Editorial

Management of Dry Eye Syndrome

Dry eye syndrome (DES) is a common disorder where there is a qualitative or quantitative deficiency in the tear film. It is largely undiagnosed and mistreated in Pakistan[1].

The diagnosis can be improved by identification of the symptoms namely; dry sensation, burning sensation, foreign body sensation (Rarrak), photophobia, and blurred vision are common in patients with dry eye. These symptoms are often exacerbated in smoky and/or dry environments like kitchen, busy city streets and at out door work. The symptoms can also be precipitated by acts of visual concentrations like watching TV, reading and excessive computer use. Sometimes a patient with DES presents with paradoxical watering which is named as 'Wet Dry Eye'[1].

It has been shown that these symptoms can be quantified objectively in the Ocular Surface Disease Index (OSDI) questionnaire[2], which has 12 symptoms (grade 1-4). Typically the symptoms are worse in the morning (due to increased tear osmolarity) or near the end of the day (due to constant exposure to environment). One should try to identify problems like; chemical burns, trachoma and cicatricial pemphigoid or lagophthalmos. Recently new categories have been introduced like dry eye following cataract extraction, laser refractive surgery and contact lens induced dry eye (CLIDE). In both these conditions DES is precipitated by the reduced blink rate caused by corneal hypoesthesia.

The systemic disorders like; Connective Tissue diseases, Steven-Johnson syndrome, vitamin A deficiency, AIDS, Hepatitis C and Polycystic Ovarian Syndrome (PCO) have been reported to be associated with DES. Even if no systemic CT disease is found, yet there is xerophthalmia and xerostomia and the condition is labeled as primary Sjogren syndrome (pSS). People with diabetes; especially those with poor glycemic control have higher incidence of DES. During orbital radiotherapy there is risk of damage to the lacrimal gland. Patients who are unconscious and managed in intensive care units (ICU) are at high risk of lagophthalmos related ocular surface dryness. On the other hand history of drug use can be important to identify the preventable DES like antihistamine, β-blocker, Interferon and oral contraceptives and ophthalmic drug preservatives.

There are clinical signs which can be picked up by slit lamp biomicroscopy like; tear meniscus height less than 1mm, increased debris, foamy secretions, Meibomian gland dysfunction, irregular corneal surface, punctate epitheliopathy, and mucous discharge. The severe cases may show filamentary keratopathy, infective keratitis, corneal neovascularization or keratinization of the ocular surface. As no single test has high specificity, more than one test should be employed to improve diagnosis. Special tests currently available in Pakistan are tear film break up time (BUT), Schirmer test and Rose Bengal dye staining. There are certain tests which though are more specific, yet being expensive or invasive have more of a research value like; tear film biometry, tear turnover rate (TTR), central corneal thickness(CCT) measurement, tear film osmolarity measurement, impression cytology(to measure goblet cell population) and lacrimal gland biopsy (to confirm Sjogren syndrome).

The patient education plays a fundamental role in the management of DES in our society, where it is a common practice to switch to another practitioner if there is no response to the therapy within couple of days. First of all the patients should be convinced to accept the life long nature of treatment in cases where DES is irreversible. They should be educated to conserve the remaining tear secretion. They should avoid dry hot atmosphere like kitchen, hair dryer and outdoor work. They should use desert coolers in summer and avoid dry heaters and smoke. Those working on computers should be asked to consciously blink frequently. They should be encouraged to use glasses with wide side panels and wraparound style to increase humidity around eyes. Some severe cases even need swimmer's goggles in out doors.

Tear supplementation is the mainstay of therapy, however no single ophthalmic preparation can replace all ingredients given by Allah (Subhana hu wa Taala) in the natural tears. More than a dozen lubricant

ocular preparations containing cellulose derivatives (e.g. HPMC), polyvinyl alcohol (PVA), povidone, carbomers, sodium chloride, sodium hayluronate and liquid paraffin are available in Pakistan. Some authorities recommend rotating the brands, as patient may become intolerant to one preparation in 2-3 months. In mild cases preserved drops can be used 6 hourly; however in moderate to severe cases as the frequency of instillation increases, the preservatives in the drops can itself start damaging the already compromised ocular surface. Some manufacturers have come up with the preservative, which are claimed to change into water and oxygen on instillation on to ocular surface. Recently preservative free single dose unit (SDU) preparation has been marketed. There are however problems in self instillation by the arthritic patients, temptation of use as multi-dose (hence risk of microbial infection) and issue of increased cost. Vitamin A ointment can be helpful in reversing keratinization. Mucolytics like Ilube are not yet available in Pakistan.

Anti-inflammatory treatment in the form of topical and systemic steroid is helpful in acute phase of the autoimmune diseases like SS, COP and chemical burns. Systemic tetracyclines are helpful in the management of blepharitis (MGD). Topical cyclosporine 0.05% (Restasis) has shown improvement in cases of DES unresponsive to artificial tear therapy[3]. It works by reducing T-cell mediated inflammation of the lacrimal gland. Autologous serum eye drops have shown good response in the severe cases of DES[4]. This is supposed to be due to the presence of essential tear components like vitamin A and growth factors in serum. However, it has got inherent problem of repeated phlebotomies of the patient. Recently oral Omega-6-fatty acid supplements have showed a significant improvement in the specific symptom of dryness' at 3 and 6 months. Low water content or silicone rubber contact lens should be used and wearing time strictly limited.

In acute stage of chemical burn and Steven-Johnson syndrome amniotic membrane graft is pretty helpful in avoiding long term complications. Punctual occlusion is a good mean of preserving natural tears and prolonging the effect of artificial tears. Initially temporary plugging is done with commercially available plugs or 1/0 or 2/0 Vicryl. If there is good response and no epiphora, one can proceed for thermal cauterization. Those with severe DES need constant care of an oculoplastic surgeon, who would do procedures to conserve tears. In the cases of lagophthalmos a lateral tarsorrhaphy can be helpful in reducing tear evaporation. Similarly repair of congenital and acquired colobomas should be promptly done to reduce evaporative DES. Submandibular gland transplantation and parotid duct transposition require extensive surgery, but yield poor functional results.

REFERENCES

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