region after ALDE for BC is an effective method in the fight against long-term lymphorrhea.

Keywords: breast cancer, lymph node dissection, lymphorrhea, myoplasty, results

В рандомизированное проспективное исследование вошло 48 больных раком молочной железы (РМЖ), имеющих метастазы в регионарные лимфатические узлы. Всем пациенткам была выполнена радикальная мастэктомия с подмышечной лимфаденэктомией (ПЛДЭ). Пациенты были распределены на 4 группы: группа А (n=11) – пациенты, которым выполнили укрытие подмышечной впадины малой грудной мышцей; группа В (n=13) – пациенты, которым выполнили укрытие подмышечной впадины передней зубчатой мышцей; группа С (n=10) – пациенты, которым выполнили укрытие подмышечной впадины широчайшей мышцей спины; группа D (n=14) – пациенты, которым не выполнялось укрытие подмышечной впадины после ПДЛЭ (группа контроля). Продемонстрировано преимущество оперативного вмешательства в виде укрытия подмышечной впадины передней зубчатой мышцей после ПДЛЭ в сравнении с другими видами миопластики. Таким образом, выполнение миопластики подмышечной области после ПДЛЭ при РМЖ является эффективным методом в борьбе с длительной лимфореей.

Ключевые слова: рак молочной железы, лимфодиссекция, лимфоррея, миопластика, результаты

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ALDE – axillary lymphadenectomy

BC – breast cancer

Despite the introduction of new techniques that make it possible to perform a minimal amount of surgery while maintaining the principles of antineoplastic and ablative, extended lymph node dissection of the axillary region for breast cancer (BC) remains relevant [1]. Particular attention is paid to minimizing postoperative complications, previously considered an inevitable consequence of extensive surgical interventions [2]. Currently, the development of postoperative complications after ALDE for patients with BC who have metastatic lesions of regional lymph

nodes remains an urgent problem. The most significant complication is prolonged lymphorrhea, which occurs in 22–93 % of patients [3]. The result of protracted lymphorrhea is a violation of the trophism of local tissues, secondary infectious and inflammatory complications, the formation of lymphocytes and impaired mobility of the upper limb, leading to disability of the patient. In addition, prolonged lymphorrhea can lead to disruption of the subsequent stages of complex treatment for BC (adjuvant chemotherapy and external beam radiation therapy), which inevitably leads to

a reduction in the relapse-free period [4, 5]. The main reason for the development of prolonged lymphorrhea is the performed lymph node dissection. As the result of which, a space remains, which is filled with serous fluid induced from the crossed lymphatic ducts. As a result, a reservoir with serous fluid is formed, which prevents the adhesion of the musculocutaneous flaps to the anterior and lateral chest walls.

Purpose: to conduct a comparative analysis of various methods of axillary myoplasty in the fight against prolonged lymphorrhea after ADLE for BC.

Material and Methods. A randomized prospective study included 48 patients who underwent radical mastectomy with ALDE for BC with regional metastatic lymph nodes. Patients underwent extended lymph node dissection of three levels after mastectomy. The average age of the patients was 60.5±0.8 years. The study was conducted from 2019 to 2020 based on the Stavropol Regional Clinical Oncology Dispensary.

Inclusion criteria were BC, female gender, informed voluntary consent of the patient, and lack of preoperative treatment.

Non-inclusion criteria were male gender, refusal to participate in the study, BC without the presence of regional metastatic lymph nodes, and BMI > 30. All patients were comparable in terms of comorbidities.

Patients were randomized using a table of random numbers into four groups. Group A (n=11) included patients who underwent covering of the axilla with the pectoralis minor muscle. Group B (n=13) included patients who underwent covering of the axilla with the serratus anterior muscle according to the author's method, for which we received a patent for the invention [6]. Group C (n=10) included patients who underwent covering of the axilla with the latissimus dorsi muscle. Group D (n=14) included patients who did not undergo axillary closure after lymph node dissection (control group). The study results were assessed 7, 14, 21, and 28 days after surgical treatment. The volume of lymphorrhea was measured per day (based on the volume of liquid in the reservoir of the drainage system). After removal of the drainage systems, serous fluid was aspirated by fine-needle puncture under ultrasound guidance. The study also assessed early mobilization of patients, quality of life, and duration of hospitalization.

A comparative analysis of the obtained data was carried out using the statistical package Statistica 10.0 (StatSoft, USA). To describe signs with a normal distribution, data are presented as the arithmetic mean and standard error of the mean (M±m). The significance of differences between the study groups under normal distribution was calculated using the t-test for paired samples. The critical level of significance when testing statistical hypotheses was accepted at p<0.05.

