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ЕЖЕМЕСЯЧНЫЙ НАУЧНЫЙ ЖУРНАЛ

Медицинские новости Грузии

საქართველოს სამედიცინო სიახლენი

GEORGIAN MEDICAL NEWS

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GMN: Georgian Medical News is peer-reviewed, published monthly journal committed to promoting the science and art of medicine and the betterment of public health, published by the GMN Editorial Board since 1994. GMN carries original scientific articles on medicine, biology and pharmacy, which are of experimental, theoretical and practical character; publishes original research, reviews, commentaries, editorials, essays, medical news, and correspondence in English and Russian.

GMN is indexed in MEDLINE, SCOPUS, PubMed and VINITI Russian Academy of Sciences. The full text content is available through EBSCO databases.

GMN: Медицинские новости Грузии - ежемесячный рецензируемый научный журнал, издаётся Редакционной коллегией с 1994 года на русском и английском языках в целях поддержки медицинской науки и улучшения здравоохранения. В журнале публикуются оригинальные научные статьи в области медицины, биологии и фармации, статьи обзорного характера, научные сообщения, новости медицины и здравоохранения. Журнал индексируется в MEDLINE, отражён в базе данных SCOPUS, PubMed и ВИНИТИ РАН. Полнотекстовые статьи журнала доступны через БД EBSCO.

GMN: Georgian Medical News – საქართველოს სამედიცინო სიახლენი – არის ყოველთვიური სამეცნიერო სამედიცინო რეცენზირებადი ჟურნალი, გამოიცემა 1994 წლიდან, წარმოადგენს სარედაქციო კოლეგიისა და აშშ-ის მეცნიერების, განათლების, ინდუსტრიის, ხელოვნებისა და ბუნებისმეტყველების საერთაშორისო აკადემიის ერთობლივ გამოცემას. GMN-ში რუსულ და ინგლისურ ენებზე ქვეყნდება ექსპერიმენტული, თეორიული და პრაქტიკული ხასიათის ორიგინალური სამეცნიერო სტატიები მედიცინის, ბიოლოგიისა და ფარმაციის სფეროში, მიმოხილვითი ხასიათის სტატიები.

ჟურნალი ინდექსირებულია MEDLINE-ის საერთაშორისო სისტემაში, ასახულია SCOPUS-ის, PubMed-ის და ВИНИТИ РАН-ის მონაცემთა ბაზებში. სტატიების სრული ტექსტი ხელმისაწვდომია EBSCO-ს მონაცემთა ბაზებიდან.

WEBSITE

www.geomednews.com

К СВЕДЕНИЮ АВТОРОВ!

При направлении статьи в редакцию необходимо соблюдать следующие правила:

1. Статья должна быть представлена в двух экземплярах, на русском или английском языках, напечатанная через **полтора интервала на одной стороне стандартного листа с шириной левого поля в три сантиметра**. Используемый компьютерный шрифт для текста на русском и английском языках - **Times New Roman** (**Кириллица**), для текста на грузинском языке следует использовать **AcadNusx.** Размер шрифта - **12**. К рукописи, напечатанной на компьютере, должен быть приложен CD со статьей.

2. Размер статьи должен быть не менее десяти и не более двадцати страниц машинописи, включая указатель литературы и резюме на английском, русском и грузинском языках.

3. В статье должны быть освещены актуальность данного материала, методы и результаты исследования и их обсуждение.

При представлении в печать научных экспериментальных работ авторы должны указывать вид и количество экспериментальных животных, применявшиеся методы обезболивания и усыпления (в ходе острых опытов).

4. К статье должны быть приложены краткое (на полстраницы) резюме на английском, русском и грузинском языках (включающее следующие разделы: цель исследования, материал и методы, результаты и заключение) и список ключевых слов (key words).

5. Таблицы необходимо представлять в печатной форме. Фотокопии не принимаются. **Все цифровые, итоговые и процентные данные в таблицах должны соответствовать таковым в тексте статьи**. Таблицы и графики должны быть озаглавлены.

6. Фотографии должны быть контрастными, фотокопии с рентгенограмм - в позитивном изображении. Рисунки, чертежи и диаграммы следует озаглавить, пронумеровать и вставить в соответствующее место текста **в tiff формате**.

В подписях к микрофотографиям следует указывать степень увеличения через окуляр или объектив и метод окраски или импрегнации срезов.

7. Фамилии отечественных авторов приводятся в оригинальной транскрипции.

