

Chronic Pain and Gender: Biological Mechanisms and Clinical Implications for Personalized Pain Medicine

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ABSTRACT

Chronic pain is a prevalent and complex complication among critically ill patients, significantly impacting quality of life, functional status, and mental health. Its management is particularly challenging due to the multifaceted nature of pain, which involves biological, psychological, and social dimensions. Traditional approaches focusing solely on pharmacologic interventions often fall short in addressing the diverse needs of this patient population. A multidisciplinary approach, integrating pain specialists, physicians from various disciplines, psychologists, physical therapists, and social workers, has emerged as a cornerstone in the effective management of chronic pain in critically ill and recovery-phase patients. This model emphasizes personalized care, combining pharmacological strategies with psychological therapy, physical rehabilitation, and social support, aiming to reduce pain intensity, improve functional outcomes, and enhance psychological wellbeing. This review highlights the importance and principles of multidisciplinary pain management frameworks specific to the critically ill population. It explores the current evidence supporting integrated interventions, discusses the challenges in implementation, and emphasizes the need for comprehensive assessment tools that capture the multidimensional aspects of pain. The role of advanced pain assessment techniques, non-pharmacologic therapies, and patient-centered goal setting are underscored as critical components of effective treatment. Additionally, this paper advocates early intervention and ongoing reassessment tailored to individual patient trajectories, fostering improved recovery and quality of life. Recognizing the complexity of chronic pain following critical illness, adopting a multidisciplinary, holistic approach is essential for optimal patient outcomes, emphasizing both pain relief and functional rehabilitation within critical care and post-acute settings.