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Review Article

Hip fracture treatment and complications after surgery

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ABSTRACT

Falls are one of the most important geriatric syndromes due to their high frequency, often without fatal consequences, but they do tend to affect the person's health and quality of life. The purpose of this review is to mention to most used options of treatment and the most common complication that occurred after the treatment. Whether physical or psychological complications. The average age is 82 years in women and 79 years in men; the largest number of causes occur during the day and at home, which is why more than 40% of the population has suffered a previous fracture. Most fractures are the result of trips or falls, but there are 5% who do not report previous traumatic episodes. The most common types of fracture according to the AO/OTA classification correspond to type 31-A1 and 31-A2 which are considered stable, likewise it is mentioned that the scope of treatment commonly used is intramedullary nailing and sliding screw plate, being the second one the preferred one. The risk factors associated with this complication were age, sex, and ASA score. In another way, the surgical complications included hematoma/healing, mechanical disorder, complications, infections, Necrosis, pseudoarthrosis, and malposition Healing and had the same risk factors associated plus the time it took to perform the surgery

Keywords: Hip fracture, Treatment, Complications, ASA, Surgery

INTRODUCTION

Falls are one of the most important geriatric syndromes due to their high frequency, often without fatal consequences, but they do tend to affect the person's health and quality of life.[1] As a consequence of falls, osteoporotic hip fractures are one of the main health problems of geriatric patients. It is said that approximately 1.3 million hip fractures were diagnosed in 1990 worldwide, and this global annual incidence is expected to increase to more than 6 million worldwide by 2050. Nearly 80% of fractures sustained by women and 50% of those suffered by men occur after reaching the age of 70 years. 90% of fractures occur after falls from standing height.[2]

The purpose of this review is to mention to most used options of treatment and the most common complication that occurred after the treatment. Whether physical or psychological complications.

Hip fractures are classified as intracapsular (femoral head, femoral neck) or extracapsular (intertrochanteric, trochanteric, or subtrochanteric). Hip fractures in older adults are typically low-impact injuries and are often associated with osteoporosis. Hip fractures in younger patients are usually caused by a high-energy impact like a traffic accident.

Hip fractures are considered to be fractures of the proximal femur, with more than 90% occurring in the neck of the femur or in the section of the proximal femur that lies between the greater and lesser trochanters.[3] Therefore, they represent a public health problem due to their high incidence and their impact on mortality and loss of quality of life.[4] They are very common serious injuries that present

with a substantially increasing incidence together with the growth and aging of the population.

The average age is 82 years in women and 79 years in men; the largest number of causes occur during the day and at home, which is why more than 40% of the population has suffered a previous fracture. Most fractures are the result of trips or falls, but there are 5% who do not report previous traumatic episodes.[5]

A hip fracture in an elderly patient not only affects mobility for several months, but more importantly; It causes high mortality during the first months and the first year. Many active and fit elderly people lose their independent mobility after a hip fracture, while the frailest patients may lose their independent life at home; as they become further debilitated due to pain, loss of mobility, and the inability to fend for themselves.[6]

Diagnosis is based on clinical features and principal imaging studies like MRI, CT scan, and X-rays.

The most common clinical features depend on the subtypes of hip fracture: Femoral head fracture-the most common symptoms are groin pain, local swelling, and ecchymosis. Uncommon but often associated with a posterior hip dislocation following a dashboard injury. Femoral neck fracture-the most common clinical features are groin pain, and shortened and externally rotated extremity.

Trochanteric fracture

Greater trochanteric fracture

Avulsion of the greater trochanter apophysis due to forceful contraction of the gluteus medius and minimus muscles during physical activity. The most common cause is-direct trauma to the greater trochanter and lesser trochanteric fracture

Avulsion of the lesser trochanter apophysis due to forceful contraction of the iliopsoas muscle. Most commonly seen in physically active young adults, particularly those who participate in high-impact sports such as wrestling.

