



MANAGEMENT OF ACUTE HIP FRACTURE: NARRATIVE REVIEW

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ABSTRACT

Fracture of the hip is a significant epidemiological concern, particularly among the elderly, with substantial impact on incidence, prevalence, morbidity, mortality, and healthcare costs. This review examines the current evidence on acute hip fracture management, providing insights into optimizing patient outcomes. It covers preoperative assessment, surgical intervention, perioperative care, and rehabilitation. Advancements in epidemiological data, surgical techniques, anesthesia protocols, and rehabilitation strategies have improved functional outcomes and reduced complications. The review explores risk assessment, surgical options, anesthesia considerations, pain management, early mobilization, and rehabilitation. Multidisciplinary collaboration, standardized protocols, and quality improvement initiatives are crucial. Identifying gaps in the literature emphasizes the need for further research to optimize management strategies.

KEYWORDS : Femoral neck fracture; health-related quality of life; internal fixation; patient-reported functional data.

INTRODUCTION

Fracture of the hip is a significant epidemiological concern, particularly among the elderly population, with a substantial impact on incidence, prevalence, morbidity, mortality, and healthcare costs. This review examines the current evidence on the management of acute hip fractures, providing insights into effective approaches for optimizing patient outcomes. It encompasses preoperative assessment, surgical intervention, perioperative care, and rehabilitation. Recent advancements in epidemiological data, surgical techniques, anesthesia protocols, and rehabilitation strategies have improved functional outcomes and reduced complications. The review explores risk assessment, surgical options, anesthesia considerations, pain management, early mobilization, and rehabilitation strategies. Multidisciplinary collaboration, standardized protocols, and quality improvement initiatives play a crucial role. Gaps in the existing literature are identified, emphasizing the need for further research to optimize management strategies (1).

METHODS

A comprehensive search strategy was developed in collaboration with a research librarian to identify relevant articles. Electronic databases, including PubMed, Embase, and Cochrane Library, were systematically searched using a combination of keywords related to acute hip fractures, management, surgical interventions, perioperative care, and rehabilitation. Additional sources, such as reference lists of included articles and relevant review papers, were hand-searched to ensure the inclusion of all relevant studies. Studies involving adult patients with acute hip fractures and focusing on management strategies, surgical techniques, perioperative care, or rehabilitation were considered. Studies published in languages other than English, case reports, editorials, and conference abstracts were excluded. Full-text articles of potentially eligible studies were then assessed for inclusion. The findings were synthesized narratively, providing a comprehensive overview of the different approaches and strategies employed in the management process. The strength of the evidence and the quality of the studies were considered in the interpretation of the findings.

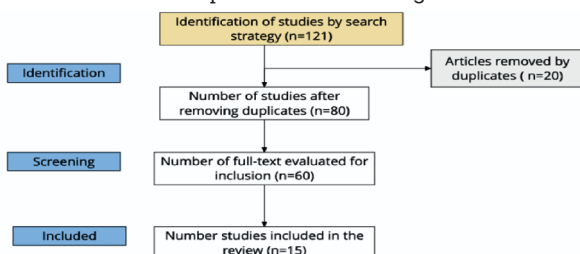


Figure 1. PRISMA.

Operative Management:

The operative management of acute hip fractures involves critical decision-making by surgeons. Three major considerations come into play when determining the appropriate treatment approach. Firstly, the patient's overall health status is evaluated to determine if surgery is a viable option. Secondly, the urgency of the procedure is assessed, considering factors such as the patient's stability and the potential impact of delaying surgery. Lastly, the choice of operation is determined based on factors like the anatomical location of the fracture, the extent of displacement, and the patient's physiological condition. These decisions are crucial in ensuring optimal outcomes and must be tailored to each patient's unique circumstances (2).

Surgical Timing in Acute Hip Fractures

The timing of surgery plays a crucial role in the management of acute hip fractures. Prompt intervention is generally favored to minimize complications and optimize patient outcomes. The goal is to perform surgery as soon as the patient's medical condition allows, taking into account factors such as patient stability and comorbidities. Early surgical intervention, typically within 48 hours of admission, has been associated with reduced complications, including lower rates of pneumonia, pressure ulcers, and urinary tract infections. It also leads to shorter hospital stays and improved functional outcomes. Delaying surgery beyond 48 hours, on the other hand, increases the risk of complications and can result in prolonged pain and immobility (2,3).

However, the decision for early surgery must be balanced with the patient's overall health status and readiness for the procedure. Preoperative optimization, including medical management and addressing any comorbidities, is crucial to ensure a safe surgical experience. Ultimately, the timing of surgery for acute hip fractures should be individualized, considering the patient's medical condition, readiness for surgery, and available resources. Collaborative decision-making involving orthopedic surgeons, anesthesiologists, and geriatricians is essential to determine the optimal surgical timing that maximizes the benefits while minimizing the risks associated with the procedure (3).

