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MODERN METHOD OF TREATMENT OF FEMORAL NECK FRACTURES IN INDIVIDUALS ELDERLY AND SENILE AGE

c.m.s., Associate Professor ***Tukhtaev J. T.,***
Master of the 3rd course ***Nematjonov Bakhrom***
Andijan State Medical Institute

The development of medical science and technology dictates the desire for active surgical tactics in the treatment of patients with femoral neck fractures, especially this problem is relevant in patients in the older age group, due to the high frequency of this pathology and many unresolved problems. A large selection of options for osteosynthesis, replacement of a damaged hip joint with an artificial one, allow to provide an adequate quality of life to the victims to one degree or another. The question of the advantages of endoprosthetics in comparison with internal fixation in the treatment of proximal injuries remains unresolved. Traumatic interventions, concomitant blood loss and possible complications reduce the effectiveness of inpatient treatment, which determines the relevance and significance of scientific research in the search for a systematic approach to reducing the risks of surgical treatment of such a complex type of injury. The literature review examines some features in the treatment of elderly and senile patients with fractures of the proximal femur, data on the structure, frequency and risk factors are presented. The issues of modern methods of surgical treatment of this pathology, possible local and general complications at the stages of treatment and rehabilitation are highlighted.

Keywords: fracture, femoral neck, elderly and senile age, osteosynthesis, hip replacement.

СОВРЕМЕННЫЙ МЕТОД ЛЕЧЕНИЯ ПЕРЕЛОМОВ ШЕЙКИ БЕДРЕННОЙ КОСТИ У ЛИЦ ПОЖИЛОГО И СТАРЧЕСКОГО ВОЗРАСТА

к.м.н., доцент Тухтаев Ж. Т.,
Магистр 3-го курса Неъматжонов Бахром
Андижанский Государственный Медицинский Институт

Развитие медицинской науки и технологий диктует стремление к активной хирургической тактике при лечении больных с переломами шейки бедренной кости, в особенности эта проблема актуальна у больных в старшей возрастной группе, в виду высокой частоты указанной патологии и множества нерешенных проблем. Большой выбор вариантов остеосинтеза, замена поврежденного тазобедренного сустава на искусственный позволяют в той или иной степени обеспечить адекватное качество жизни пострадавшим. Вопрос о преимуществах

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эндопротезирования по сравнению с внутренней фиксацией при лечении повреждений проксимального отдела остается нерешенным. Травматичносгь вмешательств, сопутствующая кровопотеря и возможные осложнения снижают эффективность стационарного лечения, что определяет актуальность и значимость научных исследований в поиске системного подхода к снижению рисков оперативного лечения столь сложного вида травм. В обзоре литературы изучены некоторые особенности в лечении больных пожилого и старческого возраста с переломами проксимального отдела бедренной кости, приведены данные о структуре, частоте и факторах риска. Освещены вопросы современных методов хирургического лечения указанной патологии, возможные местные и общие осложнения на этапах лечения и реабилитации.

Ключевые слова: перелом, шейка бедренной кости, пожилой и старческий возраст, остеосинтез, эндопротезирование тазобедренного сустава.

Numerous epidemiological studies carried out in recent years state a significant increase in fractures of the proximal femur in elderly and senile people. The trend of recent decades in demographic terms is an increase in older people in society. Presumably, by 2025, the contingent of this age group will exceed one billion people. The increase in the number of elderly people inevitably leads to a symmetrical increase in the number of characteristic injuries, including fractures of the proximal femur. According to WHO forecasts, the frequency of femoral neck fractures alone may reach 1 million by 2025 cases.

Osteoporosis and repeated falls as a result of impaired vision, muscular atrophy, neurological status disorders, metabolic disorders remain risk factors in the elderly. Undoubtedly, the main element in the treatment of femoral neck injuries is the preservation of the life of the victim. Exacerbation of concomitant pathology, possible attachment of infection, hypostatic, thromboembolic complications sometimes becomes fatal for an elderly person. Mortality rates during the first year after this type of injury, they reach 37,5–45%. Therefore, early activation of the victim and restoration of functional capabilities are the most important conditions for the preservation of his life. According to the scientific literature, the frequency of complications in conservative treatment reaches 82,1%. Conservative treatment has lost its relevance due to the large number of unsatisfactory results and the cost of long -term inpatient treatment. Qualitatively and quantitatively fewer problems arise during surgical treatment, however, it also ensures success only in 59.7–83.5% of cases. Regardless of the type of treatment, the costs are enormous, and in the USA alone, annual costs reach 3.6 billion dollars.

