The ISNT rule is of limited benefit in differentiating early glaucoma from normal

The Science behind the Tip

The ISNT rule states that a healthy optic disc has a characteristic configuration of the neuro-retinal rim; which is thickest inferiorly, followed by superiorly, then nasally, then temporally. Since the original observation that deviation from the rule is useful in distinguishing between normal and glaucomatous discs, this easy clinical evaluation has gained wide-spread popularity (1).

This conclusion was supported by a study which found that the odds ratio for glaucoma associated with violation of the ISNT rule was 6.04 (2). However, a recent study using stereo photographs of the optic disc questioned the value of the rule in the diagnosis of glaucoma (3). Using SD-OCT of the parapapillary retinal nerve fibre layer thickness, the sensitivity of the ISNT rule to differentiate between early glaucoma and a normal disc was reported to be only 63.2%, with a specificity of 50% (4).

In differentiating early glaucoma from normal, other visual and ocular parameters are more reliable than the ISNT rule.

References

1) Jonas JB, Gusek GC, Naumann GO. Optic disc, cup and neuro-retinal rim size, configuraton, and correlations in normal eyes. Invest Ophthalmol Vis Sci 1988;29:1151-8
2) Harizman N, Oliveira C, Chiang A et al. The ISNT rule and differentiation of normal from glaucomatous eyes. Arch Ophthalmol 2006; 124: 1579-83.
3) Morgan JE, Bourtsoukli I, Rajkumar KN, et al. The accuracy of the inferior>superior>nasal>temporal neuroretinal rim area rule for diagnosing glaucomatous optic disc damage. Ophthalmology 2012;119:723-30.
4) Dave P, Shah J. Applicability of ISNT and IST rules to the retinal nerve fibre layer using spectral domain optical coherence tomography in early glaucoma, Br J Ophthalmol 2015; doi: 10.1136/bjophthalmol. 2014-306331 (epab)

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