Clinical features are greater trochanteric fracture local pain exacerbated by abduction, and lesser trochanteric fracture groin pain, which radiates to the knee or posterior thigh and worsens with hip flexion and rotation.

Intertrochanteric and subtrochanteric fracture

Hip pain and swelling, shortened and externally rotated leg, significant ecchymosis. Often associated with other injuries.

Treatment is principally by surgical management ideally within 24-48 hours of admission, to prevent acute complications like vascular or sciatic nerve damage.

Surgical technique depends on fracture location and characteristic of the patient, cancellous screws: a nondisplaced femoral neck fracture, dynamic hip screw: a nondisplaced base of femoral neck fracture, and arthroplasty or hemiarthroplasty: a displaced femoral neck fracture.

Nonoperative treatment could happen only in certain circumstances like patients with unstable vitals or patients with a high-risk osteoporosis. This type of management consists of anti-inflammatories, painkillers, and bed rest with assisted mobilization.

Postoperative treatment is one the most important part of management due to in this part can be prevented many complications. The main base of this management includes peripheral nerve blocks, avoidance of prolonged fasting, early removal of drains, and early ambulation.

The most common complication after a hip fracture is osteonecrosis of the femoral head, thromboembolism, infection, chronic pain, posttraumatic arthritis, nonunion, dislocation, nerve injury, and sciatic nerve injury.

DISCUSSION

Hip fractures are a common problem in emergency room and in the traumatology service, according to an article published by MC Musculoskelet Disord and mentioned in their article Epidemiology, treatment and mortality of trochanteric and subtrochanteric hip fractures: data from the Swedish fracture register, they mention that the most common types of fracture according to the AO/OTA classification correspond to type 31-A1 and 31-A2 which are considered stable, likewise it is mentioned that scope of treatment commonly used is intramedullary nailing and sliding screw plate, being second one the preferred one.[7]

As we already know, hip fractures and hip interventions tend to predominate in elderly patients and it is important to mention the factors that predispose to a longer hospital stay and prognosis at 12 months after surgery, as mentioned in an original article from a university hospital in Germany where a total of 402 hip fractures in patients over 60 years old were evaluated, including criteria such as the patient's health-related quality of life, mobility and functional capabilities with a follow-up of 6 to 12 months. In this study we can see that patients are divided into type 2, type 3, and type 4 including within these the most frequent complications found in patients, this study highlights that patients with complications directly related to surgery (type 3) had higher mortality within the first 6 months but once passing this period the recovery was quite favorable with less affection to the quality of life, in contrast to patients (type 2 and 4) with complications such as urinary tract infection, pneumonia, renal failure among others presented low mortality after the surgical procedure but greater affection to the quality of life. The article also mentions the economic impact, mentioning that patients with conditions requiring surgical revision and treatment

such as hematoma, pleural effusion, and wound infection are associated with higher costs.[8]

Talking about the complications associated the most effective tool that clinicians have to predict is the ASA score before and after the treatment. We found a retrospective cohort study made in Sweden based on data from 1987 to 2017 from the Swedish National Inpatient Register, which included 170,193 patients with first hip fractures. Where they compared the complications that occurred in the patients in a period of 1 year after the surgery treatment with the ASA score before the surgery and 1 year later. The most common complication found were urinary tract infection, pneumonia, and wound infection. A higher ASA score was strongly associated with all the complications mentioned before. In addition, less common complications but more dangerous like stroke, myocardial infarction, and pulmonary embolism were also associated with high ASA scores. This study also found that with an ASA score of 4 in 48% of the patients with this score died within a year after the surgery.

