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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.

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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 ВИНТИ 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.

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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. Корректурa 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 computer-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 საქურაღებოლ!

რედაქციაში სტატიის წარმოდგენისას საჭიროა დაიცვათ 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. რენტგენოგრაფიების ფოტოასლები წარმოადგინეთ პოზიტიური გამოსახულებით **tiff** ფორმატში. მიკროფოტოსურათების წარწერებში საჭიროა მიუთითოთ ოკულარის ან ობიექტივის საშუალებით გადიდების ხარისხი, ანათალების შედეგების 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 ფხიხლებში 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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INNOVATIONS IN ORTHOPEDIC SURGERY: MINIMALLY INVASIVE TECHNIQUES FOR JOINT REPLACEMENT AND REPAIR

Sriniwas Vishnu Yadkikar¹, Komal Patel², Renuka Jyothi R³, Richard Swami⁴, Syam Bhargavan⁵, Sandeep Bishnoi⁶.

¹Professor, Department of Orthopedics, Jaipur National University, Jaipur, India.

²Consultant, Department of Gynaecology, Parul University, PO Limda, Tal. Waghodia, District Vadodara, Gujarat, India.

³Assistant Professor, Department of Life Science, School of Sciences, JAIN (Deemed-to-be University), Karnataka, India.

⁴Tutor, Department of Allied Health Science, IIMT University, Meerut, Uttar Pradesh, India.

⁵Professor, Department of Ayurveda, Sanskriti University, Mathura, Uttar Pradesh, India.

⁶Associate Professor, Department of Orthopaedics, TeerthankerMahaveer University, Moradabad, Uttar Pradesh, India.

Abstract.

The scientists compared the outcomes of a minimally invasive operation approach (MIO) to a conventional poster lateral (PL) method in overall hip replacement (OHR) in terms of itchiness, damage to muscles, and bleeding. The factors that researchers examined were the levels of Haemoglobin (Hg), a marker for oxygen depletion, the quantity of Interleukin-6 (IL6), a marker for inflammation, the heart-type fatty acid binding protein (HTFABP), and the health of the muscles. The study's findings showed that IL6 content increased beyond pre-operative levels as a result of the two surgeries. At 6 hours after surgery, the mean IL6 concentration in the PL group was 79.6 pg/ml while in the MIO group it was 76.4 pg/ml. The highest values after 24 hours of therapy were 100 pg/ml in the PL group and 92.3 pg/ml in the MIO category. In each category, IL6 levels had dropped up to this point. The post-operative mean HTFABP concentration in the MIO organization was greater (12.5 mg/l) than in the PL organization (18.3 mg/l) in terms of muscle damage. One day after surgery, however, it reached an apex and began to decline in both groups. The amounts of Hg lost throughout the procedure decreased for both sets. 12.5 g/dl of mercury was present. The MIO grouping had PL 72 hours following a procedure, while the PL grouping had 10.3 g/dl. Between the two surgical methods, there were no obvious differences in bleeding, muscle damage, or edema. These results led the researchers to draw the conclusion that there were little differences between the MIO anterior method and the traditional PL technique in terms of muscle damage, blood loss, or irritability. The lack of a learning curve in the study may account for the lack of alterations seen, they hypothesized, rendering the use of the term "MIO" in describing the approach as less traumatizing dubious. The study's methodology, sample sizes, and all other relevant material were left out, making it impossible to evaluate the study's validity and generalizability in its entirety.

Key words. MIO, OHR, Muscle damage, Blood loss, IL6.

Introduction.

OHR has evolved into one of those most commonly effectively conducted repairs in the field of orthopedic surgery. Since its development nearly 45 years ago, a complete replacement of a knee or hip joint has been done to safely and securely alleviate suffering, enhance operation, and regain mobility. The 'stress reaction' to process is the term used to define a number of well-known endocrine in metabolism, hematological, and immune alterations which are induced by operation [1].