The result of treatment is affected by such biological and mechanical factors as impaired blood supply to the femoral head, the influence of parameters of displacement

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of bone fragments, osteoporosis, etc. The undoubted factor of impact is the time period that has passed since the injury. To problems in the treatment of fractures of the proximal the division of the hip leads to untreated diastasis between the fragments, operational-technical and therapeutic-tactical errors, incomplete immobilization of the limb, removal of the metal structure until the fracture fully fuses, as well as early load on the operated limb. As a result, the outcomes of unsuccessful treatment are aseptic necrosis of the head – up to 33%, pseudoarthrosis of the neck and the trochanter zone of the femur – 30%. Potential resorption of the neck, dystrophic changes in the femoral head, atrophic changes in soft tissues, significant and the difficult-to-eliminate displacement of fragments, long -existing contractures of the hip and sometimes knee joints to a certain extent reflect the authors' desire to differentiate the primary tactics of treatment of these injuries. The data given in the domestic and foreign literature have shown that priority in the treatment of this pathology should be given to the surgical method, the volume of which depends on the general condition, age, concomitant diseases of the victim, the time elapsed afterinjuries and pathological changes in the area of the damaged hip joint.

The purpose of the operation at a young age is simple: to preserve the hip joint, and in the elderly – to ensure the possibility of early loading and avoid the development of hypostatic complications. However, we should not forget that the time factor sometimes negates the advantage of surgery, namely osteosynthesis. If delayed intervention is not critical for fixing the trochanter zone, then the best time for osteosynthesis is femoral neck – the first day. A fracture of the femoral neck has a direct effect on the blood supply to the femoral head, and the degree of its the destruction depends directly on the magnitude of the displacement of the fragments. In this regard, along with the timing of osteosynthesis, the accuracy of bone fragments reposition is of particular importance.

Many specialists at the end of the last century were adherents of osteosynthesis with a bundle of spokes, and currently the improvement of this method continues. An undoubted breakthrough in this direction was the publications of A.F. Lazarev et al., he developed and introduced low-traumatic polytensofascicular osteosynthesis of fractures of the proximal femur with a bundle of V-shaped stressed spokes. The most important factor in the success of the technique was its irreplaceability in osteosynthesis in patients with severe concomitant pathology, when extensive joint surgery is almost impossible to perform.

For the purpose of early activation of patients , the use of osteosynthesis with a shortened or elongated cervico-intramedullary rod with blocking of the "PFN", "Gamma", etc. is especially effective in the treatment of all types of fractures of the trochanteric region. The idea of biological osteosynthesis is realized in these systems. Due to the fact that the dynamic screw, which is inserted into the neck and head of the

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femur, is not rigidly connected to the diaphyseal part, after installations of such systems, shearing forces at the fracture line are translated into forces of interfragmental compression. Despite the many proposals and modifications of various methods and methods of osteosynthesis, it was not universal in terms of early restoration of limb function and supportability. To date, the hip replacement method is the most common and successful surgical intervention, which significantly improves the quality of life of patients.

In order to improve the results of hip replacement in elderly people many authors have made additions to the contraindications for performing these operations. Absolute contraindications to total hip replacement surgery in elderly people are:

1. Severe chronic diseases of the cardiovascular system, decompensated heart defects, heart failure 3 art., cardiac arrhythmias.

2. Chronic respiratory insufficiency that prevents general anesthesia, threatening the development of formidable complications during and after surgery.

3. Diseases of the urinary system with impaired nitrogen excretion function of the kidneys, chronic renal failure stage 2-3.

4. Inflammatory diseases of the hip joint, as well as previously performed operations accompanied by suppuration, formation of fistulas, osteomyelitis.

5. Intractable pathology of the endocrine system (thyroid gland, adrenal glands, pancreas).

6. Mental disorders and severe organic lesions (paralysis, paresis); neurological and muscular disorders in which muscle control is absent or impossible.

7. Severe osteopenia, osteoporosis.

8. Tumors of internal organs with metastases.

9. Blood diseases.

10. Weakened patients with mental disabilities, unable to perceive and properly conduct the postoperative rehabilitation process.

Relative contraindications to total hip replacement surgery in the elderly:

1. The presence of acute pathology.

2. Lack of independent movement before determining the indications for surgery.

A distinctive feature of trauma in old age is the presence of combined chronic pathology in patients. High mortality depends on concomitant pathology, primarily cardiovascular diseases, detected in 82% of victims. Trauma and associated pain, immobilization, invasive manipulations, fear and anxiety in anticipation of surgery lead to physical and mental discomfort and negatively affect the state of the central nervous, cardiovascular and respiratory systems.

Fatal complications of fracture treatment in elderly people can be considered hypostatic complications. These include thromboembolic and infectious diseases, since, along with the development of acute cardiovascular insufficiency, they become

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the most common cause of death of victims. With hip fractures without taking preventive measures, deep vein thrombosis develops in 50-70%. The main preventive measures in this category of patients are anticoagulant therapy. The risk of thrombosis after hip replacement is maximal by the end of the first week of the postoperative period and remains high up to 14 days. The use of spinal and epidural anesthesia can reduce the frequency of venous thrombosis by 40-50%, regardless of the methods of perioperative prevention, as venous stasis decreases due to sympathetic blockade, which leads to vasodilation and increased blood flow in the lower extremities . The steady increase in the number of patients undergoing surgery required development and active implementation of various measures for the prevention of secondary thromboembolic complications. These include indirect prevention of the formation of blood clots: wearing elastic compression knitwear, the use of intermittent compression devices.

