Retrospective Evaluation of Immunomodulating Therapies in the Management of Stevens-Johnson Syndrome and Toxic Epidermal Necrolysis at a Tertiary Burn ICU

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BACKGROUND AND AIMS

Stevens-Johnson Syndrome (SJS) and Toxic Epidermal Necrolysis (TEN) are rare, life-threatening cutaneous adverse drug reactions characterized by epidermal detachment and mucosal involvement, with estimated mortality rates ranging from 5% for SJS to 30–50% for TEN.[1,2] SJS/TEN is most often triggered by medications such as sulfonamides, antiepileptics, and non-steroidal anti-inflammatory drugs. These conditions are managed primarily through immediate withdrawal of the causative agent and intensive supportive care, yet controversy remains around the role of systemic immunomodulating therapies.[3,4]

METHODS

To generate risk-adjusted estimates, the authors used Day-1 Score of Toxic Epidermal Necrolysis (SCORTEN) to derive expected mortality rate and calculated the standardized mortality ratio while tracking acute complications in a single-center retrospective cohort admitted to the Burn ICU, University of Colorado Hospital, Aurora, USA, from January 2000–August 2025.[5] The authors compared outcomes between supportive care and supportive care with systemic immunomodulation.

RESULTS

Among the 75 patients evaluated (38 immunomodulated; 37 supportive care), there were 6/38 (15.79%) versus 6/37 (16.22%) in-hospital deaths. Based on SCORTEN, expected mortality rates were 7.28 (immunomodulated) and 6.73 (supportive care), yielding standardized mortality ratios (SMR) of 0.82 (95% CI: 0.30–1.79) and 0.89 (95% CI: 0.33–1.94), respectively. The SMR ratio (immunomodulated/supportive) was 0.92 (95% CI: 0.30–2.86; p=0.89). Among immunomodulated patients versus supportive care, sepsis occurred in 9/38 (23.7%) versus 10/37 (27.0%; p=0.79), acute kidney injury in 12/38 (31.6%) versus 12/37 (32.4%; p=1.00), and secondary infection in 14/38 (36.8%) versus 7/37 (18.9%; p=0.12). Among cyclosporine-treated patients (n=14), there was one death, with SMR 0.35 (95% CI: 0.01–1.94). Sepsis occurred in 2/14 (14.3%; cyclosporine-treated) versus 10/37 (27.0%; supportive; p=0.471), acute kidney injury in 5/14 (35.7%) versus 12/37 (32.4%; p=1.000), and secondary infection in 7/14 (50.0%) versus 7/37 (18.9%; p=0.038).

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CONCLUSION

The findings highlight the need for careful patient selection when considering systemic immunomodulation in SJS/TEN, particularly given the potential risk of secondary infection. In the future, larger, prospective studies may be required in order to clarify whether cyclosporine may offer a mortality benefit and to better define its safety profile in this high-risk population. These data suggest there is no significant difference in mortality between care plans, but an increase in secondary infection rates with immunomodulation. Cyclosporine remains a viable option, with a moderate reduction in SMR, but more investigation is required to confirm this trend.[6,7]

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