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Editorial Article

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The Hidden Burden of Early Glaucoma: Time to Rethink Disease Staging

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Classifying glaucoma into categories such as mild, moderate, and advanced remains a cornerstone of clinical decision-making. Staging systems help determine the risk of progression, estimate the likelihood of blindness, and guide the intensity of therapy.

The Hodapp–Parrish–Anderson classification, the most used classification was developed strictly for visual field interpretation. Over time, however, it has been extrapolated into a broader framework for defining overall glaucoma severity [1]. This extension has unintentionally created a system that encourages clinicians-particularly general ophthalmologists—to underestimate the true burden of disease and, consequently, undertreat patients in early stages when treatment yields the greatest benefit.

Clinical detection of structural alterations often precedes visual function deterioration as measured by standard automated perimetry [2]. demonstrated that mild visual defects were noted only after reductions of approximately 50% of RGCs. Medeiros showed that approximately 330,000 retinal ganglion cells-out of an estimated total of 970,000-is lost before the earliest standard perimetric defect becomes apparent. Such a loss should not reasonably be considered mild or discrete [3]. This terminology risks missing a crucial therapeutic window, a phase in which there is still sufficient time to intervene effectively and prevent progression toward substantial quality-of-life impairment. If nearly one-third of retinal ganglion cells must die before a visual field defect appears, then the term mild glaucoma becomes not only misleading, but potentially harmful.

Notably, moderate or severe RNFL defects at baseline were found to be associated with a seven to eight times greater risk of future visual field loss in a study of 647 individuals with ocular hypertension [4].

Lee [5]. reported that patients with more severe glaucomatous damage are at highest risk for rapid worsening of the disease. Heijl et al. showed that treatment is more effective in patients with MD better than 4.5 dB compared to patients with MD worse than 4.5 dB.

Retinal ganglion cells relay an immense amount of visual information from the retina to the brain and possess an exceedingly active metabolism. Visual processing accounts for 44% of the brain's energy consumption. Just opening one's eyes onto a complex, dynamic visual scene, glucose consumption in the visual cortex increases up to 50% [6]. This helps explain why glaucoma produces disability far beyond what standard perimetry captures.

The severity of glaucoma should not rely solely on the visual field loss used to test a rudimentary visual function but also by the RNFL loss considering that the current dynamic range of OCT RNFL thickness measurements range from 80 to 100 µm in healthy subjects to a floor of approximately 50 µ[7].

In conclusion, it is time to redefine "Early or Mild Glaucoma". The Hoddap-Parish- Anderson classification of glaucoma severity, heavily dependent on visual field loss, systematically underestimates the true magnitude of neurodegeneration occurring in the so-called early stages of disease. A modern staging paradigm must incorporate structural damage, not based simply in perimetric thresholds [7].

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