18/MHS07/022

PHARMACOLOGY

PHS 212

ASSIGNMENT: Write short notes on any two eye defects

ANSWER:

EYE DEFECTS

Myopia: (nearsightedness):

This is a defect of vision in which far objects appear blurred but near objects are seen clearly. The image is focused in front of the retina rather than on it usually because the eyeball is too long or the refractive power of the eye’s lens too strong. Myopia can be corrected by wearing glasses/contacts with concave lenses these help to focus the image on the retina

Causes:

This defect arises because the power of the eye is too great due to the decrease in the focal length of the crystalline lens. This may arise due to either:

* Excessive curvature of the cornea, or
* Elongation of the eye ball.

Correction:

This defect can be corrected by using a CONCAVE {DIVERGING} lens. A concave lens of appropriate power or focal length is able to bring the image of the object back on the retina itself.

There are several types of myopia:

1. Simple myopia
2. High myopia
3. Pathological myopia

Symptoms:

Having blurry vision when looking at objects in the distance, is the main symptom of myopia. Others can include:

* Tired eyes
* Headaches
* Squinting.

Progression

Although myopia will not usually lead to other eye issues, it can get worse as a person ages. This is known as high myopia.

A person with high myopia has an increased risk of developing additional eye conditions. These may include:

* Cataracts
* Glaucoma
* Retinal detachment

Should vision loss or other eye-related issues occur, the condition becomes known as PATHOLOGICAL MYOPIA. This means that the level of myopia is so advanced that it has caused the back of the eye to begin breaking down.

Hypermetropia: Farsightedness is also known as hyperopia:

. It affects about one fourth of people. People with hyperopia can see distant objects clearly, but nearby objects appear blurry. In hyperopia, the eye is too short. This results in images being focused in back of the retina . Hyperopia is corrected with a convex lens, which curves outward like the outside of a bowl. The lens changes the focus so that images fall on the retina as they should. Common signs of farsightedness include difficulty in concentrating and maintaining a clear focus on close objects, eye strain, fatigue and headaches after close work, and aching or burning eyes, especially after intense concentration on close work. In addition to lenses, many cases of myopia and hyperopia can be corrected with surgery. For example, a procedure called LASIK (Laser-Assisted in situ Keratomileusis) uses a laser to permanently change the shape of the cornea so light is correctly focused on the retina.

Causes:

This defect arises because either:

* The focal length of the eye lens is too great, or
* The eye ball becomes too short so that light rays from the nearby object say at point N, cannot be brought to focus on the retina to give a distinct image.

Correction:

This defect can be corrected by using a CONVEX{CONVERGING}LENS of appropriate focal length. When the object is at N’, the eye exerts its maximum power of accommodation. Eyeglasses with converging lenses supply the additional focusing power required for forming the image on the retina.

Clinical types:

* Simple hypermetropia
* Pathological
* Functional hyperopia

Hypermetropia may be:

* Axial hypermetropia: Axial hypermetropia is the commonest type. The total refractive power of the eye is normal but there is axial shortening of the eyeball. About 1 mm shortening of the antero-posterior length of the eye results in about 3 Dioptres (D) of hypermetropia.
* Curvature hypermetropia: Curvature hypermetropia is that condition in which curvature of the cornea, lens or both is increased (flatter) than the normal, resulting in change in refractive power of the eye. About 1 mm increase in radius of curvature results in 6 D of hypermetropia.
* Index Hypermetropia: Index Hypermetropia occurs due to change in refractive index of the crystalline lens with age.
* Positional hypermetropia: Positional hypermetropia results from posteriorly placed crystalline lens of the eye.
* Absence of crystalline lens: Absence of crystalline lens either congenital absence or acquired (following surgical removal or posterior displacement) leads to aphakia. There is high hypermetropia in aphakia.

Symptoms

* Headaches
* Eyestrain
* Difficulty concentrating or focusing on nearby objects.