Femoral Neck Fracture

Fractures of the femoral neck present distinct challenges in their management, requiring careful consideration of treatment options based on factors such as fracture displacement, patient age, and associated risks. A randomized study comparing multiple cancellous screws versus a sliding hip screw in 729 patients with nondisplaced and 350 patients with displaced fractures found no significant

difference in the risk of reoperation over a two-year period. However, subgroup analysis indicated improved outcomes with a sliding hip screw for displaced or base-of-neck fractures with vertically oriented fracture lines, as it demonstrated better biomechanical load tolerance in laboratory testing (4).

For displaced femoral-neck fractures in patients aged 65 or older with low-energy (fragility) fractures, arthroplasty is generally preferred over internal fixation. A meta-analysis of 14 randomized trials involving 1907 patients showed that arthroplasty was associated with a lower risk of reoperation compared to internal fixation. Hemiarthroplasty and total hip arthroplasty both resulted in better functional outcomes and quality of life within one year after surgery compared to internal fixation. Long-term follow-up studies also showed improved hip function after total hip arthroplasty. However, arthroplasty carries a higher risk of infection and dislocation (4,5).

There is ongoing debate regarding the preferred implant (total hip arthroplasty or hemiarthroplasty) for arthroplasty procedures. A meta-analysis favored total hip arthroplasty for lower reoperation rates and better hip function, but highlighted a higher risk of dislocation. A large randomized trial comparing the two approaches in 1500 patients is currently underway. Internal fixation is less invasive and preferred by some patients, especially younger patients with higher-energy fractures. Adequate fracture reduction is crucial for successful fixation, as inadequate reduction increases the risk of fixation failure (6-8).

Understanding the nuances of treatment options for femoral-neck fractures is essential for optimizing patient outcomes and minimizing complications. Individualized decision-making based on factors such as fracture characteristics, patient age, and associated risks is crucial in achieving successful management (9).

Intertrochanteric Fractures

Intertrochanteric fractures are a common type of hip fracture that primarily affects older individuals, particularly those with osteoporosis. These fractures occur in the region between the greater and lesser trochanters of the femur and can result from trauma, falls, or underlying bone fragility. Intertrochanteric fractures are characterized by pain, swelling, and an inability to bear weight on the affected leg. Diagnosis is typically confirmed through imaging studies such as X-rays or CT scans, which help evaluate the fracture pattern and degree of displacement (10).

Surgical intervention is the primary treatment approach for intertrochanteric fractures, as it allows for early mobilization, pain relief, and restoration of function. Various surgical techniques may be employed, including intramedullary nails, compression hip screws, or dynamic hip screws, depending on the fracture pattern, patient characteristics, and surgeon preference. The choice of implant and surgical approach is determined by factors such as fracture stability, bone quality, and associated comorbidities (10,11).

Postoperative rehabilitation plays a vital role in the recovery process. Physical therapy helps improve range of motion, strength, and mobility. Weight-bearing and gait training are gradually introduced under the guidance of healthcare professionals. Complications associated with intertrochanteric fractures may include implant failure, infection, nonunion, or malunion. Close monitoring, follow-up visits, and imaging studies are necessary to assess healing and detect any potential complications (11).

Subtrochanteric Fractures

Subtrochanteric fractures are a type of hip fracture that occurs just below the lesser trochanter of the femur. These fractures typically result from high-energy trauma, such as motor vehicle accidents or falls from a significant height. They can also occur in individuals with weakened bones due to conditions like osteoporosis. Subtrochanteric fractures present with severe pain, swelling, and an inability to bear weight on the affected leg. Surgical intervention is the primary treatment approach for these fractures, often involving the use of intramedullary nails or plates to stabilize the fracture site. Rehabilitation and close monitoring are crucial for optimal recovery and prevention of complications (12,13).

Perioperative Care

Perioperative care for acute hip fractures focuses on ensuring optimal outcomes and minimizing complications throughout the surgical process. Before surgery, a comprehensive medical evaluation is performed to optimize the patient's health status. During surgery, attention is given to proper positioning, meticulous surgical technique, and careful handling of soft tissues to promote successful fracture stabilization. After surgery, pain management, infection prevention measures, and early mobilization are prioritized. Rehabilitation, including physical and occupational therapy, is initiated to restore function, strength, and mobility. Regular follow-up visits and imaging studies help monitor the progress of healing and detect potential complications. A multidisciplinary approach involving orthopedic surgeons, anesthesiologists, nurses, and therapists ensures comprehensive and individualized perioperative care for acute hip fractures (14,15).

In conclusion, the management of acute hip fractures requires careful consideration of various factors to determine the most appropriate treatment approach. Timing of surgery is crucial, with early intervention associated with better outcomes and reduced complications. For femoral neck fractures, arthroplasty is generally preferred for displaced fractures in older patients, while internal fixation may be suitable for younger patients. Understanding the nuances of treatment options and individualized decisions based on patient characteristics are essential for optimizing outcomes. Intertrochanteric and subtrochanteric fractures require surgical intervention, and postoperative rehabilitation plays a vital role in recovery. Perioperative care focuses on comprehensive evaluation, meticulous surgical techniques, pain management, infection prevention, and early mobilization. A multidisciplinary approach ensures personalized care for acute hip fractures.

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