Medical glaucoma

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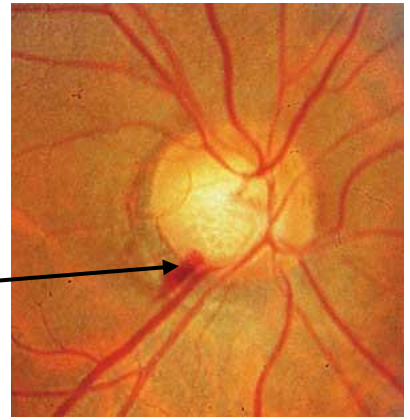
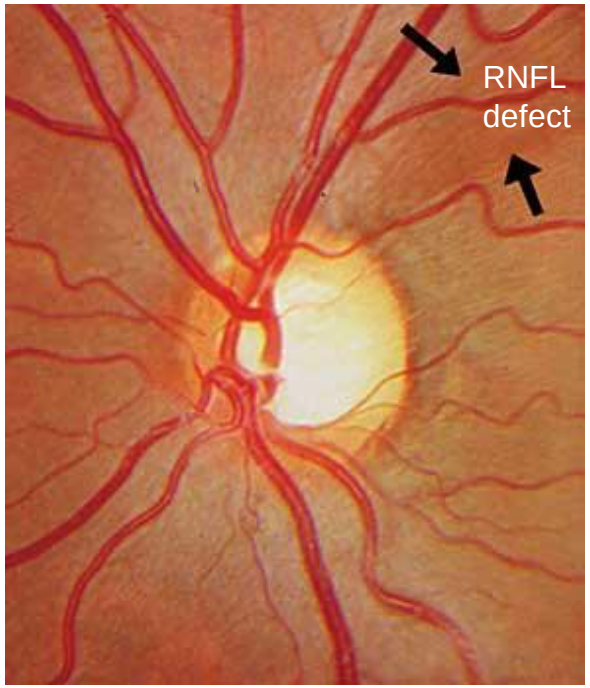
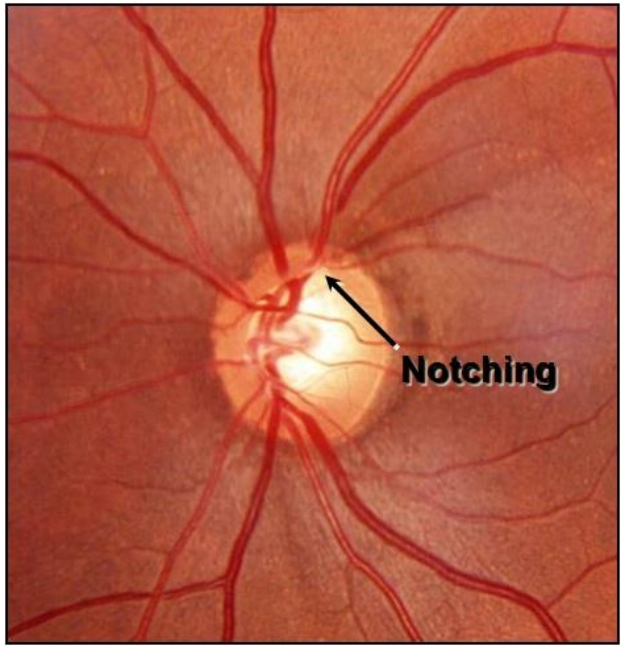
Definition of glaucoma

- Structure:

Typical changes of the optic nerve (thinner brim), or a nerve fibre layer defect.

