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Factors Forecasting the Outcome of Stevens-Johnson Syndrome and Toxic Epidermal Necrolysis A Retrospective Study

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Abstract
Background: Severe skin diseases with high morbidity and mortality rates include toxic epidermal necrolysis (TEN) and Stevens-Johnson syndrome (SJS). For best management, it is essential to comprehend the variables that predict how certain circumstances will turn out.

Methods: The objective of this retrospective study was to discover the variables that predicted the results of SJS and TEN. Data were gathered from the medical files of patients with SJS or TEN diagnoses. The analysis covered 150 patients in total. The evaluation of clinical traits, triggers, treatment patterns, and test results. Mortality was the main result, and mucosal involvement and the degree of skin detachment were the secondary results.

Results: The most frequent cause of SJS and TEN was medication, particularly antibiotics. Poor outcomes were linked to mucosal involvement and extensive body surface area (BSA) involvement. A considerable portion of patients had leukocytosis and hypoalbuminemia, according to laboratory results. Supportive care, such as managing fluids and caring for wounds, was given to everyone. In most instances, systemic corticosteroids were utilized. Age, significant BSA involvement, and hypoalbuminemia were found to be independent indicators of poor outcomes, with the overall death rate being 20%.

Conclusion: This retrospective investigation found characteristics predicting the course of SJS and TEN, including pharmaceutical triggers, the degree of BSA involvement, mucosal involvement, and laboratory abnormalities. These results highlight how crucial it is to identify these factors early and to manage and monitor them appropriately in order to enhance patient outcomes. To validate these results and create evidence-based management guidelines for SJS and TEN, prospective trials are required.

1. Introduction

The rare but severe mucocutaneous responses Stevens-Johnson syndrome (SJS) and toxic epidermal necrolysis (TEN) are often brought on by exposure to specific drugs or infections [1]. They are distinguished by severe organ system involvement and widespread epidermal detachment, which cause significant morbidity and mortality [2]. The prognosis of SJS and TEN remains difficult to predict reliably despite advances in medical therapy. It is essential to comprehend the causes of poor outcomes in order to enhance patient care and the effectiveness of therapeutic measures.

For SJS and TEN, a number of clinical and laboratory indicators have been suggested as potential prognostic markers. The degree of skin detachment, expressed as the percentage of body surface area (BSA) affected, is one of the crucial variables [3]. According to earlier research, patients with more BSA involvement are at an increased risk for mortality and morbidity [4]. Age, mucosal involvement, and the existence of systemic symptoms are a few additional clinical characteristics

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that have been proposed as indicators of worse outcomes [5]. Additionally, the severity of the disease has been linked to laboratory findings such the leukocyte count, serum albumin levels, and liver function tests [6].

Due to inconsistent findings in the studies, there is currently little agreement on the predictive power of these variables. Additionally, there is a dearth of information regarding how different treatment approaches, such as the early start of immunosuppressive medicine or supportive care practices, affect the prognosis of the disease [7]. Therefore, in order to pinpoint trustworthy characteristics linked to unfavorable outcomes, a thorough examination of a sizable cohort of SJS and TEN patients is required.

The objective of the current retrospective study is to evaluate the prognostic variables affecting SJS and TEN outcomes. This study seeks to give doctors with useful information for risk stratification and treatment decision-making by examining a wide range of demographic, clinical, and laboratory characteristics. The results of this study will aid in generating individualized therapeutic strategies, optimizing resource allocation, and enhancing patient outcomes.

2. Materials and Methods

Design of the Study and Participants

Patients who received an SJS or TEN diagnosis between 2021 and 2022 at a tertiary care center were included in this retrospective analysis. The Institutional Review Board (IRB) gave its approval to the study protocol, which was carried out in accordance with ethical standards.

Data Gathering

Electronic medical records were used to extract patient information, including demographic details, clinical traits, laboratory findings, treatment modalities, and outcomes. All information was anonymised and securely kept.

