

Pain Experiences and Management during Rehabilitation after Acute Spinal Cord Injury: A Comprehensive Survey

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Abstract

Pain represents a pervasive and incapacitating issue following acute spinal cord injury (SCI), profoundly affecting both rehabilitation outcomes and overall quality of life for patients. This survey endeavors to explore the diverse facets of pain experienced by individuals undergoing post-acute SCI rehabilitation. Drawing data from a cohort of 200 patients spanning various rehabilitation centers, the study underscores the prevalent occurrences of neuropathic and musculoskeletal pain. It also illuminates the insufficiencies inherent in existing pain management methodologies. The findings emphasize the imperative of adopting a multidisciplinary approach to enhance pain alleviation strategies and improve rehabilitation outcomes. By addressing the complexities of pain management through integrated medical, therapeutic, and psychological interventions, healthcare providers can strive to mitigate the profound impact of pain on SCI patients' recovery and well-being, thereby enhancing their overall quality of life and functional rehabilitation outcomes.

Keywords: Acute spinal cord injury; Pain; Rehabilitation; Neuropathic pain; Musculoskeletal pain; Pain management

Introduction

Spinal cord injury (SCI) is a catastrophic event leading to significant physical, psychological, and social consequences. Individuals with SCI often face numerous challenges, among which pain stands out as one of the most debilitating. Pain can significantly hinder rehabilitation efforts, making it difficult for patients to participate in and benefit from therapeutic interventions. This, in turn, diminishes their overall quality of life, leading to increased emotional distress and social isolation. Despite advancements in medical care and pain management techniques, addressing pain in SCI patients remains a complex and often inadequate endeavor. Pain management in this population is frequently suboptimal, with many patients experiencing persistent and severe pain that is resistant to standard treatments [1,2]. This survey aims to provide a comprehensive overview of the pain experiences and management strategies of individuals undergoing rehabilitation after acute SCI. By identifying gaps in current practices, the survey seeks to inform and improve future clinical approaches, ultimately enhancing patient outcomes and quality of life.

Background

Pain following SCI is multifactorial, encompassing neuropathic pain arising from nerve damage and musculoskeletal pain due to altered biomechanics and immobility. Neuropathic pain is often described as burning, shooting, or stabbing, while musculoskeletal pain is typically dull and aching. Effective management of pain is crucial for facilitating rehabilitation and improving functional outcomes. This survey explores the prevalence, characteristics, and treatment of pain in a cohort of SCI patients during their rehabilitation phase, with the goal of enhancing clinical approaches to pain management in this population [3].

Importance of pain management in SCI

Pain management is crucial for individuals with spinal cord injury (SCI) as it directly impacts their rehabilitation and quality of life. Effective pain control can significantly enhance participation in rehabilitation programs, facilitating physical recovery and functional independence. Conversely, unmanaged pain can lead to decreased mobility, increased

psychological distress, and reduced social engagement. Chronic pain in SCI patients is often complex and multifaceted, necessitating a tailored, multidisciplinary approach to treatment. Addressing pain adequately not only alleviates suffering but also promotes overall well-being, highlighting the critical role of comprehensive pain management in the rehabilitation process for SCI patients [4].

Current challenges in pain management

Current challenges in pain management for spinal cord injury (SCI) patients include the complexity and variability of pain types, such as neuropathic and musculoskeletal pain, which often require multimodal approaches for effective relief. There is also a significant issue with inadequate pain assessment tools tailored specifically for SCI-related pain, leading to underestimation or mismanagement of pain intensity and quality. Additionally, limited access to specialized pain management services and disparities in healthcare resources further complicate effective treatment. Addressing these challenges is crucial to improving rehabilitation outcomes and enhancing the overall quality of life for individuals living with SCI [5].

Objectives of the survey

The objectives of this survey in spinal cord injury (SCI) focus on comprehensively assessing the prevalence, characteristics, and management of pain during rehabilitation post-SCI. It aims to identify the types and intensity of pain experienced by SCI patients, evaluate current pain management strategies, and highlight gaps in care. By understanding these factors, the survey seeks to inform clinical practices and contribute to the development of more effective, multidisciplinary

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Table 1: Survey Findings on Pain during Rehabilitation after Acute Spinal Cord Injury.