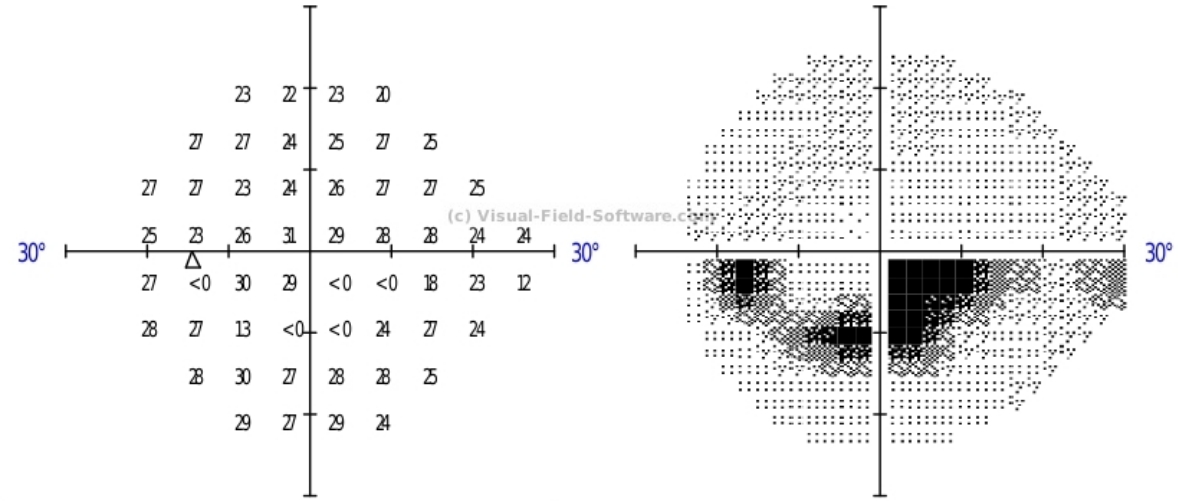






- Function:

Repeated visual field defects in the same area correlating with optic nerve damage.



- The intraocular pressure (IOP) not relevant for the diagnosis
- Damage not explained by other causes than glaucoma (neurologic disease etc)

Epidemiology

- Open angle (Western world): 2% ≥40 years
- Closed angle (Asia)

- Primary glaucoma
- Secondary glaucoma

Prevalence POAG

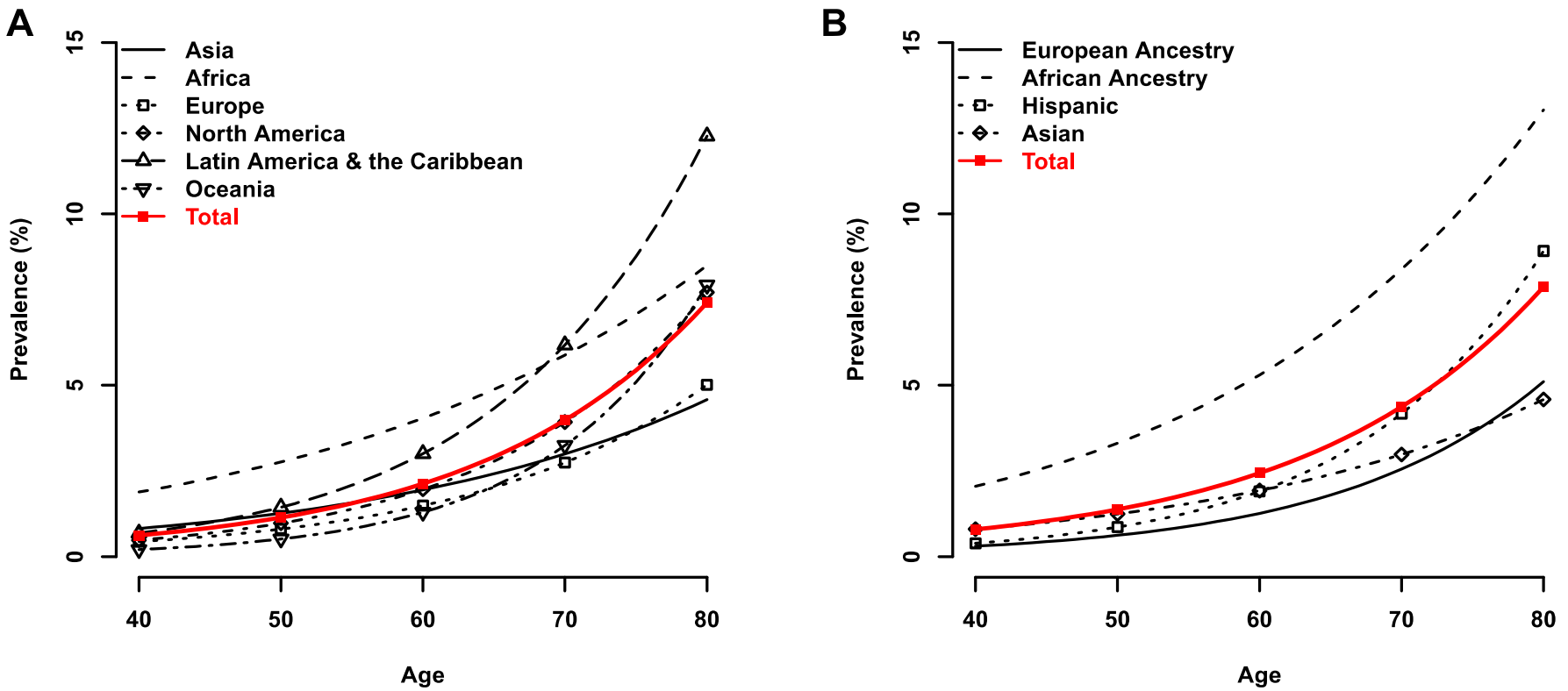


Figure 5. Age-specific prevalence of primary open-angle glaucoma (POAG) by **(A)** world regions and **(B)** ethnic groups. From Tham et. al. Ophthalmology, 2014

