Dry eye disorders

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The exact prevalence of dry eye disease is unknown due to the difficulty in defining the disease and the lack of a single diagnostic test to confirm its presence. However, the prevalence of dry eye increases with age and has been estimated at 5% of people under 49 years of age and up to 30% of people above the age of 50 years.
Old definition: Dry eye occurs when there is inadequate tear volume or function resulting in an unstable tear film and ocular surface disease.

New definition: Dry eye disease is a multifactorial disease of the tears and ocular surface that results in symptoms of discomfort, visual disturbance, tear film instability and potential damage to the ocular surface.

What does the tear film do?

- It provides ocular surface comfort
- It protects the ocular surface against infections
- It provides nutrition, healing and cell growth to the surface of the eye
- It enhances the optical clarity and the refractive power of the cornea.

What does the tear film consist of?

Traditionally, the tear film has been viewed as having three distinct layers, namely:

- The outermost lipid layer (oily layer)
- The aqueous layer that makes up 90% of the tear film volume
- The mucin layer that coats the corneal surface.

However, it is now recognised that rather than being three distinct layers, the tear film is actually a lipid layer and phases of aqueous with differing concentrations of mucins throughout. In addition, mucins in the tear film play a much more active role in maintaining tear film stability than was once thought.

A smooth tear film is very important and this is achieved as follows:

- By the blink reflex
- Normal corneal epithelium
- Contact between the external ocular surface and the eyelid.

What regulates the tear film components?

- Every individual body is unique. Androgens are the primary hormones that regulate lipid production and progesterone receptors in the conjunctiva and lacrimal glands are essential for the normal function of these tissues. Neural fibres adjacent to the lacrimal glands and goblet cells result in aqueous and mucus secretion
- The environment: low humidity, wind, smoke, fire, air conditioning
- Medication
- Any ocular surgery that affects the eyelid or surface of the eye might cause dry eye disease.

What is the role of inflammation?

Inflammation in the conjunctiva and accessory gland is present in 80% of patients with dry eye disease. Thus, conservative treatment will fail in these patients.

How to examine the patient

Take a good history

External examination with fluorescein stain to examine the tear meniscus and tear breakup time. Rose bengal or lissamine green can also be used to examine the cornea and conjunctiva.

In testing for tear breakup time,

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