The case of pneumonia was almost 3 times higher among individuals with ASA score 4 than in the reference group. A similar result was found in the case of heart failure.[9]

Another cohort study conducted in Germany showed that nonsurgical complications are more frequent than surgical complications, including anemia in 38% and electrolyte disturbance in 24%. The risk factors associated with this complication were age, sex, and ASA score. In another way, surgical complications included hematoma/healing, mechanical disorder, complications, infections, necrosis, pseudoarthrosis, and malposition healing and had the same risk factors associated plus the time it took to perform the surgery. The study, conducted by the department of traumatology, orthopedics, and plastic surgery at the university medical center Göttingen in Göttingen, Germany, was mentioned in the article titled "hip fractures: Therapy, timing, and complication Spectrum." It involved 358 patients with proximal femoral fractures, of whom 33.6% experienced complications. Complications were observed in 118 patients, of which 11.5% were surgical complications and more common in patients who underwent surgery within 6 hours of injury.

Most of the complications occurred when using the proximal femoral nail, although the relative reflex indicates that this implant is the safest. Regarding mortality, 22 patients died during their hospital stay, and while they were generally older than the rest of the group, the difference was not statistically significant.

Time to operation did not differ among the surviving group; only the length of hospital stays varied.[10]

CONCLUSION

In conclusion, we believe that there are too many factors that can predict how a patient may respond to surgical treatment. But as we saw in the aforementioned, the ASA scale is the most determining factor. Speaking as is of surgical treatment, the technique used does not affect the evolution of the patient as much, and more studies are needed to establish which technique is the best. The only factor that has a great effect is the time it takes to apply the surgical treatment. The faster the better in almost all cases. Finally, post-surgery complications are also associated with the same factors mentioned above, and as a recommendation, they should be treated as quickly as possible for better evolution.

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REFERENCES

1. Síndrome post-caída en adultos mayores operados de fractura de caderas. Available at: http://scielo.sld.cu/scielo.php?script=sci_arttext&pid=S2709-79272020000300330. Accessed on 24 June, 2023.
2. Tarazona-Santabalbina FJ, Ojeda-Thies C, Rodríguez JF, Cassinello-Ogea C, Caeiro JR. Orthogeriatric Management: Improvements in Outcomes during Hospital Admission Due to Hip Fracture. Int J Environmental Res Publ Heal. 2021;18:3049.
3. Cadera. Ortopedia práctica en consultorio. Access Medicina. McGraw Hill Medical. Available at: https://accessmedicina.mhmedical.com/content.aspx?bookid=3225&sectionid=268231853. Accessed on 24 June, 2023.
4. Etxebarria-Foronda I, Larrañaga I, Ibarrondo O. Impacto de la demencia en la supervivencia de los pacientes con fractura de cadera intervenidos mediante prótesis total y parcial. Revista de Osteoporosis y Metabolismo Mineral. 2021;13(2):51-7.
5. Frederiksen A, Abrahamsen B, Johansen PB, Sørensen HA. Danish, national cross-sectional observational study on the prevalence of prior major osteoporotic fractures in adults presenting with hip fracture-limitations and scope for fracture liaison services in prevention of hip fracture. Osteoporosis Int. 2018;29(1):109-14.
6. Alexiou KI, Roushias A, Varitimidis SE, Malizos KN. Clinical Interventions in Aging Dovepress Quality of life and psychological consequences in elderly patients after a hip fracture: a review. Clin Interv Aging. 2018:13-43.
7. Mattisson L, Bojan A, Enocson A. Epidemiology, treatment and mortality of trochanteric and subtrochanteric hip fractures: data from the Swedish fracture register. BMC Musculoskelet Disord. 2018;19(1).
8. Knauf T, Hack J, Barthel J. Medical and economic consequences of perioperative complications in older hip fracture patients. Arch Osteoporos. 2020;15(1):1-9.

9. Meyer AC, Eklund H, Hedström M, Modig K. The ASA score predicts infections, cardiovascular complications, and hospital readmissions after hip fracture - A nationwide cohort study. Osteoporos Int. 2021;32(11):2185-92.
10. Saul D, Riekenberg J, Ammon JC, Hoffmann DB, Sehmisch S. Hip Fractures: Therapy, Timing, and Complication Spectrum. Orthop Surg. 2019;11(6):994-1002.

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