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Types of glaucoma

Primary

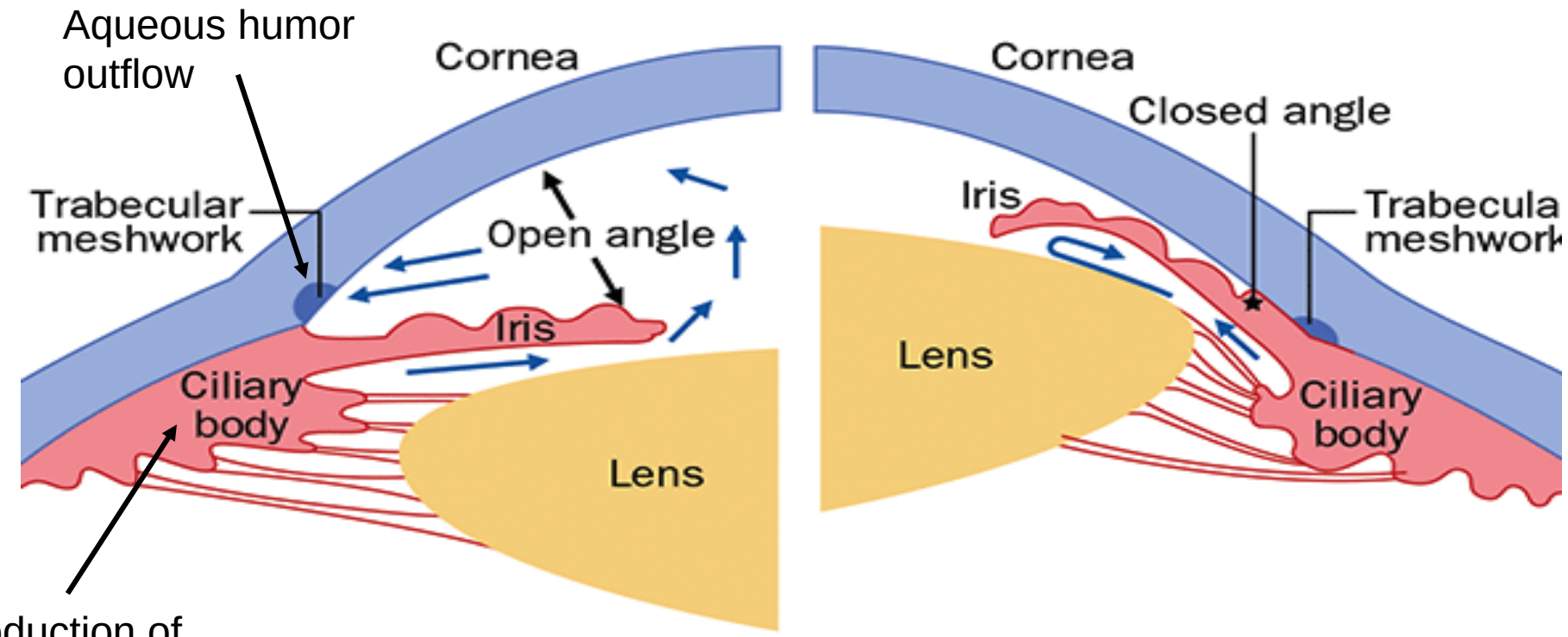
- POAG (incl. PEX-glaucoma)
- PACG

Congenital glaucoma

Secondary

- Pigmentary
- Inflammatory
- Neovascular
- Trauma
- Cortison-induced
- Other

Anterior chamber anatomy



- ”Real” closed-angle glaucoma rare in Sweden.

- Acute glaucoma in Sweden has often a secondary cause (cataract, anterior synechiae of the chamber angle)

This is what happens if you dilate the pupil of a patient with elevated IOP!

Or…?