Measures of Results

The mortality rate, which was determined as deaths occurring between 2021 and 2022 after a diagnosis of SJS or TEN, was the main outcome measure. The length of the hospital stay, long-term consequences, and illness severity were considered secondary outcomes.

Analytical Statistics

The study population's clinical and demographic traits were summed together using descriptive statistics. Continuous variables were represented as means, standard deviations, or medians with interquartile ranges, depending on their distribution, whereas categorical data were shown as frequencies and percentages.

Logistic regression analysis was used to pinpoint the causes of undesirable results. The multivariate model contained variables with noteworthy connections in the univariate study. There were reported odds ratios (ORs) and 95% confidence intervals (CIs). Statistical significance was defined as a p-value 0.05.

3. Results

This retrospective analysis comprised a total of 150 individuals with a diagnosis of toxic epidermal necrolysis (TEN) or Stevens-Johnson syndrome (SJS). The patients were 60% men and 40% women, with a mean age of 42.5 years. In terms of the triggers that were implicated, medicine was linked to 75% of the cases, with antibiotics being the most frequently implicated drug (40% of medication-related instances). Viral infections (15%) and unidentified reasons (10%) were two more triggers that were noted. The patients' levels of skin detachment varied depending on the percentage of body surface area (BSA) affected. BSA involvement ranged from 10% to 70%, with a mean of 30.8%. Clinically, 80% of patients had mucosal involvement, which was most frequently seen in the oral cavity and the eye area. In 65% of the patients, there were systemic signs such fever, malaise, and organ involvement. Table 1 lists the laboratory results that showed the patients' substantial differences. The average leukocyte count was 12,500 cells/mm3, and leukocytosis was present in 45% of the individuals. Between 2.5 and 3.8 g/dL of serum albumin were detected in 55% of individuals, who had hypoalbuminemia. In 30% of cases, abnormal liver function tests revealed high liver enzyme levels, which were found in 20% of patients. Table 2 shows that all patients underwent supportive care, which included managing pain, managing fluid

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and electrolyte balance, and caring for open wounds. Additionally, systemic corticosteroids made up the majority of the immunosuppressive medication given to 60% of patients. Intravenous immunoglobulin (IVIG) and cyclosporine were given in smaller doses as additional therapy options. Table 3

Within 30 days of receiving a diagnosis of SJS or TEN, 20% of patients experienced the key outcome measure, death rate. The average hospital stay among the survivors was 21 days, ranging from 7 to 45 days.

A total of 35% of patients had long-term issues, such as lung issues (5%), skin scarring (15%), and ocular sequelae (20%). The quality of life was greatly impaired by these issues, which necessitated continuing medical care.

Statistical research found some noteworthy correlations between various factors and unfavorable results. An odds ratio of 3.5 (95% confidence interval: 1.7-7.2) was shown to be highly related with an elevated mortality risk, for example, for individuals older than 60. Hypoalbuminemia and other variables, such as BSA involvement exceeding 30%, were also found to be independent predictors of unfavorable results. Table 4 These results emphasize the significance of identifying predictive markers for early risk categorization and intervention, stressing the complexity and severity of SJS and TEN.

Table 1: Clinical Characteristics of subjects

Characteristic	**Number of Patients**	**Percentage**
Total subjects	150	100%
Mean Age (years)	42.5	-
Gender		
- Male	90	60%
- Female	60	40%
Implicated Triggers		
- Medication	113	75%
-- Antibiotics	45	30%
- Viral Infections	23	15%
- Unknown Causes	15	10%
Body Surface Area (BSA)		
- Mean BSA Involvement	30.8%	-
- Range of BSA	10%-70%	-
Clinical Features		

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Characteristic	Number of Patients	Percentage
- Mucosal Involvement	120	80%
- Systemic Symptoms	98	65%

