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Prospective estimation of sensitivities to identify open angle glaucoma in suspect eyes for IOP, visual field, confocal laser tomography, laser polarimetry and OCT

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Aims

To compare sensitivities for detection of glaucoma in suspect eyes among methods suggested for glaucoma monitoring.

Methods

Both eyes in 89 subjects with a least one open angle glaucoma suspect eye were included for consecutive monitoring for 5 years with measurements every 3rd month. Glaucoma suspect was clinically judged as open chamber angle, combined with IOP above 21 mmHg, ophthalmoscopically suspect optic nerve head, pigment dispersion syndrome, exfoliation syndrome, horizontal hemifield asymmetry in Humphrey 24-2 visual fields or any combinations in at least one eye. IOP (Goldman applanation, 1), visual fields (Humphrey 24-2: MD. 1), ONH nerve fibre layer mass (confocal scanning laser tomography [HRT]: CD-linear, NRA-global, 3), circumpapillary nerve fibre layer mass (OCT cpRNFLT, 3, Gdx laser polarimetry, Tsnit, 3) were measured. Number = number of iterated measurements averaged at each occasion. The critical limit for classification as glaucoma was the extreme 95 % confidence limit for the 95 % tolerance limit for MD based on the two initial measurements in eyes clinically not considered glaucoma. Eyes expressing a loss of MD beyond the critical limit at the end of the 5-year period were considered glaucomatous eyes.

Results

Of the quantities measured MD < 4 dB) is associated with the highest sensitivity (0.8) for detection of open angle glaucoma, in decreasing order, followed by cpRNFLT, Tsnit, IOP, NRA-global and CD-linear.

Conclusions

In a clinically glaucoma suspect eye, averaging the 2 initial occasions 3 months apart, MD is the most sensitive quantity for identifying a developing open angle glaucoma.