8. При оформлении и направлении статей в журнал МНГ просим авторов соблюдать правила, изложенные в «Единых требованиях к рукописям, представляемым в биомедицинские журналы», принятых Международным комитетом редакторов медицинских журналов - http://www.spinesurgery.ru/files/publish.pdf и http://www.nlm.nih.gov/bsd/uniform_requirements.html
В конце каждой оригинальной статьи приводится библиографический список. В список литературы включаются все материалы, на которые имеются ссылки в тексте. Список составляется в алфавитном порядке и нумеруется. Литературный источник приводится на языке оригинала. В списке литературы сначала приводятся работы, написанные знаками грузинского алфавита, затем кириллицей и латиницей. Ссылки на цитируемые работы в тексте статьи даются в квадратных скобках в виде номера, соответствующего номеру данной работы в списке литературы. Большинство цитированных источников должны быть за последние 5-7 лет.

9. Для получения права на публикацию статья должна иметь от руководителя работы или учреждения визу и сопроводительное отношение, написанные или напечатанные на бланке и заверенные подписью и печатью.

10. В конце статьи должны быть подписи всех авторов, полностью приведены их фамилии, имена и отчества, указаны служебный и домашний номера телефонов и адреса или иные координаты. Количество авторов (соавторов) не должно превышать пяти человек.

11. Редакция оставляет за собой право сокращать и исправлять статьи. Корректура авторам не высылается, вся работа и сверка проводится по авторскому оригиналу.

12. Недопустимо направление в редакцию работ, представленных к печати в иных издательствах или опубликованных в других изданиях.

При нарушении указанных правил статьи не рассматриваются.

REQUIREMENTS

Please note, materials submitted to the Editorial Office Staff are supposed to meet the following requirements:

1. Articles must be provided with a double copy, in English or Russian languages and typed or compu-ter-printed on a single side of standard typing paper, with the left margin of **3** centimeters width, and **1.5** spacing between the lines, typeface - **Times New Roman** (**Cyrillic**), print size - **12** (referring to Georgian and Russian materials). With computer-printed texts please enclose a CD carrying the same file titled with Latin symbols.

2. Size of the article, including index and resume in English, Russian and Georgian languages must be at least 10 pages and not exceed the limit of 20 pages of typed or computer-printed text.

3. Submitted material must include a coverage of a topical subject, research methods, results, and review.

Authors of the scientific-research works must indicate the number of experimental biological species drawn in, list the employed methods of anesthetization and soporific means used during acute tests.

4. Articles must have a short (half page) abstract in English, Russian and Georgian (including the following sections: aim of study, material and methods, results and conclusions) and a list of key words.

5. Tables must be presented in an original typed or computer-printed form, instead of a photocopied version. **Numbers, totals, percentile data on the tables must coincide with those in the texts of the articles.** Tables and graphs must be headed.

6. Photographs are required to be contrasted and must be submitted with doubles. Please number each photograph with a pencil on its back, indicate author's name, title of the article (short version), and mark out its top and bottom parts. Drawings must be accurate, drafts and diagrams drawn in Indian ink (or black ink). Photocopies of the X-ray photographs must be presented in a positive image in **tiff format**.

Accurately numbered subtitles for each illustration must be listed on a separate sheet of paper. In the subtitles for the microphotographs please indicate the ocular and objective lens magnification power, method of coloring or impregnation of the microscopic sections (preparations).

7. Please indicate last names, first and middle initials of the native authors, present names and initials of the foreign authors in the transcription of the original language, enclose in parenthesis corresponding number under which the author is listed in the reference materials.

8. Please follow guidance offered to authors by The International Committee of Medical Journal Editors guidance in its Uniform Requirements for Manuscripts Submitted to Biomedical Journals publication available online at: http://www.nlm.nih.gov/bsd/uniform_requirements.html
http://www.icmje.org/urm_full.pdf
In GMN style for each work cited in the text, a bibliographic reference is given, and this is located at the end of the article under the title "References". All references cited in the text must be listed. The list of references should be arranged alphabetically and then numbered. References are numbered in the text [numbers in square brackets] and in the reference list and numbers are repeated throughout the text as needed. The bibliographic description is given in the language of publication (citations in Georgian script are followed by Cyrillic and Latin).

9. To obtain the rights of publication articles must be accompanied by a visa from the project instructor or the establishment, where the work has been performed, and a reference letter, both written or typed on a special signed form, certified by a stamp or a seal.

10. Articles must be signed by all of the authors at the end, and they must be provided with a list of full names, office and home phone numbers and addresses or other non-office locations where the authors could be reached. The number of the authors (co-authors) must not exceed the limit of 5 people.

11. Editorial Staff reserves the rights to cut down in size and correct the articles. Proof-sheets are not sent out to the authors. The entire editorial and collation work is performed according to the author's original text.

12. Sending in the works that have already been assigned to the press by other Editorial Staffs or have been printed by other publishers is not permissible.

Articles that Fail to Meet the Aforementioned Requirements are not Assigned to be Reviewed.

ავტორთა საყურადღებოდ!