Quicker recuperation may come from fewer clots, less tissue injury, and less irritation, and these aspects were heavily promoted by factories and some orthopedic physicians with the goal of supporting minimum or slightly intrusive surgeries. Recent meta-analytically indicate that while longer operating instances, laparoscopy offers the benefits of quicker healing and lesser length of hospitalization for procedures like minimally invasive colonic removal, appendectomy, spleen removal, and inguinal leakage treatment. There aren't many scientific papers regarding the outcomes of simpler orthopedic surgical methods [2].

The benefits include enhanced physical appeal to remarkably low complications and rapid healing timeframes. The outside rotators and thighs are bluntly using the PL approach for OHR, a large incision is made across the greater trochanter. Of all the methods described for the hip area, this one requires the deepest opening of the muscular barrier [3].

There are no tissues severed during the surgical procedure, and the opening is shorter those ten millimeters; nevertheless, significant force must be used to get a decent view. When pressure is applied, there may be serious tissue harm and significant inflammation. We wondered whether safe front approaches resulted in less surgical trauma than traditional posterior approaches. HTFABP is a reliable indicator of power cell deterioration. Muscles cells' watery plasma is very rich in 12.5-kDa HTFABP. This little chemical leaves the injured tissue of muscles quickly. It is regarded as an excellent diagnostic of damage to tissues due to its tiny molecular mass and abundant presence in the plasma [4-6].

The initial study that was conducted in anticipation of RCT comparing inflammation and damaged tissues caused contrasted with those brought on by less invasive hip surgery. The RCT's primary outcome groups' standard deviations were determined to reduce the likelihood of a type II error.

In [7], authors examined the most recent surgical techniques for treating femur knee abnormalities, including microfracture, cartilage replantation, ACI/MACI, and autograft/allograft transplantation. In addition, a state-of-the-art method for cartilage from the coastal region transplantation was available to correct serious fractures in the hip bone skull. Increasing the adjacent method's effectiveness. SPARTAQUUS (Spare the piriformis and Respect the Active QUadratusfemoris and gluteus medius), an altered surgically posterior method, comprises direct capsule restoration while sparing the wrist tendons, quadrates femora, while the middle gluteus medius muscles. Reducing the possibility of the replacement hip joint posterior dislocating [8].

According to [9] idealism, these quickly developing technology are producing a lot of innovations, investing more resources, being adopted by practitioners at a faster rate, and having a big medical effect. It can be helpful to identify patterns and potential paths in the subject of knee replacement and to periodically track technical progress using patent repositories. Modern robotics has made acetabular placement easier with precise, but historical data are needed to determine how economical it is. This approach [10] post tries to summarize along with the developments with advancements in full hip arthroscopy, including unique to patients equipment with digital printing to dual flexibility joints and augmented reality. This exemplifies the controversy that would surround the procedure over the ensuing ten years. The uneven spread of arthroscopic rotator cuff repair throughout the country demonstrates that different areas' Medicare patients weren't given comparable access to such treatments and that these differences persisted as time passed. Further study [11] is required to determine whether this subsequent acceptance causes disparities in the standard of care and cost of surgery provided to patients in these areas.

The goals of the primary curricular program for orthopedic and neurosurgery residencies are evolving primarily in accordance with shifts in healthcare delivery models and the quickening development of technological advances. Approached [12] for 3D modeling and sophisticated AR simulations might be utilized. Upcoming neurologists and orthopedic surgeons must understand the principles of continuing education in resident programs if they are to be successful in the individualized methods of surgery pain treatment. In the hip and knee, traditional arthroscopy is being replaced by the innovative and rising in popularity robotic-assisted arthroplasty, although it currently is not being researched in shoulder region. To provide a narrative examination of research on the background and potential future developments of robotic aid and technology advancements in total knee arthroscopy [13]. To increase the efficacy and dependability of such gadgets, a number of major issues in orthopedic prostheses engineering have to be resolved [14]. The article addresses the additional advancements in the industry and provides future orthopedic prosthetic designs. They can continue to improve the lives of people with orthopedic disorders and advance the practice of orthopedic prostheses by solving those issues.

