PATIENT HANDOUT: PHOTOPHOBIA

General description:
Your doctor says you have photophobia. This means that you are very light sensitive. Sometimes this symptom can be a problem in your life. Everyone has some light sensitivity---think of going from a dark movie theatre to a bright sun-shine day. That sensitivity is usually brief. But some people have that sense of pain and brightness every day; normal light shouldn’t cause pain or discomfort. There are many causes of this symptom and it is important that your doctor diagnosis the cause and treats the cause. Some of the confusion about this disorder is that different people have different symptoms. Sometimes individuals think the light is “too bright”—meaning there is an increase in the sense of light. Others will complain of pain associated with the light.

Anatomy:
No one knows the area of the brain that causes light sensitivity. Light is carried in the visual pathways to the brain. In the retina there are cells that detect light and formed vision (like reading letters or seeing pictures) called cones that project to the visual pathway. There is a second system, the melanopsin system that does not participate in formed vision but specifically senses light. There are fewer of these cells in the retina of the eye, but once these cells get turned on, it is very hard to turn these cells off. We believe that both of these cells can set up a sense of brightness that can cause trouble. Sometimes there is pain caused by the light. Pain is caused by pain-sensing nerves (the trigeminal nerve). Any structure that connects to these nerves can interact with the light sensing pathway to set up photophobia. Pain fibers are in the cornea, the iris (colored part of the eye), and even the back of the eye. Inflammation in the eye can cause photophobia. Also pituitary tumors that compress the chiasm have been known to cause photophobia; meningitis or inflammations of the covering of the brain can cause photophobia. Sometimes photophobia can occur without any known tumor or inflammation. The two most common causes are migraine and blepharospasm.

Physiology:
We do not know everything about this symptom. It is clear that the brighter the light, the more discomfort is felt. The wave length of light (color) may also be important—blue light is often more trouble than other colors of light. The larger the pupil size the more light sensitivity. Viewing with both eyes makes light brighter too. The amount of light that a person lives in will affect this symptom. If you live in darkness all of the time, then light in your eyes will be sensed as being even brighter. Epinephrine can increase in some people when they are exposed to light and this may cause anxiety.

Symptoms:
The symptoms of light sensitivity are: an uncomfortable sense of brightness, squinting, frequent blinking, and redness of the eye (especially if the eye is dry). Involuntary eye closure and excessive blinking is seen with blepharospasm. Individuals will tend to seclude themselves in darkness.

Symptoms can be intermittent—for example ONLY during migraine, or all of the time. Symptoms can get worsened by more light.

Other symptoms may occur with the light sensitivity and help with the diagnosis:
- Pain in the eye
- Headache (pain in the head)
- Blepharospasm (frequent blinking)

**Signs**
Increased eye closure or blinking may accompany photophobia. Redness of the eye can occur. Your doctor may look for dryness of the eye with a test of your tears. Frequently people with symptom will wear sunglasses.

**Diagnosis:**
The diagnosis is made by what you report—of light sensitivity that is interfering with life. Your doctor will be looking for an underlying cause of photophobia. Listed below is a list of causes of photophobia.

**Causes of photophobia**

**Ocular causes: Causes that can be seen in your eye by an ophthalmologist**
- In the front of your eye:
  - Ocular inflammation: Iritis
  - Conjunctivitis
  - Corneal diseases
  - Uveitis
  - Blepharitis
  - Dry eyes: the MOST Common cause of photophobia

- In the back of your eye
  - Vitreal disease (vitritis) and uveitis
  - Retinal causes: Problems with cones, retinal diseases like: albinism (no pigment in your body), Achromatopsia (inability to see colors), Retinitis pigmentosa (degeneration of the retina that you inherit);

**Optic Nerve (seen in the back of the eye—this cable connects the eye to the brain**
- Optic Neuritis (inflammation of the optic nerve)
- Papilledema (swelling of the optic nerve due to high pressure in your brain)

