

## **Ocular side effects with use of biological therapy in patients with cancer**

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**BACKGROUND.** Biological therapy also called molecularly targeted therapy [MTAs] or targeted therapy) is a new class of drug that has been established as an effective and less harmful modality in cancer treatment. Depending on the medication used, different ocular side effects may appear. It can happen even in more than 70% of patients. However, such side effects are rarely reported in the literature due to difficult diagnosis of pathophysiology because most of patients seek for medical assistance trying to deduce that it can be other pathology. Moreover, the ophthalmologist generally can not correlate as a side effect of biological therapy.

**HYPOTHESIS.** To evaluate the ocular side effects of biological medicines in the treatment of patients with cancer.

**METHODS.** We reviewed the literature retrospectively for described ocular effects, including MEDLINE, PubMed, SciELO, EMBASE, Cochrane Library and drugs from the US Food and Drug Administration section (FDA) using the key words: biological agent name (generic and trade name) and "eye" or "ocular" between years . Several biological agents have been found for showing side effects.

**RESULTS.** Imatinib commonly causes periorbital edema, conjunctival epiphora and occasionally bleeding. Cetuximab may cause corneal injury, dysfunction in the Meibomian glands, blepharitis, conjunctivitis and eyelid dermatitis. Erlotinib is associated with many ocular toxicities, on the ocular surface. Perifosin is associated with severe keratitis. Bevacizumab may possibly disturb the intraocular circulation and develop thromboembolic events, however optic neuritis or optic neuropathy are rarely reported. Tamoxifen leads to crystalline retinopathy by depositing crystals in the area of the macula and retina. Moreover, it leads to decreasing visual acuity even without crystal deposition. Interferons lead to retinopathy, with several reports of vascular occlusion. Trastuzumab, Sunitinib, crioizitinib also show specific ocular toxicity.

**DISCUSSION.** Medical history is very important in clinical ophthalmologist practice. Diagnosis and interaction with oncologists are important to avoid sequels.

**CONCLUSION.** This study showed that ocular side effects of molecular targeted therapy are common in patients with cancer. Ophthalmologists should be suspicious of signs for diagnosis and proper conduct as soon as possible to avoid sequels although the oncologist does not need to decrease the dose of medication. Furthermore, accidents in daily life can be avoided due to decreased visual acuity.