To date, it is known that pathogens such as Staphylococcus aureus, Staphylococcus epidermidis and a number of others are able to form an extracellular matrix (glycocalyx), which is a primitive ecological system called biofilms. Fixed biofilms are formed on the surface of foreign bodies, in particular implants, and allow microorganisms to obtain a number of advantages for their existence, for example, protects them from contact with components of the complement system, phagocytes and other immunocompetent cells, which reduces the response of the immune system to the pathogen.

Another important point in the organization of care for elderly and senile patients with hip injury is rehabilitation and their social and labor adaptation.

In recent years, rehabilitation for surgical treatment of hip injuries has been developed all over the world. Rehabilitation directions define a new approach to the restorative treatment of patients. The recovery process after surgical treatment includes a motor regime, physical exercises, massage, dosed walking, self-service skills training, compliance with the correct load regime on the limb. The developers of rehabilitation programs emphasize that each patient needs an individual rehabilitation program with a differentiated approach, in particular which involves a physiotherapist, a physical therapy instructor, a psychologist, a psychotherapist.

The standard scheme of rehabilitation measures after surgery was carried out in 3 stages.

Stage I – bed rest. All exercises at this stage were aimed at overcoming soreness with elementary movements of the operated limb first in the supine position (bending the foot forward-backward-outward, squeezing the buttocks, moving straight legs alternately with the heel forward, shifting the pelvis, breathing exercises, exercises on a turnstile attached to the bed), gradual lifting of the body into position sitting and

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learning to walk with the help of four-legged walkers with a gradual transition to learning to walk on crutches.

Stage II is the transition from crutches to a cane, during which complex rehabilitation is performed using individual programs (from 2 weeks. up to 12 weeks). Its purpose is to restore muscle tone, the amplitude of movements in the joint, a gradual transition to full support on the operated limb, normalization of gait. Isometric gymnastics, dynamic exercises, massage, electrical stimulation of muscles, exercise bike classes continue.

Stage III is the stage of consolidating motor skills without the use of a cane with the performance of mandatory regular exercises throughout life. The stage begins from the 4th month after the endoprosthesis. It was aimed at maintaining muscle tone and movement on the restored joint.

Classic therapeutic massage combined with lymphatic massage techniques. In order to prevent postoperative contracture, on the 2nd-3rd day after the operation, electrical stimulation with sinusoidally modulated currents was performed according to the unipolar method of influencing the paravertebral zones of the lower extremities corresponding to innervation. After reducing pain and edematous-vegetative syndromes, on the 5th-7th day, the effect on the posterior and anterior muscle groups of the thigh and lower leg was supplemented. On the 7th-10th day, electrical stimulation of the muscles of agonists and antagonists was performed.

In order to prevent early postoperative complications, 3-5 electric field procedures were prescribed for the wound area from the 1st-2nd day after surgery UHF therapy in an athermal dose or magnetotherapy, which had an anti-inflammatory, decongestant, analgesic effect and contributed to the regeneration of lymphatic microvessels. In the presence of contraindications to these procedures, UVO of the suture area was performed for the same purpose. The authors claim, that the restorative treatment made it possible to quickly activate the patient after hip replacement and return him to his usual environment.

In conclusion, it should also be noted that, according to the Institute of Health in Uzbekistan, annually more than 1 million patients with the influence of external factors (injuries, burns, poisoning) on the human body seek help in medical institutions of the Republic. In 2017, this figure amounted to 1015,310 people, including 42244 people with hip and hip joint injuries, including Of these, patients with fractures of the proximal femur accounted for 4,140 (9.8%) cases. Various types of surgical interventions on the hip joint were performed in 2472 patients, the surgical activity was 59.7%. Surgical interventions for hip replacement with traumatic injuries were performed only in 17.9% of cases – 442 patients, this indicator is significantly inferior to world indicators.

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In the treatment of elderly and old patients with fractures the femoral neck remains a lot of unresolved issues, it is possible to significantly improve the quality of specialized care for patients only through modern methods of surgical treatment. For most of them, the operation is equivalent to saving a life. Hip replacement is currently the method of choice in the surgical treatment of hip fractures in elderly and senile patients. Successful application of the method it depends on a thorough examination of patients, active perioperative management, the availability of an appropriate material and technical base and a set of implants, and also involves the use of the knowledge of doctors of many specialties in the treatment process. Being a relatively complex type of surgical intervention, total hip replacement should be performed only in specialized departments equipped with equipment for performing these technologically complex operations. Primary endoprosthesis surgery for fractures hip necks in the elderly and old should be performed for urgent indications.

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