რედაქციაში სტატიის წარმოდგენისას საჭიროა დავიცვათ შემდეგი წესები:

1. სტატია უნდა წარმოადგინოთ 2 ცალად, რუსულ ან ინგლისურ ენებზე,დაბეჭდილი სტანდარტული ფურცლის 1 გვერდზე, 3 სმ სიგანის მარცხენა ველისა და სტრიქონებს შორის 1,5 ინტერვალის დაცვით. გამოყენებული კომპიუტერული შრიფტი რუსულ და ინგლისურენოვან ტექსტებში - **Times New Roman (Кириллица)**, ხოლო ქართულენოვან ტექსტში საჭიროა გამოვიყენოთ **AcadNusx.** შრიფტის ზომა – 12. სტატიას თან უნდა ახლდეს CD სტატიით.

2. სტატიის მოცულობა არ უნდა შეადგენდეს 10 გვერდზე ნაკლებს და 20 გვერდზე მეტს ლიტერატურის სიის და რეზიუმეების (ინგლისურ, რუსულ და ქართულ ენებზე) ჩათვლით.

3. სტატიაში საჭიროა გაშუქდეს: საკითხის აქტუალობა; კვლევის მიზანი; საკვლევი მასალა და გამოყენებული მეთოდები; მიღებული შედეგები და მათი განსჯა. ექსპერიმენტული ხასიათის სტატიების წარმოდგენისას ავტორებმა უნდა მიუთითონ საექსპერიმენტო ცხოველების სახეობა და რაოდენობა; გაუტკივარებისა და დაძინების მეთოდები (მწვავე ცდების პირობებში).

4. სტატიას თან უნდა ახლდეს რეზიუმე ინგლისურ, რუსულ და ქართულ ენებზე არანაკლებ ნახევარი გვერდის მოცულობისა (სათაურის, ავტორების, დაწესებულების მითითებით და უნდა შეიცავდეს შემდეგ განყოფილებებს: მიზანი, მასალა და მეთოდები, შედეგები და დასკვნები; ტექსტუალური ნაწილი არ უნდა იყოს 15 სტრიქონზე ნაკლები) და საკვანძო სიტყვების ჩამონათვალი (key words).

5. ცხრილები საჭიროა წარმოადგინოთ ნაბეჭდი სახით. ყველა ციფრული, შემაჯამებელი და პროცენტული მონაცემები უნდა შეესაბამებოდეს ტექსტში მოყვანილს.

6. ფოტოსურათები უნდა იყოს კონტრასტული; სურათები, ნახაზები, დიაგრამები - დასათაურებული, დანომრილი და სათანადო ადგილას ჩასმული. რენტგენოგრამების ფოტოასლები წარმოადგინეთ პოზიტიური გამოსახულებით **tiff** ფორმატში. მიკროფოტოსურათების წარწერებში საჭიროა მიუთითოთ ოკულარის ან ობიექტივის საშუალებით გადიდების ხარისხი, ანათალების შეღებვის ან იმპრეგნაციის მეთოდი და აღნიშნოთ სურათის ზედა და ქვედა ნაწილები.

7. სამამულო ავტორების გვარები სტატიაში აღინიშნება ინიციალების თანდართვით, უცხოურისა – უცხოური ტრანსკრიპციით.

8. სტატიას თან უნდა ახლდეს ავტორის მიერ გამოყენებული სამამულო და უცხოური შრომების ბიბლიოგრაფიული სია (ბოლო 5-8 წლის სიღრმით). ანბანური წყობით წარმოდგენილ ბიბლიოგრაფიულ სიაში მიუთითეთ ჯერ სამამულო, შემდეგ უცხოელი ავტორები (გვარი, ინიციალები, სტატიის სათაური, ჟურნალის დასახელება, გამოცემის ადგილი, წელი, ჟურნალის №, პირველი და ბოლო გვერდები). მონოგრაფიის შემთხვევაში მიუთითეთ გამოცემის წელი, ადგილი და გვერდების საერთო რაოდენობა. ტექსტში კვადრატულ ფჩხილებში უნდა მიუთითოთ ავტორის შესაბამისი N ლიტერატურის სიის მიხედვით. მიზანშეწონილია, რომ ციტირებული წყაროების უმეტესი ნაწილი იყოს 5-6 წლის სიღრმის.

9. სტატიას თან უნდა ახლდეს: ა) დაწესებულების ან სამეცნიერო ხელმძღვანელის წარდგინება, დამოწმებული ხელმოწერითა და ბეჭდით; ბ) დარგის სპეციალისტის დამოწმებული რეცენზია, რომელშიც მითითებული იქნება საკითხის აქტუალობა, მასალის საკმაობა, მეთოდის სანდოობა, შედეგების სამეცნიერო-პრაქტიკული მნიშვნელობა.

10. სტატიის ბოლოს საჭიროა ყველა ავტორის ხელმოწერა, რომელთა რაოდენობა არ უნდა აღემატებოდეს 5-ს.

11. რედაქცია იტოვებს უფლებას შეასწოროს სტატია. ტექსტზე მუშაობა და შეჯერება ხდება საავტორო ორიგინალის მიხედვით.