Improvements in musculoskeletal care and quality of life are being made possible by significant advancements in the treatment of patients. As with every breakthrough, sometimes originally attractive developments have been later proven to have contradictory results in science. Orthopedic therapies are, moreover, especially vulnerable to early acceptance and market pressures for procedures that are not yet backed by the findings of science [15]. The objective of [16] the current study is to evaluate a biomechanical, non-invasive intervention's long-term impact in frequency of OHR and use about medical services over five years. The prevention of OHR and chronic knee discomfort are just two benefits of this biomechanical, non-invasive technique that saves money on healthcare resources. It has been suggested that overall hip replacement (OHR) utilizing minimally invasive techniques (MIO) is less stressful than using standard procedures in orthopedic surgery for joint replacement

and repair. Whether an anterior MIO approach causes less muscle damage and inflammation than the traditional posterolateral (PL) method was the main objective of this investigation.

Materials and Methods.

Utilizing minimally invasive methods in orthopedic surgery to replace and repair joints surgical techniques, the posterolateral approach, the anterior strategy, and statistical analysis all demonstrate that the suggested procedure performs. 25 people were hospitalized at our facility between May 2020 and December 2021 for bilateral hip replacements and joined in this non-randomized, non-blinded study. Every individual received verbal and in-writing research data, and their informed permission was collected. Information on demographics, an individual's body composition directory, and an evaluation using the American Society of Anesthesiologists (ASA) method was obtained prior to surgery.

Muscular injury has been assessed using the heart-type fatty acid binding protein (HTFABP) measure. For the purpose of identifying harm to muscles, comparing Haemoglobin to HTFABP, along with validating or debating outliers, Haemoglobin was also tested. Excluding injured muscles, potential tissue harm was detected using serum kinases choline (kc), aspartate aminotransferase (ASAT), and this enzyme (LDH). This was additionally decided that Interleukin-10 (IL-10) would be used to keep an eye on a potential regulation backlash.

Samples have been taken prior to the incisions as well as at 2, 4, 6, 24 and 72 hours thereafter. Following that, blood drops were spun up for 12 minutes at 3500 rotations per second. The underside was separated, and its plasma was kept in a spare tube.

The liquid was distributed among many tubes after repeating the operation. Before the investigation was over, the extracts were preserved at -90°C. These were first kept at -30°C. Although IL6 is an unstable cytokine, the entire operation was carried out with a compact spinning at a patient's mattress to minimize the period of the collection and centrifugal motion.

At 6, 24, and 72 hours following the procedure, hemoglobin levels were assessed at the nearby laboratories. The regional laboratory's Beckmann-Coulter Synchron LXi 725 also measured the levels of myoglobin that KC, ASAT, and LDH. ELISA testing was used to assess the levels of IL6 and IL10. Hycult Biotechnology graciously donated the HTFABP ELISA, which was carried out at the College of Limburg.

Methods for surgery.

The study involved five competent surgeons who execute more than 65 hip replacements annually. Three operators employed an uninterrupted lateral method, whereas two used a posterior technique. Every doctor participated in an autopsy session prior to conducting the less invasive method. A competent surgeon in MIO worked on the initial three hips. Two technicians performed on each MIS patient. The control technique was the anterior strategy, which was performed by two physicians independently.

Posterolateral strategy.

A posterolateral strategy was employed for the operation on the placebo sample. The positions of patients were horizontal

decubitus. The twisted wound was done over the more powerful trochanter and posteriorly. The exterior rotators and thigh muscles were separated. A posterior capsule puncture in the shape of an H was then made. The tip of the femur was eliminated, the hip joint was dislocated, while a surgical extraction of the collum was done employing an oscillation blade. The acetabulum was reamed after acetabular osteoarthritis and labrum fragments were removed, and the vessel was then placed in the position of choice.

Injection and end rotation were used to expose the bone's entrance site. The artificial joint was put in after the shaft of the femur was reamed. Reefing stitches were used to conduct a capsule closure after ultimate reductions. The upper ligament and the outside rotators were reattached. The layer of skin and skin layer were eventually closed.

Anterior strategy.

