The eye is one of the most important vital organs in the human body, enabling the individual to interact with the outside world through vision.Shared environmental and genetic factors In some cases, diseases occur as a result of the interaction of genes with environmental factors, such as exposure to ultraviolet rays, which may increase the likelihood of diseases such as hereditary macular degeneration.Genetic diseases that affect the eye vary in terms of their impact and symptoms, and include, for example, retinitis pigmentosa, congenital retinopathy, Stargadt disease, age-related macular degeneration of a genetic basis, and corneal disorders and keratoconus.Genetic transmission patterns Genetic eye diseases are usually transmitted based on the inheritance pattern, including: Dominant inheritance: It is sufficient for an individual to carry one copy of the mutated gene to develop the disease, such as some forms of hereditary glaucoma.Recessive inheritance: The disease only appears if an individual inherits two mutated copies of the gene, one from each parent, as is the case with retinopathy pigmentosa.Sex-linked inheritance: transmitted through the sex chromosome (X or Y), and diseases linked to the X chromosome are often more common in males, such as sex-linked retinal dystrophy.Consanguineous marriage In some societies, consanguineous marriage increases the risk of transmitting genetic diseases of the eye, as the chance of meeting similar recessive genes carrying disease-causing mutations increases.Genetic diseases of the eye are health issues that combine medical challenges with genetic complexity, as they result from mutations in the genetic material (DNA) that are passed from one generation to the next or appear randomly as a result of acquired genetic changes.These diseases not only affect vision, but also have profound psychological and social effects on those affected, making dealing with them require great efforts at the individual and societal levels.Changes in genes responsible for eye functions Some genes are responsible for producing proteins necessary for the health of the retina, optic nerve, or lens.However, this delicate organ may be susceptible to many diseases that impede its basic function, including those resulting from genetic factors.This knowledge has provided promising opportunities for developing early diagnosis methods.3- Sex-linked: transmitted through the sex chromosomes, and often affect males more than females .2.3.4.5.6.