12. დაუშვებელია რედაქციაში ისეთი სტატიის წარდგენა, რომელიც დასაბეჭდად წარდგენილი იყო სხვა რედაქციაში ან გამოქვეყნებული იყო სხვა გამოცემებში.

აღნიშნული წესების დარღვევის შემთხვევაში სტატიები არ განიხილება.

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RESULTS OF HIP REPLACEMENT IN PATIENTS WITH DYSPLASTIC COXARTHROSIS WITH VARIOUS SURGICAL ACCESS OPTIONS

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Abstract.

In order to study the features of surgical approaches for hip arthroplasty in patients with dysplastic coxarthrosis, an analysis of the course of the disease was carried out in 80 patients with dysplastic coxarthrosis who were treated at the Therapeutic Surgical Clinic of the Azerbaijan Medical University. The average age of the patients was 52.2±0.65, 51.6±0.55 and 50.3±0.71 years with overweight (BMI>=25 and <30. In order to determine the activity of the inflammatory process and the effectiveness of treatment a complete blood count and assessment of ESR, total WOMAC index and visual analog pain scale VAS were performed after 6 and 12 months. (operative technique No. 3) According to VAS, ESR and WOMAC, when using the proposed mini surgical access to the affected joint in the main group, a more pronounced decrease in quantitative indicators was achieved compared to the control group and the comparison group ($p<0.001$), which allows talk about a more significant decrease in the intensity of the pain syndrome (20.1±0.38 mm), the risk of developing an inflammatory process (8.7±0.28 mm/h) and a reduction in the rehabilitation period.

Key words. Dysplastic coxarthrosis, arthroplasty, surgical approach, ESR, pain syndrome.

Introduction.

Diseases of the musculoskeletal system, for example, emerging defects and pathological changes in the bone tissue in the hip joint, against the background of frequent development of its dysfunction and instability, often in able-bodied persons of relatively young and middle age, significantly reduces the ability to integrate into normal daily activities [1,2]. Prevention of the spread of the pathological process, in particular, dysplastic coxarthrosis, functional disorders in other links, the transition of the disease to more severe forms and the development of serious complications, as well as ensuring maximum therapeutic effect is achieved by the timely introduction of effective methods of treatment of existing severe degenerative-dystrophic lesions of the femoral head and acetabulum, allowing in a short time to restore the functional state the affected joint and the entire limb. One of such methods is total hip replacement [3,4].

To perform endoprosthetics in coxarthrosis, characterized by a variety of bone defects, for example, dysplastic changes in the proximal femur, there is a wide selection of different types of implants or structures, their acetabular and femoral components, ways of fixing them and restoring the length of the limb [5,6].

An analysis of the results of some scientific studies published in the literature indicates that the main reason for the decrease in the effectiveness and failures of total endoprosthetics are invasive methods of surgical access to the affected joint, which are often fraught with inflammatory and infectious complications and do not allow timely achievement of the task [7].

Thus, in the problem of total endoprosthetics, there are still unresolved issues related to the selection of optimal surgical access, associated with low blood loss and soft tissue injury, and providing rapid restoration of muscle balance and joint function as a whole [8-10]. All of the above determined the relevance of the topic and served as the basis for this scientific research.

The aim of the work is to study the features of surgical approaches during hip replacement in patients with dysplastic coxarthrosis.

Material and methods.

The course of prospective studies was analyzed in 80 patients with dysplastic coxarthrosis who was undergoing treatment at the Therapeutic Surgical Clinic of the Azerbaijan Medical University for the period 2018-2022. The criteria for inclusion in the study were: 1) dysplastic coxarthrosis of type 2 according to Hartofilakidis classification system; 3) severe pain syndrome; 4) movement restrictions in the affected joint. Exclusion criteria: patients with severe somatic pathology. In order to determine the activity of the inflammatory process, a general blood test was performed. The evaluation of the total WOMAC index (Western Ontario and McMaster Universities, Bellamy N., 1988) was carried out using a questionnaire that contains 24 questions and was evaluated in three sections: the severity of joint pain (5 questions), limited mobility in the joint (2 questions), difficulties in performing daily activities (17 questions). The patients' well—being was assessed in scores from 0 to 100 (0 points - without difficulty, 100 points — impossible). When analyzing the data obtained, the total WOMAC index was taken into account. To assess the intensity and severity of the pain symptom in the joint, a visual analog pain scale (VAS) was used, in the form of a horizontal straight line with a length of 100 mm, the end points of which indicate the minimum and maximum of the estimated indicator (a value of 0 mm means no pain, and 100 mm is the most pronounced pain syndrome)" [Huskisson E.S.,1974]. Repeated clinical and laboratory studies were carried out after 6 and 12 months.

