

Antibody–Drug Conjugates and Ocular Toxicity: Nursing, Patient, and Organizational Implications for Care

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BACKGROUND: Antibody–drug conjugates (ADCs) are a novel class of drugs with rapidly expanding oncology indications across solid and hematologic malignancies.

OBJECTIVES: This article provides an overview of ADCs with a high risk of ocular reactions and guidance for oncology nurses to help mitigate risk and identify toxicities for prompt management.

METHODS: This review presents updated evidence, manufacturer recommendations, and clinical guidance about three ADCs with a risk of overall ocular reactions exceeding 40%, as well as strategies to prepare patients for treatment, prevent reactions, and respond to presenting ocular toxicities.

FINDINGS: ADCs can cause a range of ocular reactions from mild dry eye to severe and dose-limiting corneal adverse reactions and vision loss. Oncology nurses and other members of the interprofessional team can perform focused clinical assessment, provide patient education about self-management and prevention, and coordinate surrounding eye care for patients receiving treatment with ADCs.

KEYWORDS

immunoconjugates; eye diseases; patient education; self-care

DIGITAL OBJECT IDENTIFIER

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ANTIBODY–DRUG CONJUGATES (ADCs) ARE A NOVEL CLASS of agents that have received steady approvals from the U.S. Food and Drug Administration for multiple oncology indications since 2000, with most approvals occurring during the past seven years (Gogia et al., 2023). Through a chemical linker, ADCs connect a targeted monoclonal antibody with a cytotoxic drug—referred to as a payload—to enhance precision and potency in therapy delivery (Fu et al., 2022). The cytotoxic payloads used in ADCs are primarily tubulin inhibitors or DNA-interactive agents, which are too toxic to be used alone for cancer treatment (Baah et al., 2021). The specificity of the monoclonal antibody to an antigen expressed on the cancer cell surface leads to the binding and delivery of the attached payload into the cell, inducing cell death while limiting off-target toxicity (Baah et al., 2021).

Certain ADCs carry higher risks of ocular effects and toxicities. The reasons for these off-target effects of ADCs are not completely understood and could be multifactorial (Ali et al., 2022). For example, expression of the target antigen in healthy ocular tissue, the type of cytotoxic payload used in the conjugate, the type of linker, the vascularity of the eye, and the rapid cell division in the eye may all contribute to the heightened risk of ocular reactions (Ali et al., 2022).

With the rapid expanse of ADCs in oncology drug development and approvals, oncology nurses are challenged to demonstrate understanding of drug indications, mechanisms of action, administration techniques, side effects, risks, and patient education priorities, among other factors, in a relatively short time (LeFebvre & Hartkopf Smith, 2023). Treatment with ADCs and the associated risk of ocular toxicities requires knowledge of appropriate assessment, recommended prevention, and early identification of side effects.

Purpose and Methods

This article provides an overview of ADCs with a risk of overall ocular reactions equal to or greater than 40% and describes nursing assessment and management interventions for safe and efficient care. This article also discusses organizational readiness for ADC administration, including workflow and documentation considerations. Clinical checklists to prepare nurses and patients for eye care and monitoring are provided. In addition, nurse,