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Treatment

- IOP-lowering eye drops
- Laser trabeculoplasty
- Surgery

Eye drops

- Most important aspect – Compliance
- Ask the patient: the name of the drops, how often, missed doses since the last visit. Side effects?

- Does the patient understand why he/she is taking the eye drops?

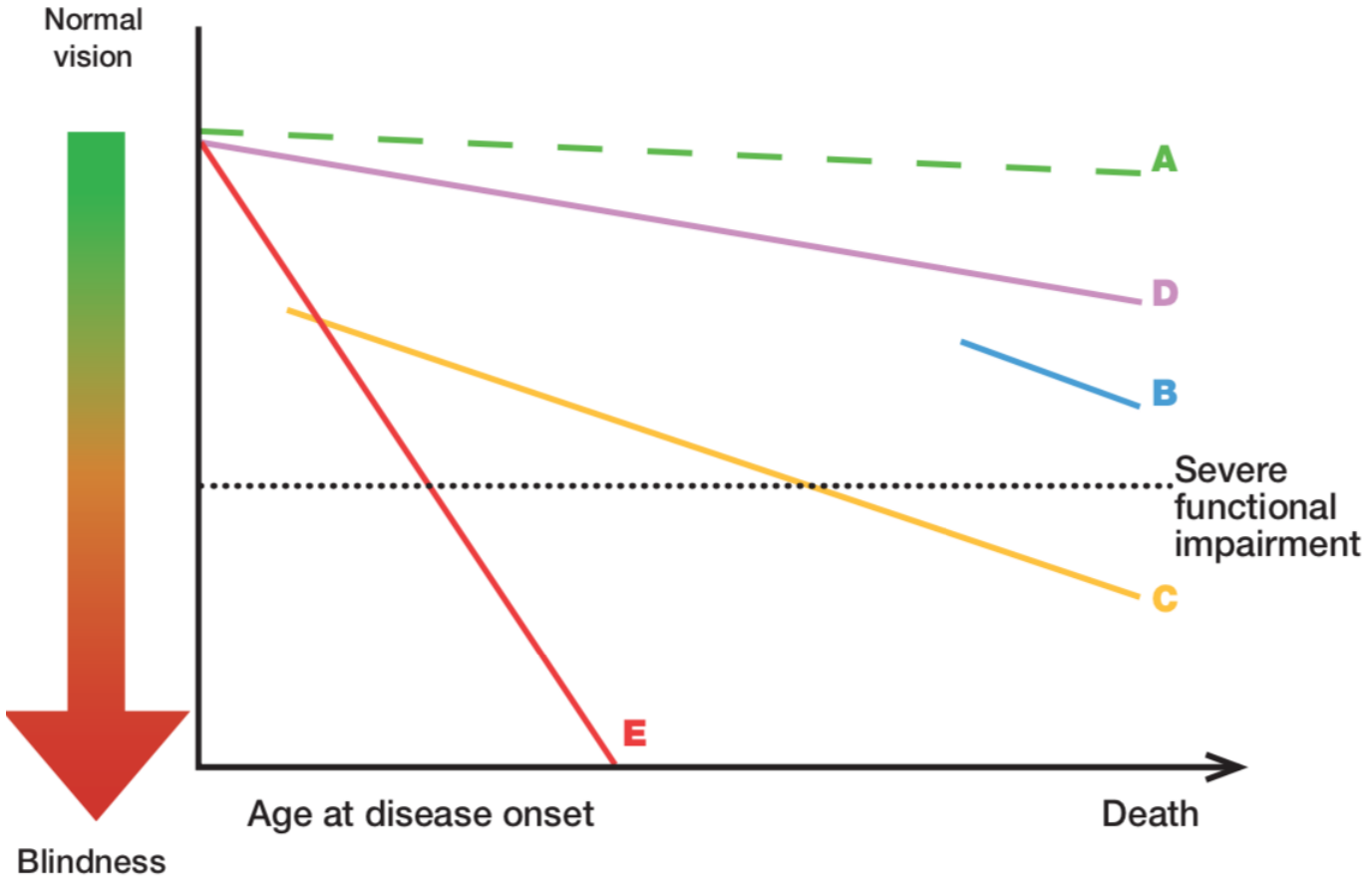
- Who is administring the drops? Living situation? Economic situation? Sometimes you need help from home care or a district nurse

Side effects or not?

- Allergy or side effects described in the charts – is it correct? Is it really necessary to avoid the substance?
- Does the symptoms match known side effects? How long has he/she used the drops?
- Type 1-allergy uncommon, often within 2 weeks
- Common complaints: Stingy, red, dry & tired eyes.

