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“The Ocular Outcomes of Amniotic Membrane Transplantation in Patients with Stevens-Johnson Syndrome and Toxic Epidermal Necrolysis: A Systematic Review”

Background: Stevens-Johnson Syndrome (SJS) and Toxic Epidermal Necrolysis (TEN) are rare yet severe mucocutaneous autoimmune reactions triggered by medications or infections. Overactivation of the immune system causes widespread keratinocyte death, leading to the detachment and necrosis of the epidermis in the skin and the surface epithelial layer of mucosae, including the surface of the eye. SJS and TEN describe the same disease process and are distinguished by severity, measured by percentage of body surface area (BSA) affected. Amniotic membrane transplantation (AMT) is used to treat acute and chronic ocular complications by promoting healing on the ocular surface in these patients. Despite the growing number of studies emerging on the use of AMT in the treatment of SJS/TEN, the data has not yet been summarized using a systematic approach. Our systematic review aims to synthesize current clinical evidence on the ocular outcomes following AMT in patients affected by SJS/TEN and to provide clarity on the efficacy of AMT in this population.

Methods: We performed a systematic literature search in five databases—PubMed, Embase, Cochrane, Scopus, and Web of Science. The search strategy was developed with a medical librarian. A combination of subject headings and keywords were utilized for terms related to SJS and TEN and then combined with terms for AMT. There were no limitations on publication years. Covidence software was used to manage the screening process. We included randomized controlled trials (RCTs), retrospective non-randomized intervention studies, observational studies (case-control, cohort, and cross-sectional), case series, and case reports conducted on human subjects. An Excel spreadsheet was used to manage data extraction.

Results and Conclusions: Current literature overwhelmingly supports the use of AMT as a treatment for ocular SJS/TEN. Best-corrected visual acuity (BCVA) at last follow-up was 20/50 or better for a majority of eyes in studies reporting BCVA, indicating that most patients who received AMT did not have chronic vision loss. AMT treatment resulted in low rates of long-term ocular sequelae commonly found in SJS/TEN patients, such as chronic dry eye; symblepharon; and abnormalities of the eyelids, conjunctiva, and cornea. The most common complications were chronic dry eye and lid margin keratinization. One randomized controlled trial demonstrated significantly lower rates of ocular sequelae in eyes treated with AMT compared with standard medical therapy. AMT applied in the acute phase of disease was associated with the most favorable outcomes. Standard AMT that covered the entire ocular surface resulted in fewer ocular complications when compared with ProKera, a lens-shaped amniotic membrane device. We conclude that AMT should be used in the ophthalmic management of SJS/TEN patients, preferably with AMT covering the entire ocular surface in the acute phase, to improve long-term BCVA and to decrease the rates of chronic ocular sequelae.