**Chiasmal (this sits above your pituitary gland)**
Pituitary Tumors
Hypophysitis (inflammation of your pituitary)

Occipital lobe; the form seeing part of your brain

Neurologic Conditions:
- Migraine: the MOST common cause of photophobia
- Blepharospasm: Very common in an eye clinic: frequent blinking and squeezing of the eyes; blepharospasm can occur only when the light is shined in the eye or all of the time
- Cyclic vomiting syndrome (a form of migraine where there is vomiting)
- Progressive Supranuclear Palsy (a degenerative disorder that causes eyes not to move right)
- Head injury: causes headache and sometimes photophobia
- Meningeal irritation (meninges are the covering of the brain):
  - Meningitis (infection of the covering of the brain)
  - Sub-arachnoid hemorrhage (bleeding into the brain)

Psychiatric Conditions: Known to cause light sensitivity
- Depression (the most common psychiatric cause of light sensitivity)
- Agoraphobia (fear of being in crowds)
- Hang-over headache

Medications (we do not know why these drugs cause light sensitivity):
- Barbiturates, Benzodiazepam, Chloroquine, Methylphenidate, Stimulants, opioids

Other:
- Neurasthenia or chronic fatigue
- Fibromyalgia
- Measles, Rabies, systemic infections
- Inflammatory Bowel Disease

Prognosis:
If the cause of photophobia can be identified and treated, there is hope at ending this disabling symptom. A full neuro-ophthalmologic examination usually can identify a cause. That means that all migraine, depression and dry eyes must be treated.

Treatment:
Treatment of the underlying condition is required
- Eye causes:
  - Dry Eyes: treat with lubrication (drops, gels, ointment); lid hygiene
  - Blepharitis: treat lid disease
Neurologic causes:
Migraine: migraine prevention and acute treatment
Blepharospasm should be treated.

Co-morbidities such as sleep disorder, depression, and anxiety must be addressed and treated.

Tinted lenses, in particular FL-41 tint, and blue-blocking lenses, and red lenses have been reported to decrease and improve light sensitivity. These can be obtained without a prescription by talking with your oculist. Sources of FL-41 tint include: OPI, Moran Eye Center.

Follow up:
You should be followed by your eye care provider and treated.

Frequently Asked Questions
1. Why do I have light sensitivity?
There are many causes of light sensitivity. That is why your eye care provider will do a careful examination to determine the contributing factors. The most common causes of light sensitivity include migraine, blepharospasm, depression, and dry eyes.

2. What can I do to make my light sensitivity go away?
First, adequate treatment of the cause is important—that means if you have dry eyes you should treat that symptom aggressively. Second, be sure that you do not keep yourself in the dark—e.g. NO darkened rooms, no darkened windows, slowly increase the amount of light in your environment so that you are more tolerant of the light. Get adequate sleep and treat any depression or anxiety which can make your symptoms worse.

3. Will tinted lenses work for me?
There is no way to be sure that you may or may not benefit from tinted lenses. Sometimes it is trial and error. Using the least amount of tint inside is the best because the darker things are the more the light will bother you.

4. How does FL-41 work? Although we are not really sure why FL-41 improves light sensitivity, we think it is has something to do with the wavelengths of light (color) that are filtered out. FL-41 blocks blue and green. These colors are thought to be a problem to patients with light sensitivity.

5. Can FL-41 filter be added to any glasses? FL-41 filter is best absorbed by the regular (cr-39) plastic lens material. Glasses made of certain plastics or glasses that have a reflective coating may be more difficult.

6. How much does it cost to add the FL-41 filter to my existing glasses? Applying the FL-41 filter to existing lenses typically costs $35.00.
7. Does insurance cover the cost of FL-41 filter? Most insurance plans, including Medicare, do not cover the cost of adding tint to lenses. However, there may be exceptions, so contact your individual insurance provider.

8. Where can I get FL-41 filter? Many optical shops can get FL-41 tint. OPI has the tint available. Be sure that the company you choose has tested the filter to see that it has the correct characteristics. If you have trouble you may call The Moran Eye Center in Salt Lake City, UT (801)587-3765 to discuss your needs; they have had years of experience with this tint.