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Multimodal Care Approaches for Toxic Epidermal Necrolysis

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Introduction

Toxic Epidermal Necrolysis (TEN) is a rare but life-threatening dermatological emergency characterized by extensive epidermal detachment and mucosal involvement. Due to its severe nature, management requires a multidisciplinary approach encompassing various modalities of care. Toxic Epidermal Necrolysis (TEN), also known as Lyell's syndrome, represents a severe cutaneous adverse drug reaction characterized by widespread epidermal detachment and mucosal involvement. With an incidence rate of approximately 0.4 to 1.2 cases per million person-years, TEN poses significant challenges in management and requires prompt recognition and intervention to mitigate morbidity and mortality. The pathogenesis of TEN involves a complex interplay of immunological mechanisms triggered by drug hypersensitivity reactions. Key players include cytotoxic T lymphocytes and natural killer cells, which target keratinocytes, leading to widespread keratinocyte apoptosis and subsequent epidermal detachment [1].

Description

The involvement of specific human leukocyte antigen alleles has also been implicated in predisposing individuals to develop severe cutaneous adverse reactions. The clinical presentation of TEN typically begins with flu-like prodromal symptoms followed by the onset of rapidly progressing erythematous rash and blister formation, involving more than 30 % of the total body surface area. Mucosal involvement, including oral, ocular and genital mucosae, is common and can lead to severe complications such as ocular sequelae and respiratory compromise. Diagnosis relies on clinical assessment, histopathological examination and exclusion of other differential diagnoses such as Stevens-Johnson syndrome and erythema multiforme. Supportive care forms the cornerstone of TEN management and involves meticulous wound care, fluid and electrolyte management, temperature regulation and nutritional support. Comprehensive wound care aims to prevent infection, promote re-epithelialization and minimize pain and discomfort [2].

Pharmacological interventions in TEN primarily focus on immunomodulation and suppression of the inflammatory cascade. Systemic corticosteroids, despite their controversial role, are commonly used in the acute phase to attenuate immune-mediated damage [3]. Intravenous immunoglobulins have shown promising results in some studies, with their mechanism of action thought to involve neutralization of pathogenic antibodies and modulation of immune cell function. Other adjunctive therapies include cyclosporine, thalidomide and tumor necrosis factor-alpha inhibitors, although their efficacy requires further investigation. Emerging treatment modalities for TEN encompass novel therapeutic approaches aimed at targeting specific pathogenic mechanisms [4]. These include biologic agents such as rituximab, which targets B-cell-mediated immune responses and Janus kinase inhibitors, which modulate inflammatory signaling pathways. Additionally, advances in tissue engineering and regenerative medicine hold promise for promoting wound healing and reducing scarring in TEN patients [5].

Conclusion

Complications of TEN are diverse and may include sepsis, multiorgan failure, ocular sequelae and psychological distress. Long-term management focuses on rehabilitation, scar management, ocular care and psychosocial support to optimize quality of life and functional outcomes for survivors. Toxic Epidermal Necrolysis represents a dermatological emergency associated with high morbidity and mortality rates. Multimodal therapeutic approaches encompassing supportive care, pharmacological interventions and emerging treatment modalities are essential for optimizing outcomes in TEN patients. Further research is warranted to elucidate the underlying pathogenic mechanisms and identify novel therapeutic targets to improve the management of this devastating condition.

Acknowledgement

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Conflict of Interest

None.

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