INTEGRATIVE APPROACHES TO BURN MANAGEMENT: MODERN DRUG THERAPIES AND TRADITIONAL ETHNOMEDICINAL TREATMENTS

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ABSTRACT

Burn injuries, which are marked by substantial tissue destruction, a high risk of infection, delayed wound healing, and long-term functional and psychological consequences, continue to be a major global health burden. Topical antimicrobials, systemic antibiotics, analgesics, and sophisticated wound dressings are key components of modern burn care. Even while these treatments are essential for acute care, antimicrobial resistance, delayed tissue regeneration, side effects, high cost, and restricted accessibility in places with limited resources are all posing a growing threat to their long-term efficacy. As a result, integrative approaches that blend scientifically proven ethnomedical therapies with evidence-based medication are becoming more popular. Many plant-based substances with anti-inflammatory, antioxidant, antibacterial, and pro-regenerative qualities that are pertinent to the healing of burn wounds are available in traditional medical systems. Alongside important ethnomedical substances including *Hippophae rhamnoides, Aloe vera, Curcuma longa, Azadirachta indica,* and *Calendula officinalis*, this review critically evaluates contemporary pharmacotherapies. Mechanistic plausibility, safety, dose standardization, regulatory concerns, and possible herb-drug interactions are all emphasized. Particularly in healthcare systems with limited resources, integrative burn management may offer a viable and easily available supplement to traditional therapy when guided by pharmacological data and clinical discretion.

Keywords: Burn injuries, Integrative burn care, Ethnomedicine, *Hippophae rhamnoides*, Wound healing

1. INTRODUCTION

Burn injuries are one of the most complex and deadly types of trauma, causing a huge global health burden with serious clinical, economic, and emotional repercussions. Every year, millions of people suffer burn injuries, with low- and middle-income nations experiencing disproportionately high morbidity and mortality due to restricted access to specialized burn care [1]. Aside from rapid tissue loss, burns cause a cascade of pathophysiological processes such as deep inflammation, oxidative stress, immunological dysfunction, and metabolic abnormalities, all of which complicate and prolong healing. Severe burns are also associated with increased risk of infection, sepsis, scarring, and long-term functional impairment, emphasizing the importance of comprehensive and successful therapy strategies [2]. Topical antimicrobials, systemic antibiotics, analgesics, fluid resuscitation, sophisticated wound dressings, and surgical procedures like debridement and skin grafting are the mainstays of modern burn management. These treatments have significantly improved survival rates and acute outcomes; but, they are frequently insufficient to support optimal tissue regeneration and long-term functional recovery. Furthermore, the growing problem of antibiotic resistance, adverse drug reactions, high treatment costs, and a scarcity of innovative medicines in resource-constrained areas reveal major gaps in existing care [3]. In parallel, traditional medicinal systems have long used plant-based medicines for wound and burn healing, which are high in bioactive chemicals with anti-inflammatory, antioxidant, antibacterial, and regenerative characteristics. Advances in phytochemistry, molecular biology, and pharmacology have rekindled scientific interest in these ethnomedicinal compounds as supplements to conventional therapy. An integrative approach that deliberately blends modern pharmacotherapies with properly tested ethnomedicinal interventions