When performing surgical interventions, the following were used: The posterolateral approach (operating technique No. 1), the Hardinge approach (operating technique No. 2) and recommended minimally invasive approach (operating technique No. 3).

Posterolateral technique – control group No. 1. The patient's position on the side of the pelvis is stabilized by appropriate holders at the level of the lumbosacral junction and at the symphysis from the abdomen. The hips are bent by about 45°, and the prosthetic limb is placed on a foam cushion with the possibility of free movement. The length of the incision, 2/3 of which should be located proximal to the tip of the spit, is 10-12 cm. After dissecting the skin, the subcutaneous layer of the fascia

located under it is lifted over the gluteus maximus and a wound expander is inserted, with which the skin window can be moved in the proximal or distal directions to make a sufficiently long incision of the gluteus maximus and the adjacent broad fascia over the large trochanter. Then, with maximum internal rotation of the thigh, the expander is lowered into the musculature of the gluteus maximus and opened. After that, the trochanter bag covering the external rotators and adjacent gluteal muscles is exfoliated and withdrawn dorsally. At first, the Langenbeck hook is carefully removed from the middle gluteal muscle in the proximal direction, the tendon of the piriformis muscle is exfoliated distally in the trochanter fossa, if possible. A small gluteal muscle is removed with a narrow raspator, and a Homan retractor is inserted. The articular capsule and adjacent rotators are cut off by an arcuate incision, which ends at the upper edge of the square thigh muscle from the distal side. Simultaneously with the internal rotation, the tendon of the external locking muscle and the vessels located on it are isolated. The tendon of the external locking muscle is crossed without detachment from the joint capsule. The Homan retractor is inserted from the cranial side above the femoral neck with the release of the neck and head. After excision of the joint capsule, dislocation of the femoral head is performed by giving the limb a flexion position, reduction, and external rotation, and then the standard stages of total endoprosthetics are carried out.

Operating technique – test group No. 2. Direct lateral access, proposed by R. Bauer and improved by K. Hardinge and adopted by us as a prototype, includes the patient's position on the surgical table on the healthy side. A skin incision 12-16 cm long is carried out in the projection of a large spit between its anterior and posterior edges at an equal distance from the tip. The wide fascia of the thigh is dissected throughout the wound, a blunt longitudinal separation of the muscle fibers of the middle gluteal muscle is carried out for 3 cm above the tip of the large trochanter. Access to the joint capsule is carried out by separating with the help of an electric knife subperiostally the middle gluteus muscle and the lateral portion of the quadriceps femoris from the anterior surface of the large trochanter and from the joint capsule, that is, with this access to the hip joint, in addition to the longitudinal dissection of the anterior portion of the middle gluteus muscle, the lateral portion of the quadriceps femoris is crossed. A sufficient overview of the wound area is provided by the introduction of two Homan retractors at the level of the small trochanter along the inner surface of the thigh and at the upper edge of the femoral neck, as well as the location between the muscles and the capsule of the beak of a wide retractor, which is fixed behind the anterior edge of the acetabulum. The capsule of the joint is excised within sight or preserved for subsequent recovery, after which the dislocation of the femoral head is performed in the position of flexion, reduction and external rotation of the limb and further manipulations are performed.

Suggested mini-invasive technique– the main (experimental) group No. 3. To accommodate the patient, a set containing X–ray permeable holders was used in the following places: the pubic symphysis – two long holders and the sacral spine - two long holders. The skin of the operated limb is treated three times with an antiseptic solution and covered with sterile linen, with the exception of the operating field, in compliance with all the rules of asepsis-antiseptics. Thromboembolic and compression stockings are put on the operated limb before the patient is moved to the operating room, and he is placed on the operating table on a healthy side. After spinal anesthesia, access was made along the outer-lateral surface of the hip joint and a skin incision 5-6 cm long, with the middle of the skin incision located above the middle of the large trochanter, the middle and lower thirds of which are located longitudinally. After dilution of the skin and layer-by-layer dissection of subcutaneous tissue, the wide fascia of the thigh is similarly dissected (dissection 3-4 cm long). After thorough hemostasis, the large gluteal muscle is separated at the place of its attachment and the hook is pulled in the upward and posterior direction. The posterior edge of the small gluteal muscle is gently pushed forward for better dilution of the wound and visualization of the joint capsule. In order to avoid damage to soft tissues before the Z-shaped dissection of the capsule, further manipulations are carried out through the gap between the middle gluteal and piriformis muscles, without their dissection and dissection. There is no need to separate the rectus femoris muscle from the joint capsule, it is enough to withdraw it with a retractor together with the anterior muscle capsule flap anteriorly. After excision of the joint capsule, dislocation of the femoral head is performed by giving the limb a position of flexion, reduction and external rotation. Then the standard stages of total endoprosthetics are carried out, after the endoprosthesis head is set, the volume and amplitude of movements in the joint are checked, its anatomical and functional consistency is established, and the surgical wound is sutured. All patients underwent cementless total endoprosthetics of the affected joint. These studies were carried out with the written consent of all patients in accordance with the principles of bioethics set out in the Helsinki Declaration "Ethical Principles of Medical Research with Human Participation" developed by the World Medical Association, the "Universal Declaration on Bioethics and Human Rights (UNESCO)". The protocol of the study was approved by the Ethics Committee of the Azerbaijan Medical University (No. 11, 29.12.2019).