To achieve adequate knee being exposed, the surgical procedure was carried out using only one front incision and specifically created retractors. On the surgical table, sufferers were positioned recumbent with their legs hanging loose. The opening occurred in the perceptible space separating the transversal muscle lata and sartorius skeletal muscles, 4–5 centimeters away from the ASIS or front inferior pelvic spines. The measurement of the object as a whole incision was roughly equal to the cup's anticipated diameter. To protect the posterior femoral cutaneous nerves, subcutaneous fat was bluntly removed using extra caution. The medial edge of the transverse tissue lata muscle's fascia was removed, and the descending sections of the lateral femoral circumflex arteries were tied off. The capsule that protects the joint was then sliced in a configuration of an H.

As much as feasible, the spleen was separated from the intertrochanteric line on the median and ventral sides, and the front labrum was eliminated. An oscillation blade was employed to make the femoral neck cut while the femoral head was in a neutral state, and a disc composed of bone had to be removed. With the aid of a helical extractor, the core was eliminated. The ligaments and acetabular bone spurs were removed, and then the shoulder joint was speaking, and the cup was implanted.

By placing a support beneath the outermost thigh, lengthening the pelvis, tugging the leg in a four-pointed arrangement, and hooking through the calcar ventral at the entrance into tibial shafts were exposed. A capsulotomy was done at the bigger trochanter's foundation, while the larger trochanter was then enclosed with a retractor. The prosthesis was inserted after the shaft of the femur was rasped. Final reductions followed with capsule repair using reefing stitches, cartilage reattachment, and then cosmetic sealing.

Statistical analysis.

Utilizing SPSS 12.0, associations were computed using database-stored data. After applying the statistical method, the homogeneity of variance and normal distribution of all variables were checked. Patient features and surgery results were analyzed using the learning t-test. With the aid of Hochberg's technique and a GLM Repeat Measurements Evaluation, the values and indicators of hemoglobin were examined. When necessary, The Greenhouse-Geisser reduced findings were utilized to modify the analyses, including the within-subject factor(s) into account for heterogeneity of variances and covariance. The value of Alpha was 0.10.

Results.

Patient characteristics: Aged (69.3 years vs. 69.70 years) and length (178 centimeters vs. 181 centimeters; an insignificant difference) weren't different between both groups.

The MIO organization's BMI, or body composition, was significantly greater (28.3 vs. 31.3). In the PL category, there were 4 male and 12 women, while in the MIO category, there were 6 male and 8 women. In the PL group, 4 individuals got general anaesthetic and 8 individuals underwent spinal anesthesia. The ratio in the MIO group was 10 to 2. Patients' ASA grades (1-5) for PL had a score of 4/7/0/0, whereas MIO had a score of 7/5/0/0.

Operative data: Compared to the PL category, the MIO category's treatment was prolonged (83.0 min vs. 97.6 min). However, the anticipated quantity of blood lost throughout the surgery wasn't substantially higher (545 ml vs. 735 ml). The MIO group's incisions were substantially shorter (19.5 cm vs 8.8 cm) than that of the control category.

Inflammatory with muscle harm: According to the HTFABP data (Fig. 1), the surgery itself caused a considerable and quick rise in the level of HTFABP in the blood. This depicts the damage caused to tendons that causes the loss of cell membranes. Both surgery populations experienced comparable muscular cell injury. The area under the curve, which depicts the aggregate quantity of muscle tissues injured following an operation, is comparable in each group. The MIO category's variance is significantly higher versus the PL groups.

Following surgery in both surgical categories, there was a considerable elevation in IL6 levels (Figure 2) due to the stress on the individual's muscular tissues, as indicated by HTFABP. In both surgery categories, there were no appreciable differences in the highest and overall levels of inflammatory.

A single person in each group exhibited measurements that were over two averages above the mean. The two individuals

Table 1. The mean levels of hemoglobin, which LDH, CK, and ASAT over a period of time (SEM).

