



Date: Saturday, December 7, 2019

Time: 11:45 am – 12:00 pm

<b>Abstract Title:</b>	<b>Population-Based One-Year Mortality For Stevens-Johnson/Toxic Epidermal Necrolysis Spectrum Disorders Is Greater At Burn Facilities Than Other Facilities In New York: Expected Based On Treated Disease Severity Or Sobering Wake-Up Call?</b>
<b>Author and Co-Authors:</b>	Philip D. Hewes, MD, MPH (Resident), Fergal Fleming, MBBCh, Derek E. Bell, MD, University Of Rochester, Kessler Burn Center, Rochester, NY Giap Vu, BS, University of Rochester School of Dentistry and Medicine, Rochester, NY
<b>Objective:</b>	<ol style="list-style-type: none"><li>1) Discuss the prodrome symptoms and associated inducing conditions or iatrogenic causes of SJS/TENS spectrum disorders, and correct identification of these disorders.</li><li>2) Discuss the current population-based evidence of risk factors for mortality following onset of SJS/TENS disorders.</li></ol>
<b>Abstract:</b>	<p><b>Introduction:</b> Stevens-Johnson syndrome (SJS) and toxic epidermal necrolysis (TEN) exist on a spectrum of disease and are rare dermatologic emergencies with a significant risk of morbidity and mortality in the post-onset period first secondary to loss of the cutaneous barrier, then through resultant organ injury. European and United States-based retrospective studies attribute differing impacts of specialized treatment facilities on outcomes. However, the role of comorbidities and hospital-acquired conditions is unknown. We hypothesized that through use of population-based dataset comprising all in-patient and out-patient presentations, we would demonstrate the multifactorial nature of up to 1-year post-discharge mortality taking into consideration both treatment facility and comorbidities.</p> <p><b>Methods:</b> We queried a dataset from all in-patient and many out-patient surgical facilities from the New York Statewide Planning and Research Cooperative System, a system with mandated and standardized reporting from facilities in New York. We evaluated for initial presentations to acute care facilities of unique patients with ICD-9-CM discharge diagnoses of SJS, SJS/TEN overlap syndrome, and TEN in the period between 01/01/2000 and 9/31/2015. We extracted all available pre- and post-onset records for these patients. Burn centers were identified by matching encounters' treatment facilities to American Burn Association records. We accounted for all transfers. We evaluated demographic, comorbidity, and management data for the index presentation and subsequent transfers, evaluating the primary outcome of mortality, secondary outcomes of hospital complications including acquired infection, length of stay, and disposition. Exclusion criteria</p>

	<p>included incomplete encounter records, initial diagnosis at a non-acute facility, and lack of post-index encounter records (if not deceased) allowing for determination of 90- and 1-year mortality. Comorbidities were captured by the Elixhauser comorbidity index. Univariate and multivariate logistic analyses were performed for risk of mortality.</p> <p><b>Results:</b> There were a total of 1903 unique initial patient encounters. Of these, 847 satisfied all exclusion criteria. 579 patients (68.4%) with a discharge (or pretransfer) diagnosis of SJS, 117 patients (13.8%) with SJS/TEN overlap syndrome, and 151 patients (17.8%) with TEN. Application of exclusion criteria caused no significant change in distribution of the occurrence of spectrum diseases (<math>p = 0.31</math>) nor in the frequency of care at a burn care facility (<math>p = 0.60</math>), suggesting no bias from exclusion. Of the 847 included patients, 22.8% of patients were treated at burn centers, of whom 32.1% were transferred from external facilities. Crude 90-day and 1-year mortality were identical, 21.7% at non-burn centers versus 32.1% at burn centers (<math>p &lt; 0.01</math>), thus only models reflecting 90-day mortality are presented. Pre-existing comorbidities as captured by the Elixhauser score did not significantly impact mortality (<math>p = 0.86</math>). Final logistic model details are shown in the attached table. The model's predictive capability was acceptable (c-statistic = 0.88) and there was good fit (Hosmer-Lemeshow goodness-of-fit <math>p = 0.42</math>). These results suggest crude evaluation of outcomes by treatment facility may be confounded by analysis that does not account for complex comorbidities and hospital diagnoses. This is the first analysis to suggest that, after adjusting for pre-existing factors, adjusted mortality is higher at specialized burn facilities. Furthermore, there is a complex and multifactorial nature to mortality after development of SJS/TEN spectrum disorders, such that severity of illness plays a smaller role in independent prediction of 90-day and 365-day mortality risk than other clinical considerations. Further research is necessary to evaluate factors associated with increased odds of mortality at specialized burn facilities versus other facilities.</p>
<b>Disclosures:</b>	<p>Philip D. Hewes – No relevant financial relationships to disclose  Giap Vu – No relevant financial relationships to disclose  Fergal Fleming – No relevant financial relationships to disclose  Derek E. Bell – No relevant financial relationships to disclose</p>

**Population-based one-year mortality for Stevens-Johnson/toxic epidermal necrolysis spectrum disorders is greater at burn facilities than other facilities in New York State: Expected based on treated disease severity or sobering wake-up call?**

Hewes PD, Vu G, Fleming F, Bell DE.

Table: Crude and finalized models for predictors of 90-day mortality for patients diagnosed with Stevens-Johnsons Syndrome/Toxic Epidermal Necrolysis spectrum disorders.

	Odds Ratio of 90-day mortality		
	Unadjusted (95% CI)	Adjusted (95% CI)	p-value
Age		1.03 (1.01 – 1.03)	<0.01
Distribution of Disease			
TEN	2.10 (1.46 – 3.01)	–	–
SJS/TEN	2.03 (1.38 – 2.99)	–	–
SJS	- (Comparator)	–	–
Severity of Illness			
Extreme	40.95 (20.57 – 81.53)	17.49 (8.53 – 35.86)	<0.01
Severe	3.04 (1.43 – 6.46)	1.53 (0.69 – 3.37)	<0.01
Moderate	- (Comparator)	- (Comparator)	
Treatment at burn center	1.65 (1.19 – 2.29)	1.83 (1.21 – 2.77)	<0.01
Relevant comorbidities			
Congestive heart failure	4.53 (3.00 – 6.85)	1.70 (1.10 – 2.62)	<0.01
Lymphoma	4.98 (2.41 – 10.27)	4.31 (1.92 – 9.69)	<0.01
Metastatic cancer	4.56 (2.06 – 10.10)	4.14 (2.05 – 9.52)	<0.01
Coagulopathy	7.15 (4.58 – 11.17)	3.17 (2.02 – 4.97)	<0.01