Statistical data processing was carried out using the Statistica 7.0 application software package and the Excell 2013 standard statistical analysis package. Statistical methods included the estimation of the arithmetic mean (M), the standard error of the mean (±m). Comparisons with P-values <0.05 were considered to be significant.

Results and discussion.

The study included 80 patients with a reliable diagnosis of dysplastic coxarthrosis of the hip joint of the I and II radiological stages, who gave written informed consent to participate. In the structure of the patients of the three groups, the largest number were occupied by women. In our study, the level of ESR in the blood was slightly increased: 12,1±0,24 mm/h in patients of the control group; 12,7±0,36 mm/h in the comparison group and 14.2±0.38 mm/h - ESR in the main group, the differences between the data recorded in the groups were statistically significant (p=0,0072) (Table 2). After the successful completion of total hip replacement surgery in patients of the main group, according to the results of laboratory studies, the average ESR index decreases to 8.7±0.28 mm/h, which turned out to be

Table 1. *Clinical characteristics of patients with dysplastic coxarthrosis.*

Parameters		Research groups		
		No 1. Posterolateral technique (n=25)	**No. 2. Handinge technique (n=25)**	**No. 3. Suggested technique (n=30)**
Gender, n (%)	Male	9 (36 %)	14 (46.7 %)	14 (46,7%)
	Female	16 (64 %)	16 (53.3 %)	16 (53,3%)
Age, years		52,2±0,65 (45-60)	51,6±0,55 (45-56)	50,3±0,71 (43-56)
BMI, kg/m2		26,5±0,18 (25-28)	26,2±0,19 (25-28)	26,1±0,19 (22-28)

Table 2. *Assessment of ESR after the use of various access methods.*

Patient groups	ESR test results, mm/h		P
	Before surgery	**12 months after surgery**	
No. 1. (n=25)	12,1±0,24 (10,5-15,0)	11,6±0,18 (9,0-13,3)	0,0590
No. 2. (n=25)	12,7±0,36 (9,5-15,0)	9,1±0,18 (7,8-11,0)	0,0001
P_1	0,1744	0,0001	
No. 3. (n=30)	14,2±0,38 (11,0-17,0)	8,7±0,28 (6,0-11,0)	0,0001
P_1	0,0001	0,0001	
P_2	0,0072	0,1943	

Note: The Student t-test, statistical significance for p<0.05.

Table 3. *Dynamics of VAS pain in patients before and after endoprosthetics.*

Patient groups	Time of testing				
	Before surgery	**6 months after surgery**	**p_{before}**	**12 months after surgery**	**p_{before}**
No. 1. (n=25)	26,6±0,40 (23-29)	23,1±0,21 (22-25)	0,0001	22,2±0,30 (18-24)	0,0001
No. 2. (n=25)	27,5±0,34 (25-32)	22,3±0,33 (19-24)	0,0001	21,3±0,41 (18-25)	0,0001
P_1	0,1008	0,0572		0,0655	
No. 3. (n=30)	26,8±0,37 (23-32)	20,8±0,43 (16-24)	0,0001	20,1±0,38 (17-23)	0,0001
p_1	0,7722	0,0001		0,0001	
p_2	0,1578	0,0106		0,0356	

Note: The statistical significance of the data was determined at p<0.05 (Student's t-test).

Table 4. *Average values of the WOMAC index in patients before and after the treatment.*

Patient groups	Time of testing				
	Before surgery	**6 months after surgery**	**p_{before}**	**12 months after surgery**	**p_{before}**
No.1. (n=25)	538,3±3,14 (518-574)	428,4±4,64 (382-458)	0,0001	286,8±2,87 (262-314)	0,0001
No. 2. (n=25)	543,9±2,30 (524-563)	361,2±2,13 (336-375)	0,0001	228,3±2,94 (196-248)	0,0001
P_1	0,1605	0,0001		0,0001	
No. 3. (n=30)	541,4±1,66 (523-557)	355,1±1,67 (339-371)	0,0001	209,6±1,71 (194-223)	0,0001
p1	0,3853	0,0001		0,0001	
p2	0,3692	0,0279		0,0001	

*Note: * – statistically significant differences between the indicators at p < 0.05, Student's t-test*

significantly lower than in the first group (p=0.001), but when compared with the data recorded in the comparison group, the differences were recorded as p=0,1943.