		72 Hours	24 Hours	6 Hours	4 Hours	2 Hours	Pre
ASAT	C	42.36±2.54	40.77±2.84	27.48±1.64	26.06±1.22	23.19±1.39	23.84±1.63
	MIS	30.10±3.59	30.12±2.82	23.24±0.92	21.73±0.73	18.69±0.52	22.16±1.73
LDH	C	342.02±12.95	307.02±19.38	309.62±12.46	305.72±12.82	306.72±16.52	325.02±16.87
	MIS	338.62±17.76	264.52±13.24	295.82±13.57	307.82±18.72	282.82±16.49	376.52±41.36
CK	C	609.62±95.98	796.32±110.94	383.22±64.54	301.32±47.62	179.52±28.82	73.12±8.33
	MIS	539.52±142.29	596.52±140.92	364.02±51.17	289.42±40.75	152.32±14.65	78.32±10.24
Myo	C	73.35±11.59	367.42±53.19	303.49±35.30	320.22±52.42	315.14±63.77	26.19±2.69
	MIS	119.28±30.28	363.49±118.74	406.07±64.92	366.63±48.43	300.37±30.46	33.74±8.05

were excluded from the evaluation because they were viewed as exceptions. This occurred both with IL6 and HTFABP. The pattern of the HTFABP and hemoglobin (Table 1 displays hemoglobin concentrations) was consistent.

Amounts of hemoglobin.

The following (fig. 3) displays the hemoglobin (Hg) levels. The statistics from both categories differed not significantly from one another. A patient in the MIO group with impaired cardiovascular health required one blood transfer. The afterward hemoglobin level for this patient was 9.9 g/dl. After surgery, the blood transfusion was administered right away.

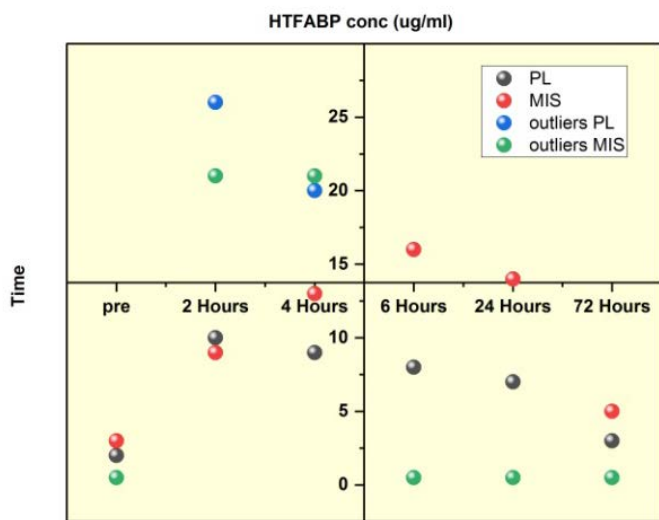


Figure 1. HTFABP contents for the MIO group (red) and the PL subgroup (black) as a result of duration. Bars of error that are significant for MIO and negative for PL represent the usual variation. One patient from each group was regarded as an outlier (>2SD). The most serious situations at 2 and 4 hours are shown.

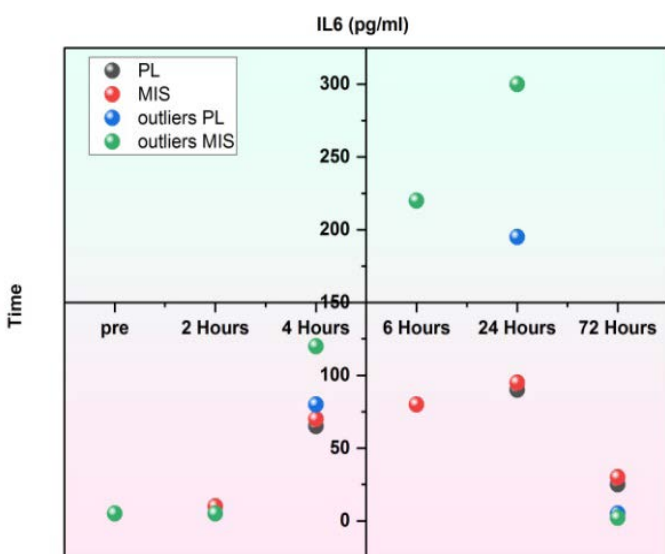


Figure 2. IL6 contents comparing the MIO sample (red) to the PL sample (black) as a function of duration. The variance bars, where PL is positive and MIO is negative, show the average deviations. A single individual from every set was seen as an exception (>2SD). At 4, 6, and 24 hours, exceptions were displayed.