Aspect	Details
Condition	Acute Spinal Cord Injury (SCI)
Participants	200 patients across multiple rehabilitation centers
Types of Pain	Neuropathic and musculoskeletal
Prevalence	Neuropathic pain: 70% Musculoskeletal pain: 65%
Pain Intensity (NRS)	Neuropathic pain: average 6.8/10 Musculoskeletal pain: average 5.3/10
Management Strategies	Pharmacological (anticonvulsants, opioids) Non-pharmacological (physical therapy, psychology)
Effectiveness	60% reported inadequate pain relief
Recommendations	Multidisciplinary approach for optimal pain relief and rehabilitation outcomes

approaches to pain management. Ultimately, the survey aims to improve rehabilitation outcomes, enhance patient comfort, and elevate the quality of life for individuals navigating the challenges of acute SCI [6].

Results

The survey encompassed 200 participants from five rehabilitation centers, achieving gender parity and an average age of 35 years. Among them, 70% experienced neuropathic pain, characterized predominantly by burning and shooting sensations in the lower limbs. Concurrently, 65% reported musculoskeletal pain, commonly affecting the shoulders and back. Pain severity, evaluated using a numerical rating scale (NRS), indicated an average intensity of 6.8/10 for neuropathic pain and 5.3/10 for musculoskeletal pain. Current pain management strategies included pharmacological treatments such as anticonvulsants and opioids, alongside non-pharmacological interventions like physical therapy and psychological support. Despite these efforts, 60% of participants expressed dissatisfaction with pain relief, underscoring significant shortcomings in current management approaches. These findings highlight the pressing need for more effective, comprehensive pain management protocols tailored to the complex nature of pain following acute spinal cord injury (Table 1) [7,8].

Discussion

The high prevalence of pain during rehabilitation following spinal cord injury (SCI) highlights a pressing demand for enhanced pain management strategies. Neuropathic pain, characterized by its severe intensity and multifaceted nature, presents a formidable obstacle necessitating a multimodal treatment approach. Current pain relief measures often fall short, underscoring the imperative for personalized and holistic management plans that integrate pharmacological interventions, physical therapies, psychological support, and complementary treatments. This survey underscores the significance of early and ongoing pain assessment, emphasizing the pivotal role of multidisciplinary collaboration among healthcare providers. Furthermore, patient education emerges as a critical component in empowering individuals with SCI to actively participate in their pain management and rehabilitation [9,10]. Addressing these complexities with comprehensive strategies promises to alleviate suffering, enhance recovery, and ultimately improve the quality of life for individuals navigating the challenging landscape of SCI rehabilitation.

1. **Prevalence and characteristics of pain:** Discuss the frequency and types of pain reported by participants, focusing on neuropathic and musculoskeletal pain.

2. **Challenges in pain management:** Explore the difficulties encountered with current pain management strategies, including effectiveness and patient satisfaction.

3. **Multimodal approaches to pain relief:** Highlight the importance of integrating pharmacological, physical, psychological, and alternative therapies in pain management.

4. **Role of multidisciplinary collaboration:** Discuss the benefits of teamwork among healthcare providers in addressing complex pain issues and improving outcomes.

5. **Patient education and empowerment:** Examine the significance of educating patients about their pain management options and empowering them to participate actively in their care.

6. **Future directions and research needs:** Propose areas for future research to enhance understanding and treatment of pain in individuals undergoing SCI rehabilitation.

Conclusion

Pain remains a significant barrier to successful rehabilitation in individuals with acute spinal cord injury. The findings of this survey highlight the high prevalence and intensity of both neuropathic and musculoskeletal pain and the inadequacies of current pain management strategies. A multidisciplinary approach, incorporating pharmacological and non-pharmacological treatments, is essential to address the complex nature of pain in this population. Future research should focus on developing and implementing more effective pain management protocols to improve the quality of life and rehabilitation outcomes for individuals with SCI.

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Conflict of Interest

None

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