

Glaucoma management in the era of artificial intelligence

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Glaucoma is a result of irreversible damage to the retinal ganglion cells. While an early intervention could minimise the risk of vision loss in glaucoma, its asymptomatic nature makes it difficult to diagnose until a late stage. The diagnosis of glaucoma is a complicated and expensive effort that is heavily dependent on the experience and expertise of a clinician. The application of artificial intelligence (AI) algorithms in ophthalmology has improved our understanding of many retinal, macular, choroidal and corneal pathologies. With the advent of deep learning, a number of tools for the classification, segmentation and enhancement of ocular images have been developed. Over the years, several AI techniques have been proposed to help detect glaucoma by analysis of functional and/or structural evaluations of the eye. Moreover, the use of AI has also been explored to improve the reliability of ascribing disease prognosis. This review summarises the role of AI in the diagnosis and prognosis of glaucoma, discusses the advantages and challenges of using AI systems in clinics and predicts likely areas of future progress.

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