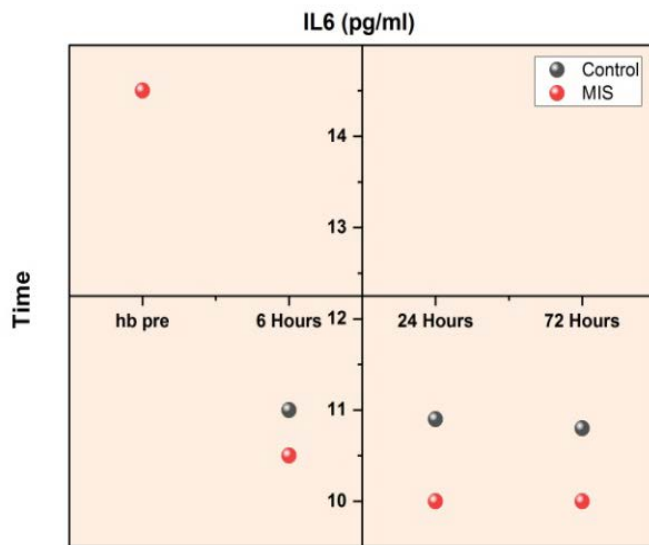


Figure 3. PL group's (black) and MIS organization's (red) levels of hemoglobin over time. The variance bars, which are positive for PL and negative for MIS, show the average variation.

Discussion.

The operation is intrusive and has built-in dangers including infection, blood clots, and difficulties from the anesthetic. It may take a long time and be difficult to recover, necessitating intensive physical treatment. A better outcome following OHR is linked to less bleeding, less soft tissue injury, and less inflammation. The promotion of minimally invasive surgery frequently uses the aforementioned criteria. It is thought that muscular injury, in particular, is of the biggest relevance and causes a delay in functional recovery. The PL technique could be anticipated to result in more muscle injury and delayed recovery than the less invasive anterior approach if tissue damage was only produced by cutting tissue. A smaller incision is used and no muscles are dissected during the minimally invasive procedure. However, a lot of strain needs to be used in order to have a decent vision during operation.

In the current study, we evaluated the amount of muscle injury and inflammation caused by total hip replacement using a minimally invasive method to the standard posterolateral approach. Furthermore, we questioned if straining the muscles under high tension during surgery results in muscle cell necrosis. We discovered equivalent levels of muscle injury and an inflammatory response in both groups, despite making a significantly bigger incision in the PL technique with what seemed to be greater direct muscle damage than in the MIO approach. The circulation levels of HTFABP in both groups increased significantly as a result of the surgery, according to the HTFABP data (Fig. 1). Following surgery, both groups had comparable peak levels of circulating HTFABP and total muscle tissue damage. Accordingly, it is hypothesized that the degree of muscle cell damage brought on by the considerable stress applied to the muscle tissue in the anterior MIO technique is comparable to the cell death brought on by cutting the muscle tissue in the traditional PL strategy. Both methods revealed a similar increase in plasma myoglobin levels to HTFABP. This demonstrates that several anomalous readings were not the

result of measurement mistakes, and that myoglobin is just as helpful as HTFABP in determining the degree of muscle injury at various surgical approaches to the hip as indicated in Table 1.

An important factor in determining the insult brought on by both surgery and trauma is interleukin-6 (IL-6). Both the PL group and the MIO group saw a considerable rise in IL-6 levels following surgery as a result of surgical trauma. In comparison to the anterior MIO technique, one would anticipate a larger peak and overall reactivity from the typical PL approach. However, there was no discernible difference in the degree of inflammation between the two surgery groups. In this pilot investigation, the hypothesised impact of decreased inflammation in MIO was not supported. Furthermore, interleukin-10 (IL-10) was used to test the anti-inflammatory response and neither group had an increase. The surgical trauma in the OHR does not appear to be significant enough to cause a tissue-protective anti-inflammatory response.