Results and Discussion. On the 7th postoperative day, all three types of myoplasty demonstrated their effectiveness in combating prolonged lymphorrhea. The most pronounced result was noted by patients of group B, in which the daily volume of lymphorrhea was 42.1±1.2 ml. Lymphorrhea was 27.7 % more in patients from group A (52.5±1.6 ml) and 43.5 % more in patients from group C (60.4±0.2 ml) (p<0.05). In patients of group D, the daily volume of lymphorrhea was 143±0.4 ml (p<0.01). On the 14th postoperative day, the ratio of lymphorrhea among patients remained: in patients of group B, it was 22.3±1.1 ml, in group A – 35.6±1.6 ml, in group C – 41.2±0.4 ml and group D – 82±0.2 ml (p<0.05). On the 21st postoperative day, lymphorrhea in patients of group B was significantly (p<0.05) lower (15.3±0.8 ml) than in patients of group A (29.4±0.2 ml), in group C (34.2±0.5 ml) and group D (61±1.2 ml). 4 weeks after surgery, lymphorrhea in-group B was minimal, amounting to 5.1±0.8 ml. While in group A, the daily volume of lymphorrhea was 20.2±0.2 ml, in group C – 24.4±0.6 ml (p<0.05). In patients from group D, the volume of lymphorrhea remained relatively high, amounting to 35.8±1.6 ml (p<0.01).

In patients of group B, the duration of hospitalization was 6.2±1.5 bed-days, which is 5.8±0.4 bed-days less than in patients of group D (p<0.05). In patients of group A, the duration of hospitalization was 9.6±0.5 bed-days, which is 3.4±0.2 bed-days less than in patients of control group D (p<0.05). In patients of group C, the duration of hospitalization was 7.8±0.6 bed-days, which is 4.4±0.4 bed-days less than in patients of group D (p<0.05). Patients of group B also demonstrated earlier activation after surgery, and the quality of life indicators prevailed over the indicators of patients from other study groups.

The issue of repeated surgical interventions after myoplasty in the early postoperative period, associated with the development of complications, was also studied. In one patient from group A and one patient from group C, repeated surgical interventions were performed after surgery due to bleeding after 24 and 72 hours, respectively. In patients of group B, no early complications were observed after myoplasty of the axilla.

Conclusion. Thus, lymphorrhea is an expected complication after ALDE, which significantly worsens the quality of life of patients with BC in the postoperative period. The study demonstrated the effectiveness of myoplasty performed after extended lymph node dissection for BC. Myoplasty of the axilla with the serratus anterior muscle took the leading position in the fight against long-term lymphorrhea, demonstrating a smaller volume of lymphorrhea in all periods of control. In addition, this type of myoplasty demonstrates its safety since no complications develop after it.

Disclosures: The authors declare no conflict of interest.

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DIAGNOSTICS AND ANTIBACTERIAL THERAPY OF STREPTOCOCCUS-ASSOCIATED TONSILLITIS

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ДИАГНОСТИКА И АНТИБАКТЕРИАЛЬНАЯ ТЕРАПИЯ СТРЕПТОКОКК-АССОЦИИРОВАННЫХ ТОНЗИЛЛИТОВ

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The sensitivity of Group A β -hemolytic *Streptococcus pyogenes* (GABHS) to various antibacterial drugs in patients with chronic tonsillitis for 2019–2023 was studied. Six hundred thirty-six medical records of patients with this pathology and a positive microbiological examination of a smear from the pharyngeal mucosa for GABHS, who underwent treatment and assessment in 2019, 2021, and 2023, were analyzed. It was found that the sensitivity of *S. pyogenes* to penicillin antibiotics remains at the level of 100 %. Of the «reserve» antibiotics, doxycycline remains highly sensitive. There is increased resistance to second-line antibacterial drugs used in treating chronic tonsillitis in patients intolerant to penicillin antibiotics, primarily macrolides and fluoroquinolones. Thus, amoxicillin is the starting antibiotic therapy in patients with chronic tonsillitis caused by *S. pyogenes*. For patients with a history of allergies to penicillin antibiotics, to prescribe effective treatment, it is necessary to conduct a microbiological examination of a smear from the pharyngeal mucosa to determine the sensitivity of *S. pyogenes* to «reserve» antibacterial drugs.

Keywords: group A β -hemolytic *Streptococcus* (GABHS), *Streptococcus pyogenes*, antibacterial therapy, antibiotic resistance, chronic tonsillitis

Изучена чувствительность *Streptococcus pyogenes* (БГСА) к различным антибактериальным препаратам у пациентов с хроническим тонзиллитом за период 2019–2023 гг. Были проанализированы 636 медицинских карт пациентов с положительным микробиологическим исследованием мазка со слизистой глотки на БГСА, проходивших лечение и обследование в 2019, 2021 и 2023 гг. Установлено, что чувствительность *S. pyogenes* к антибиотикам пенициллинового ряда сохраняется на уровне 100 %. Из «резервных» антибиотиков высокая чувствительность остается у доксициклина. К антибактериальным препаратам «второй» линии, применяемым при лечении хронического тонзиллита у пациентов с непереносимостью пенициллиновых антибиотиков, в первую очередь к макролидам и фторхинолонам, отмечается повышение резистентности. Таким образом, стартовой антибактериальной терапией у пациентов с хроническим тонзиллитом, вызванным *S. pyogenes*, является амоксициллин. Пациентам, имеющим в анамнезе аллергию на антибиотики пенициллинового ряда, с целью назначения эффективной терапии необходимо проведение микробиологического исследования мазка со слизистой глотки для определения чувствительности *S. pyogenes* к «резервным» антибактериальным препаратам.

Ключевые слова: β -гемолитический стрептококк группы А, *Streptococcus pyogenes*, антибактериальная терапия, антибиотикорезистентность, хронический тонзиллит