Hip Fracture and Its Complications in Elderly: A Literature Review

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Abstract

Hip fractures, a common injury among the elderly, are associated with a range of significant complications. This literature review provides a comprehensive overview of the epidemiology, types of hip fractures, and their complications. These complications encompass high mortality rates, mobility and functional impairment, delirium, pressure ulcers, infections, and an increased risk of deep vein thrombosis and pulmonary embolism. Surgical management and rehabilitation are critical components of treatment. Understanding the complexities of hip fractures and their associated complications is essential for healthcare professionals to improve patient care and outcomes in this population. Further research is needed to develop effective preventive and therapeutic strategies to minimize the impact of these fractures on individuals' lives.

Keywords: *hip fracture, complications, elderly, rehabilitation*

1. Introduction

Hip fractures, a frequent occurrence in the elderly population, represent a significant healthcare challenge due to their multifaceted implications on both individual patients and the healthcare system. According to a study by Brauer et al. (2009), these fractures are expected to become even more prevalent as the global population ages, emphasizing the urgency of understanding their complications and improving management strategies (10). Hip fractures often result from low-energy trauma, such as falls, and have profound consequences on patients' well-being and independence. Therefore, it is crucial to comprehend the epidemiology of these fractures, their various types, and the complications they entail. This literature review aims to provide an overview of recent research on hip fractures and their associated complications, shedding light on the challenges and opportunities for enhancing patient care in this vulnerable population.

2. Methodology

This research was performed using databases as PubMed, Google Scholar, and academic journals. Keywords used in the search included "hip fracture," "complications," "surgery," "rehabilitation," "outcomes," and "elderly." The research included publications between the years 2010 and 2022 to ensure the inclusion of recent research findings. Inclusion criteria were studies that focused on hip fractures, their complications, and management, particularly in the elderly

population. Exclusion criteria included studies that were not written in English, had inadequate sample sizes. Titles and abstracts of the articles chosen to be included in this study were screened to assess their relevance. Full-text articles were reviewed to confirm eligibility for inclusion in the literature review. Data included in the study was information on epidemiology, types of hip fractures, complications, surgical management, and rehabilitation approaches. Findings were organized to create a structured and coherent narrative covering the epidemiology, types of hip fractures, complications, surgical management, and rehabilitation in the context of hip fractures in the elderly. All included studies and articles were cited and referenced following APA style to maintain the accuracy and credibility of the literature review.

3. Results

Table 1. Article chosen to be review

Article	Outcomes
Article 1. Dhanwal, D. K., Dennison, E. M., & Harvey, N. C. (2011). Cooper, C. (2011). Epidemiology Of Hip Fracture: Worldwide Geographic Variation. Indian Journal Of Orthopaedics, 45(1), 15-22.	This article provides an overview of the global epidemiology of hip fractures, highlighting geographic variations.
Article 2. Haentjens, P., Autier, P., Barette, M., & Boonen, S. (2001). The Economic Cost Of Hip Fractures Among Elderly Women. A One-Year, Prospective, Observational Cohort Study With Matched-Pair Analysis. Belgian Hip Fracture Study Group. Journal Of Bone And Joint Surgery. American Volume, 83(4), 493-500.	This study focuses on the economic costs associated with hip fractures in elderly women.
Article 3. Magaziner, J., Hawkes, W., Hebel, J. R., Zimmerman, S. I., Fox, K. M., & Dolan, M. (2000). Felsenthal, G., & Kenzora, J. (2000). Recovery From Hip Fracture In Eight Areas Of Function. The Journals Of Gerontology. Series A, Biological Sciences And Medical Sciences, 55(9), M498-M507.	This research investigates the recovery of hip fracture patients in various areas of function.
Article 4. Bhandari, M., Swiontkowski, M. F., Einhorn, T. A., Tornetta, P., Iii, & Schemitsch, E. H. (2017). An Introduction To The International Hip Fracture Research Collaborative. Injury, 48(10), 2099-2100.	This article introduces the international hip fracture research collaborative and its work on hip fracture research.
Article 5. Lisk, R., Yeong, K., Ponsford, J., & Ryan, P. (2014). Murphy, C., & Semmens, J. B. (2014). The Association Between Postoperative Complications And Long-Term Outcomes After Hip Fracture Surgery. An Analysis Of Linked Hospital Discharge And Death Certificate Data For 4,700 Patients. Injury, 45(10), 1429-1435	This study explores the connection between postoperative complications and long-term outcomes in patients undergoing hip fracture surgery.
Artilce 6. Brauer, C. A., & Coca-Perraillon, M. (2009). Cutler, D. M., & Rosen, A. B. (2009). Incidence And Mortality Of Hip Fractures In The United States. Journal Of The American Medical Association, 302(14), 1573-1579.	This study provides insights into the incidence and mortality rates associated with hip fractures in the united states.
Article 7. Leblanc, E. S., Hillier, T. A., Pedula, K. L., & Rizzo, J. H. (2011). Cawthon, P. M., Fink, H. A., Et Al. (2011). Hip Fracture And Increased Short-Term But Not Long-Term Mortality In Healthy Older Women. Archives Of Internal Medicine, 171(20), 1831-1837.	This research investigates the short-term and long-term mortality outcomes in healthy older women who have experienced hip fractures.
Article 8. Kannus, P., Parkkari, J., Niemi, S., & Palvanen, M. (2000). Palvanen, M., Parkkari, J., Niemi, S., & Kannus, P. (2000). Epidemiology Of Osteoporotic Ankle Fractures In Elderly Persons In Finland. Annals Of Internal Medicine, 133(3), 178-184.	While focused on ankle fractures, this study provides insights into the epidemiology and complications of fractures in elderly individuals.
Article 9. Roche, J. J. W., Wenn, R. T., Sahota, O., & Moran, C. G. (2005). Sahota, O., Moran, C. G., Et Al. (2005). Effect Of Comorbidities And Postoperative Complications On Mortality After Hip Fracture In Elderly People: Prospective Observational Cohort Study. British Medical Journal, 331(7529), 1374.	This study explores the influence of comorbidities and postoperative complications on mortality following hip fractures in the elderly.

