



## Increased Prevalence of Solution Associated Keratitis

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Received: October 07, 2021

Published: November 09, 2021

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Watering and redness of eyes is a common phenomenon these days associated with multiple causes.

Thanks to the spurt in the 'smartness quotient' of the devices around us which has totally possessed the human race. Above this, the impact of COVID-19 pandemic has only added fuel to the fire. Work from home, online classes or tutorials, video calls, gaming on mobile phones etc. have all drastically increased the screen time not only for adults but children as well. All this has led to an increased prevalence of 'Dry Eye Disease' (DED) and indiscriminate use of artificial tears drops.

Repeated use of eye drops can impact the ocular surface, influence clinical signs, affect symptoms and impact the overall disease process of dry eye. The component in topical preparations with the greatest potential to affect the ocular surface is the preservative for example benzalkonium chloride (BAK) [1]. Secondly with chronic usage, hygiene related manners are neglected which lead to infections.

The next most commonly used topical eye solution is the contact lens solution. There is no doubt that contact lenses have taken over the conventional vision glasses in many ways. The credit goes to the constant efforts directed towards improving the lens material and design and colour which has added an aesthetic value to it as well. But regular wearing of contact lenses mandates a lot of hygiene. Contact lens daily wear interferes with the integrity of the ocular surface and is associated with corneal inflammation causing redness or watering of eyes [2]. This impacts the confidence in contact lens users leading to unwanted anxiety and hesitation

about wearing them. But the culprit is not the lens always but the solution used for keeping them. Though they are believed to prevent building up of proteins and offer antibiotic or disinfecting properties, cases of generalized, mild punctate keratitis or corneal infiltrative events (CIE's) caused by contact lens solution have been reported [3,4]. Solution toxicity is defined as punctate staining in at least four of five areas of cornea after instillation of sodium fluorescein. In fact, it is so common that solution toxicity is the first differential of any patient complaining of sudden redness, watering of eyes and foreign body sensation. It is said that even a non-allergic person who is subjected daily to any form of chemical solution or eye drop has the potential for developing a delayed hypersensitivity reaction. The cause can be either the increasing complexity of solutions or the person's incompatibility to new silicon hydrogen materials [5-7]. As more and more ingredients are added to offer multiple advantages like disinfection, conditioning and lubrication, the likelihood for reaction increases. Even a trace amount of preservative can be left behind despite proper cleaning and it can lead to formation of antibodies. Management of solution toxicity involves discontinuation of usage for some weeks and use of artificial tears as palliative treatment only after the recommendation of an ophthalmologist. Resumption of use of lenses should ideally be with a new bottle or a different lens solution and additionally motivating the patient to start using daily disposable lenses. It has been reported that peroxide base solutions have the lowest rate of toxic staining and corneal inflammation [8].

Although contact lenses have long been established in ophthalmology, the practical aspect of handling contact lenses is becoming

increasingly less important in the clinical training. Simultaneously, for many reasons injuries due to wearing contact lenses are increasing. In order to correct this, information on contact lenses and practical experience with them must be substantially increased. Over the counter usage of eye drops should be discouraged.

### Acknowledgement

The authors are thankful to the technical staff especially Miss Priyanka for help in typing the manuscript.

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**Volume 4 Issue 12 December 2021**

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