Table 2: Laboratory Findings in subjects

Laboratory Finding	Number of Patients	Percentage
Leukocyte Count		
- Mean	12,500 cells/mm³	-
- Leukocytosis	68	45%
Serum Albumin Levels		
- Range	2.5-3.8 g/dL	-
- Hypoalbuminemia	83	55%
Liver Function Abnormal		
- Abnormal Tests	45	30%
- Elevated Enzymes	30	20%

Table 3: Treatment Modalities and Outcomes in subjects

Treatment Modality	Number of Patients	Percentage
Supportive Care	150	100%
Immunosuppressive Therapy	90	60%
- Systemic Corticosteroids	90	60%
- Intravenous Immunoglobulin	30	20%
- Cyclosporine	15	10%
Primary Outcome - Mortality	30	20%

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Treatment Modality	Number of Patients	Percentage
Mean Hospital Stay (days)	21	-
Range of Hospital Stay	7-45	-
Long-Term Complications		
- Ocular Sequelae	30	20%
- Skin Scarring	23	15%
- Pulmonary Complications	15	10%

Table 4: Factors Associated with Poor Outcomes in subjects

Factor	Odds Ratio (95% CI)
Age above 60 years	3.5 (1.7-7.2)
Body Surface Area (BSA) > 30%	-
Hypoalbuminemia	-

Note: Odds ratios indicate the increased risk of poor outcomes associated with each factor.

4. Discussion

The present study aimed to identify factors associated with the outcome of Stevens-Johnson syndrome (SJS) and toxic epidermal necrolysis (TEN). Current findings provide valuable insights into the clinical characteristics, treatment patterns, and prognostic factors of these severe skin disorders.

Current results showed that medication, particularly antibiotics, was the most common trigger for SJS and TEN, consistent with previous studies [1,2]. This highlights the need for cautious prescribing practices and increased awareness among healthcare professionals regarding the potential risks associated with certain medications. Viral infections and unknown causes were also identified as triggers, emphasizing the multifactorial nature of these conditions.

The extent of skin detachment, as measured by the percentage of body surface area (BSA) involvement, varied among patients. A higher BSA involvement was associated with increased mortality risk, in line with previous research [3]. This underscores the importance of early recognition and aggressive management in cases with extensive skin detachment.

Mucosal involvement was a prominent feature in current patient cohort, affecting 80% of cases. The oral cavity and ocular region were the most commonly affected sites. Mucosal involvement has been associated with increased morbidity and mortality [4]. Therefore, close monitoring and appropriate management of mucosal complications are crucial in the care of SJS and TEN patients.

Laboratory findings revealed leukocytosis and hypoalbuminemia in a significant proportion of patients. These abnormalities may reflect the systemic inflammatory response and the extent of disease severity. Similar findings have been reported in previous studies [5,6].

In terms of treatment, all patients received supportive care, including wound care, fluid and electrolyte

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management, and pain control. Immunosuppressive therapy, primarily in the form of systemic corticosteroids, was administered to a majority of patients. The use of systemic corticosteroids in SJS and TEN remains a subject of debate due to conflicting evidence regarding their efficacy and potential adverse effects [7]. The variability in treatment modalities observed in current study reflects the lack of consensus regarding the optimal management approach.

The mortality rate observed in current study (20%) is consistent with the reported range of 10-30% in the literature [8,9]. Advanced age, extensive BSA involvement, and hypoalbuminemia were identified as independent predictors of poor outcomes, corroborating findings from previous studies [3,10].

Current study has several limitations, including its retrospective design, potential selection bias, and reliance on electronic medical records for data collection. The single-center nature of the study may limit generalizability to other settings. Additionally, the small sample size warrants cautious interpretation of the results.

5. Conclusion

In conclusion, current study contributes to the understanding of factors associated with the outcome of SJS and TEN. The findings underscore the importance of early recognition, appropriate management, and monitoring of key prognostic factors such as BSA involvement, mucosal involvement, and laboratory abnormalities. Further large-scale prospective studies are warranted to validate these findings and establish evidence-based management guidelines for these devastating conditions.

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