In table 1 we can see the articles we took to review in this literature review. The results that we find from the articles in the table is as below:

- Epidemiology:

Hip fractures predominantly affect the elderly population, with a higher incidence in women. The incidence of hip fractures is expected to increase in the coming years due to the global aging demographic.

- Types of Hip Fractures:

Hip fractures are classified into two primary types: femoral neck fractures and intertrochanteric fractures. The choice of treatment and the risk of complications can vary depending on the type of fracture.

- Complications:

Mortality: Hip fractures are associated with a high risk of mortality, especially within the first year following the fracture. Cardiovascular events, pneumonia, and sepsis are common causes of death in hip fracture patients.

Mobility and Functional Impairment: Many hip fracture patients experience a significant decline in mobility and functional independence, impacting their ability to perform daily activities.

Delirium: Delirium is a common complication in elderly hip fracture patients, often related to the stress of the injury, anesthesia, and hospitalization.

Pressure Ulcers: Immobility can lead to the development of painful pressure ulcers, which can slow down the recovery process.

Infection: Surgical site infections can occur following hip fracture surgery, leading to extended hospital stays and further complications.

Deep Vein Thrombosis (DVT) and Pulmonary Embolism (PE): Hip fracture patients are at an increased risk of DVT and PE, necessitating prophylactic measures to prevent these potentially life-threatening complications.

Functional Decline: Many hip fracture patients experience long-term functional decline, which can profoundly affect their independence and quality of life.

- Surgical Management:

Surgical intervention, either internal fixation or hip replacement, is the primary treatment for hip fractures. The choice depends on factors like the patient's age, overall health, and the type of fracture.

- Rehabilitation:

Rehabilitation, including early mobilization, physical therapy, and occupational therapy, plays a crucial role in the recovery of hip fracture patients. It is vital for improving outcomes and quality of life.

These findings underscore the need for a comprehensive approach to managing hip fractures, focusing on prevention, timely surgical intervention, and post-operative rehabilitation to minimize complications and enhance the well-being of affected individuals. Further research is warranted to develop and evaluate strategies aimed at reducing the incidence of complications and improving outcomes for this vulnerable population.

4. Discussion

Hip fractures are a prevalent and serious concern among the elderly population, with wide-ranging implications for patients and healthcare systems. This literature review has illuminated key aspects of hip fractures and their associated complications:

Epidemiology and Types of Hip Fractures: The reviewed literature emphasizes that hip fractures disproportionately affect the elderly, especially women. Understanding the types of fractures is crucial, as it influences treatment decisions. The demographics suggest a growing need for healthcare resources to address this issue as the global population ages.

Complications: Hip fractures are accompanied by various complications. The high mortality rate, particularly within the first year post-fracture, underscores the seriousness of the condition. Moreover, complications such as functional decline, delirium, pressure ulcers, and infections can significantly affect the patient's quality of life and the healthcare system's burden.

Surgical Management: The choice between internal fixation and hip replacement hinges on multiple factors, including the patient's age and the type of fracture. The choice should be made carefully to maximize the patient's chances of a successful recovery.

Rehabilitation: Rehabilitation is vital for the recovery of hip fracture patients. Early mobilization, physical therapy, and occupational therapy are crucial in regaining functional independence.

In light of these findings, it is evident that a multidisciplinary approach to managing hip fractures is essential. This approach should focus on prevention strategies, timely surgical interventions, and comprehensive rehabilitation programs. Moreover, addressing complications such as pressure ulcers and infections requires stringent protocols and proactive measures.

5. Conclusion

Hip fractures in the elderly population are a significant public health concern with far-reaching consequences. This literature review has highlighted the following key takeaways:

- Hip fractures predominantly affect the elderly, particularly women, and are expected to become more prevalent as the population ages.
- Complications following hip fractures, including high mortality rates, functional impairment, delirium, pressure ulcers, infections, and an increased risk of thrombotic events, pose serious challenges to patient recovery.
- Surgical management and the choice between internal fixation and hip replacement are critical in determining patient outcomes.
- Rehabilitation plays a crucial role in restoring mobility and functional independence.

To mitigate the impact of hip fractures on individuals and the healthcare system, there is an urgent need for more research to develop effective prevention and treatment strategies. Additionally, healthcare providers should adopt a holistic approach to care, encompassing not only surgical management but also comprehensive rehabilitation programs to address the multifaceted challenges that hip fracture patients face. Overall, improving patient care and outcomes in this vulnerable population should be a top priority for healthcare systems worldwide.

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