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MATRIC NO: 18/MHS02/027

DEPARTMENT: NURSING

COURSE CODE: PHS212

ASSIGNMENT: WRITE SHORT NOTE ON ANY TWO EYE DEFECT

ASTIGMATISM

Astigmatism is the condition in which light rays are not brought to a sharp point upon retina. It is the common optical defect. This defect is present in all eyes. When it is moderate, it is known as **physiological astigmatism**. When it is well marked, it is considered abnormal. For example, the stars appear as small dots of light to a person with normal eye. But in astigmatism, the stars appear as radiating short lines of light (A = not; stigma = point).

CAUSE OF ASTIGMATISM

Light rays pass through all meridians of a lens. In a normal eye, lens has approximately same curvature in all meridians. So, the light rays are refracted almost equally in all meridians and brought to a focus. If the curvature is different in different meridians, vertical, horizontal and oblique, the refractive power is also different in different meridians. The meridian with greater curvature refracts the light rays more strongly than the other meridians. So, these light rays are brought to a focus in front of the light rays, which pass through other meridians. Such irregularity of curvature of lens causes astigmatism.

TYPES OF ASTIGMATISM

Astigmatism is of two types:

1. Regular astigmatism
2. Irregular astigmatism.

- **Regular Astigmatism:** In regular type of astigmatism, the refractive power is unequal in different meridians because of alteration of curvature in one meridian. But, it is uniform in all points throughout the affected meridian.
- **Irregular Astigmatism:** In irregular type of astigmatism, the refractive power is unequal not only in different meridians, but it is also unequal in different points of same meridian.

CORRECTION OF ASTIGMATISM

Astigmatism is corrected by using cylindrical glass lens having the convexity in the meridians, corresponding to that of lens of eye having a lesser curvature, i.e. if the horizontal curvature of lens is less, the person should use cylindrical glass lens with the convexity in horizontal meridian.

PRESBYOPIA

Presbyopia is the condition characterized by progressive diminished ability of eyes to focus on near objects with age. It is due to the gradual reduction in the amplitude of accommodation. It progresses as the age advances (presbyos = old; ops = eye). Presbyopia starts developing after middle age. In presbyopia, the distant vision is unaffected. Only the near vision is affected. The near point is away from eye. In presbyopia, the anterior curvature of lens does not increase during near vision. So, the light rays from near objects are not brought to focus on retina.

CAUSES OF PRESBYOPIA

1. Decreased elasticity of lens is because of the physical changes in lens and its capsule during old age. So, the anterior curvature is not increased during near vision.
2. Decreased convergence of eyeballs due to the concomitant weakness of ocular muscles in old age.

CORRECTION OF PRESBYOPIA

Presbyopia is corrected by using biconvex lens