Conclusion.

Apart from the aesthetically reduced wound, little is currently no evidence to support faster healing or improved results with minimal hip methods. The minimally invasive anterior method appears to cause less muscle injury and inflammation than the traditional posterolateral technique. From our perspective, all clinicians that practice safe hip replacement are urged to gather information to show potential scientific evidence of the method's effectiveness and lack therein.

REFERENCES

1. Caruso G, Maricchiolo G, Micale V, et al. Physiological responses to starvation in the European eel (*Anguilla anguilla*): effects on hematological, biochemical, non-specific immune parameters and skin structures. *Fish Physiology and Biochemistry*. 2010;36:71-83.
2. Tanase I, Paun S, Negoii I, et al. Surgical treatment of acute complicated diverticulitis. In 18th European Congress of Trauma and Emergency Surgery. 2017;43:104.
3. Lawrie C.M, Bechtold D, Schwabe M, et al. Primary total hip arthroplasty via the direct anterior approach in the lateral decubitus position: surgical technique, learning curve, complications, and early results. *The Bone & Joint Journal*. 2021;103:53-58.
4. Hampp E.L, Sodhi N, Scholl L, et al. Less iatrogenic soft-tissue damage utilizing robotic-assisted total knee arthroplasty when compared with a manual approach: A blinded assessment. *Bone & joint research*. 2019;8:495-501.
5. Li N, Zhou Y, Wang J, et al. Sequential precipitation and delipidation enable efficient enrichment of low-molecular-weight proteins and peptides from human plasma. *Journal of proteome research*. 2020;19:3340-3351.
6. Xiao C, Gao Z, Zhang S, 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.
7. Du D, Hsu P, Zhu Z, et al. Current surgical options and innovation for repairing articular cartilage defects in the femoral head. *Journal of orthopedic translation*. 2020;21:122-128.
8. Gérard R, Savéan J, Lefèvre C. Minimally invasive posterolateral hip approach with SPARTAQUUS (Spare the Piriformis And Respect The Active QUadratusfemoris and gluteus mediUS) technique. *Orthopaedics & Traumatology: Surgery & Research*. 2020;106:1523-1526.
9. Rullán P.J, Grits D, Potluri A, et al. Identifying Trends and Quantifying Growth for Technological Innovation in Knee Arthroplasty: An Analysis of a Patent Database (1990 to 2020). *J Knee Surg*. 2023;36:1209-1217.
10. Fontalis A, Epinette J.A, Thaler M, et al. Advances and innovations in total hip arthroplasty. *SICOT-J*. 2021;7:26.
11. Huang K, Chen C.A, Dong S, et al. Differentiation ability of tendon-derived stem cells and histological characteristics of rotator cuff remnant on the greater tuberosity degenerated with age and chronicity. *Arthroscopy: The Journal of Arthroscopic & Related Surgery*. 2022;38:1037-1048.
12. Kruse C, Gouveia K, Thornley P, et al. COVID-19 and the transition to virtual teaching sessions in an orthopedic surgery training program: a survey of resident perspectives. *BMC Medical Education*. 2022;22:655.
13. Twomey-Kozak J, Hurley E, Levin J, et al. Technological Innovations in Shoulder Replacement: Current Concepts and the Future of Robotics in Total Shoulder Arthroplasty. *J Shoulder Elbow Surg*. 2023;S1058-2746(23)00417-2.
14. Tariq A, Gill A.Y, Hussain H.K. Evaluating the Potential of Artificial Intelligence in Orthopedic Surgery for Value-based Healthcare. *International Journal of Multidisciplinary Sciences and Arts*. 2023;2:27-36.
15. Schettini I, Palozzi G, Chirico A. Enhancing healthcare decision-making process: Findings from the orthopedic field. *Administrative Sciences*. 2020;10:94.
16. Shema-Shiratzky S, Mor A, Elbaz A. Non-invasive biomechanical intervention leads to low rates of total knee replacement and reduced utilization of healthcare resources among older adults with chronic knee pain: a 5-year follow-up study. *J Musculoskelet Disord Treat*. 2023;9:121.