

Photophobia

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Photosensitivity is a term used to describe an abnormal sensitivity to light. For practitioners, photosensitivity is a vexing symptom since the pathophysiology of its cause is not well understood, and little is known about appropriate treatment. For the patient who has the symptom, disability may ensue and frustration from lack of understanding of the medical community can be prevalent.

Terminology

The term 'photophobia' is somewhat of a misnomer since phobia refers to a fear of light. We use the word to denote patients who have an abnormal sensitivity to light. While all of us have experience an uncomfortable sensation when we have gone from a darkly lit room or theatre to the bright outdoors, we soon adapt to the sensation and the light is comfortable again. However, in some patients, bright lights -- even normal lights -- are always experienced as uncomfortable. 'Photo-oculodynia' refers to a non-painful light source producing pain in the eye. 'Dazzling' is a term used when things appear too bright but, while everything is bright overall, the light is not bothersome or painful.

Etiology of Photophobia

Many conditions cause photophobia. The most common condition is migraine headaches. Indeed, photophobia is one of the cardinal features and appears prominently in the International Headache Society classification of migraine. Photophobia has been shown to be present during and in between migraine attacks. Furthermore, just having the symptom of photophobia predicts that the individual has underlying migraine (Muelleners et al).

Other causes of photophobia include:

1. Blepharospasm. Light sensitivity associated with blepharospasm occurs as frequently as it does in migraine (Adams et al). It can be present during attacks and in-between attacks, and is disabling (Judd et al).
 2. Ocular causes of photophobia: a search for an ocular cause is very important. **Dry eyes and ocular irritation can stimulate photophobia.** Sometimes even after the dry eyes or a corneal problem has resolved, a corneal neuropathy may persist. Inflammatory conditions of the eye such as iritis are associated with photophobia. Photophobia is a cardinal feature of retinitis pigmentosa and cone dystrophies, inherited degenerative conditions of the retina, and congenital glaucoma.
 3. Central nervous system disorders: photophobia may be a presenting symptom of meningitis, subarachnoid hemorrhage and pituitary tumor. Other

accompanying findings such as reduced visual acuity, stiff neck, and fever will alert the observant clinician of these conditions. (Amini et al)

4. Functional disorder—while photophobia is often thought to be associated with individuals who have an underlying psychiatric disorder, a careful search into the underlying cause can be rewarding. Migraine and depression are treatable conditions.

For a complete list of causes of photophobia see Digre, Brennan.

Pathophysiology

The cause of photophobia is not completely known. However, there are several clues about its cause. First, light entering the eye is sensed by the vision seeing portion of the retina and also the non-vision seeing system by intrinsically photoactive ganglion cells called melanopsin cells. These project to the posterior thalamus and have been shown to connect with the trigeminal system. This explains why there is a "discomfort" or even pain when light is shined in certain individuals eyes (Nosedá et al).

Treatment

The treatment of photophobia with or without a headache is difficult since nothing magically cures the disorder. If the photosensitivity occurs only with migraine, prompt treatment of the migraine usually aborts the symptom. The more difficult issue is when patients are chronically photosensitive. Patients frequently wear multiple pairs of dark glasses in hopes of dimming the light enough so that it is not uncomfortable. However, this is actually counterproductive since chronic dark adaptation occurs and then any light is perceived to be brighter. The use of tinted lenses has been shown to reduce light sensitivity. In particular blocking blue light seems to be the most soothing to those with light sensitivity. One tint, FL-41 (a rose color) has been studied and was shown to reduce headaches in children (Good et al). More information about the tint can be found: <https://healthcare.utah.edu/moran/optometry/fl41-lenses/> Light yellow tint may also be helpful. Other treatments are geared to reducing the underlying condition, such as treating the depression, migraine prevention, dry eye therapy and botulinum toxin injections for blepharospasm. Recently green light has been found to be more comfortable.

References:

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