It should be noted that there are significant differences between the indicators of VAS pain recorded after 6 months in the first control group and the data detected at similar times in the third experimental group of prosthetic patients (p=0.001), which cannot be said about the relationship of indicators that were recorded at the same time in the second test group and in the main group (p=0,0106) (Table 3).

At the same time, the intensity of pain after hip replacement by the final stage of studies when assessing the degree of reliability of intergroup differences continued to decrease in all groups, but in the two compared groups, the indicators did not reach the level of the main group, where the new method of surgical approach was used (p<0.05).

So, if in the first and second groups after 1 year of observation, the indicators decreased to 22.2±0.30 mm and 21.3±0.41 mm, among the patients of the main group, the data were significantly lower and averaged 20,1±0,38 mm (p=0.0001), that is, after the use of minimally invasive surgical methods of access to the affected joint in patients, there is a more pronounced and significant persistent regression of the pain symptom with a persistent decrease in VAS registered in dynamics. Xiao Cong showed that the VAS scores of patients in the first group were higher than those in the minimally invasive experimental group on post-operative period, with a statistically significant difference between the two groups observed in the first days (P = 0.00), but no statistically significant difference was noted on the prolonged time (P > 0.05) [11].

The evaluation of hip joint function before and after surgery was also carried out using the WOMAC system, which is quite informative and includes the determination of the following indicators in points: "Pain" - 44, for the categories "Function", "Amplitude of movements" and "Deformation" - 47, 5, 4, respectively. Statistical intergroup analysis, although at various stages of follow-up after endoprosthetics, a decrease in the level of WOMAC is recorded, reflecting the effectiveness of treatment of joint pathology in different groups, depending on the method of surgical access used [12]. The data obtained by the WOMAC index, presented in Table 3, show that by the 6th month after prosthetics, statistically significant differences in indicators were observed between all groups (p <0.05). In patients of the 1st control group, the values of the WOMAC index were the highest at the second stage of clinical observations and were fixed within 428.4±4.64 and significantly differed from those of the main group and the comparison group (p =0,0001). At the same time, statistical significance between the second and third groups was not observed (p=0,0279).

The most favorable dynamics according to the WOMAC scales in similar terms were formed in the main group, where the indicators were recorded at an average value of 355.1 ± 1.67. By the end of the studies, a very positive dynamic in improving the condition of prosthetic patients was determined in all experimental groups, and at the same time significant differences in the values of the WOMAC index between the examined groups of patients (p<0.05) were revealed. Thus, the highest index level 12 months after hip replacement remained in the control group and amounted to 286.8± 2.87, and the lowest was observed in patients who used minimally invasive surgical access - 209.6± 1.71 (p=0,0001). Thus, according to the indicators of the algo functional total WOMAC index, it is possible to judge the high therapeutic and preventive effectiveness of the proposed access technique when performing total endoprosthetics.

An important factor in the comparative evaluation of the effectiveness of various surgical access methods during total endoprosthetics of patients with dysplastic coxarthrosis was the study of the blood level of ESR indicators (Second International Consensus Meeting on Musculoskeletal Infection, 2018), reflecting the level of the inflammatory process and the entire postoperative rehabilitation period [11]. Statistical analysis of the data revealed that in all groups of patients before treatment clinically and statistically significantly there was a slight increase in ESR, without a statistically significant difference between the first and second groups of prosthetics (p=0,1744). According to the level of ESR reduction, the third main group and the second comparison group had a statistically significant effect in dynamics by the 12th month after treatment, that is, the indicators of biochemical blood analysis after a year of endoprosthesis in these groups were, we can say, within normal values, but at the same time, it should be noted that the tolerability was comparatively better in the longer term the process of endoprosthetics, which was carried out using minimally invasive surgical access. According to the VAS of pain and the WOMAC index, at various stages after the endoprosthetics of the affected joint, there was a decrease in indicators relative to the initial values. At the same time, all the examined groups, upon objective examination, achieved statistically significant results in a significant decrease in the intensity and relief of pain syndrome both after 6 months and by the end of observations (p=0.001). The more pronounced positive dynamics of changes in pain intensity indicators in the main group after surgery and total endoprosthetics, which persist for a longer period of time, indicates the high effectiveness of the proposed surgical access technique. Thus, the facts revealed in the course of these studies allow, along with the data of other authors [13], to assert that the quality of endoprosthetics of large joints against the background of the development of dysplastic coxarthrosis is influenced not only by the severity of the inflammatory-destructive process in the affected joint, but also by the degree of invasiveness of the surgical access used.

Conclusion.

The study of ESR, VAS pain and the WOMAC index after hip replacement, taking into account surgical access, is an effective and informative method for evaluating the functional results of both surgical and prosthetic treatment.

In total, the data of clinical and laboratory studies at various stages after total hip replacement differ significantly in patients of different clinical groups, which shows their dependence on the technique of operative access.

The proposed method of surgical access for total hip replacement in patients with dysplastic coxarthrosis is characterized by a relatively more pronounced decrease in the intensity of pain syndrome, inflammatory process, and improvement of functional ability. This is confirmed by the data of scientific studies conducted by some foreign authors.

REFERENCES

1. Anderson PM, Vollmann P, Weißenberger M, et al. Total hip arthroplasty in geriatric patients – a single center experience. SICOT-J 8. 2022;12.

2. Świtoń A, Wodka-Natkaniec E, Niedźwiedzki Ł, et al. Activity and Quality of Life after Total Hip Arthroplasty. Ortop Traumatol Rehabil. 2017;19:441-450.

3. Канзюба А І, Климовицький ВГ, Канзюба МА. Особливості тотальної артропластики при диспластичному коксартрозі Травма. 2015;16:72-78.

4. WHO/ILO joint estimates of the work-related burden of disease and injury, 2000-2016: global monitoring report: Geneva: World Health Organization and the International

Labour Organization, 2021. Licence: CC BY-NC-SA 3.0 IGO.
5. Janz V, Hipfl C, Düppers F, et al. Developmental Hip Dysplasia Treated with Cementless Total Hip Arthroplasty Using a Straight Stem and a Threaded Cup—A Concise Follow-Up, At a Mean of Twenty-Three Years. Journal of Clinical Medicine. 2021;10:1912.
6. Solarino G, Vicenti G, Piazzolla A, et al. Total hip arthroplasty for dysplastic coxarthrosis using a cementless Wagner Cone stem. J Orthop Traumatol. 2021;22.
7. Abdel KM, Andrawis J, Bengoa F, et al. Hip and knee section, diagnosis, algorithm: proceedings of international consensus on orthopedic infections. J Arthroplasty. 2019;34:339-350.
8. Nasirli DA. Small access surgery for total endoprosthetics in patients with dysplastic coxarthritis. Світ медицини та біології. 2022;4:128-132.
9. Knoth C, Zettl R, Markle A, et al. A retrospective analysis of surgical outcomes following direct anterior hip arthroplasty with or without a surgical extension table. International Orthopaedics (SICOT). 2020;44:1701-1709.
10. Sarraj M, Chen A, Ekhtiari S, et al. Traction table versus standard table total hip arthroplasty through the direct anterior approach: a systematic review. HIP International. 2020;30:662-672.
11. Xiao Cong, Zhixiang Gao, Shaoyun Zhang, et al. Comparative prospective randomized study of minimally invasive transpiriformis approach versus conventional posterolateral approach in total hip arthroplasty as measured by biology markers. International Orthopaedics. 2021;45:1707-1717.
12. Rojcharoenngam MD P. Comparison between minimally invasive anterolateral and conventional posterior hip approaches for hemiarthroplasty in hip fractures. JseaOrtho. 2022;46:17-23.
13. Rivera F, Comba LC, Bardelli A. Direct anterior approach hip arthroplasty: How to reduce complications - A 10-years single center experience and literature review. World J Orthop. 2022;13:388-399.

Резюме

РЕЗУЛЬТАТЫ ЭНДОПРОТЕЗИРОВАНИЯ ТАЗОБЕДРЕННОГО СУСТАВА У БОЛЬНЫХ С ДИСПЛАСТИЧЕСКИМ КОКСАРТРОЗОМ ПРИ РАЗЛИЧНЫХ ВАРИАНТАХ ХИРУРГИЧЕСКОГО ДОСТУПА

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С целью изучения особенностей хирургических доступов при эндопротезировании тазобедренного сустава у больных с диспластическим коксартрозом был проведен анализ течения болезни у 80 пациентов с диспластическим коксартрозом, находившихся на лечении на базе Терапевтической хирургической клиники Азербайджанского Медицинского Университета. Средний возраст пациентов составил 52,2±0,65, 51,6±0,55 и 50,3±0,71 лет с избыточной массой тела (ИМТ>= 25 и <30. Для определения активности воспалительного процесса и эффективности лечения выполнялся общий анализ крови и оценка СОЭ, суммарного индекса WOMAC и визуальной аналоговой шкалы боли ВАШ через 6 и 12 месяцев. При выполнении оперативных вмешательств использовались: заднебоковой доступ (операционная техника №1), доступ Хардинга (операционная техника №2) и предложенный малоинвазивный доступ (операционная техника №3). По ВАШ, СОЭ и WOMAC при использовании предложенного хирургического мини доступа к пораженному суставу в основной группе было достигнуто более выраженное, по сравнению с группой контроля и группой сравнения, снижение количественных показателей (p<0,001), что позволяет говорить о более существенном снижении интенсивности болевого синдрома (20,1±0,38 мм), риска развития воспалительного процесса (8,7±0,28 мм/ч) и сокращении реабилитационного периода.

Ключевые слова: диспластический коксартроз, эндопротезирование, хирургический доступ, СОЭ, болевой синдром