Treatment aims

- Prevent visual impairment
- At VFI < 50% in both eyes, QoL starts to be affected
- Initial treatment is adjusted to risk factors of progression



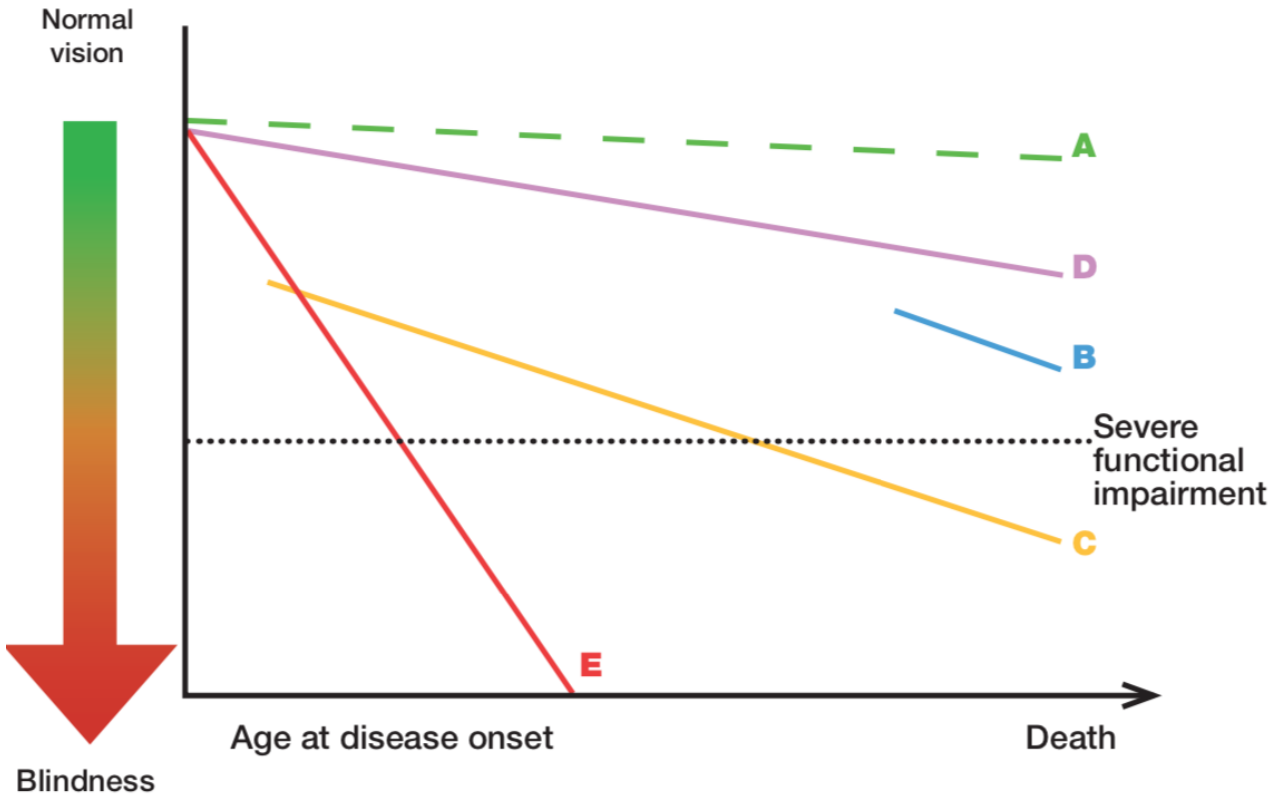
Natural history of glaucoma in the EMGT (untreated patients)

IOP <21: -0.36 MD*/year

IOP ≥21: -1.31 MD/year

PEX: -3.13 MD/year

*MD = about 3% VFI



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What type of patient?

- Young – Old (life expectancy)
- Untreated IOP
- PEX or pigment dispersion?
- Amount of visual field damage at diagnosis?
- Uni- or bilateral glaucoma?
- Ethnicity

Risk factors for progression - EMGT

- Age ≥ 68 years — Hazard Ratio (HR): 1.51

- IOP ≥ 21 — HR: 1.77
- PEX — HR: 2.12
- Bilateral glaucoma — HR: 1.88
- IOP reduction /mmHg — HR: 0.92
- ↑ mean IOP over time /mmHg — HR 1.12
- Optic disc hemmorhage / % of visits — HR 1.02

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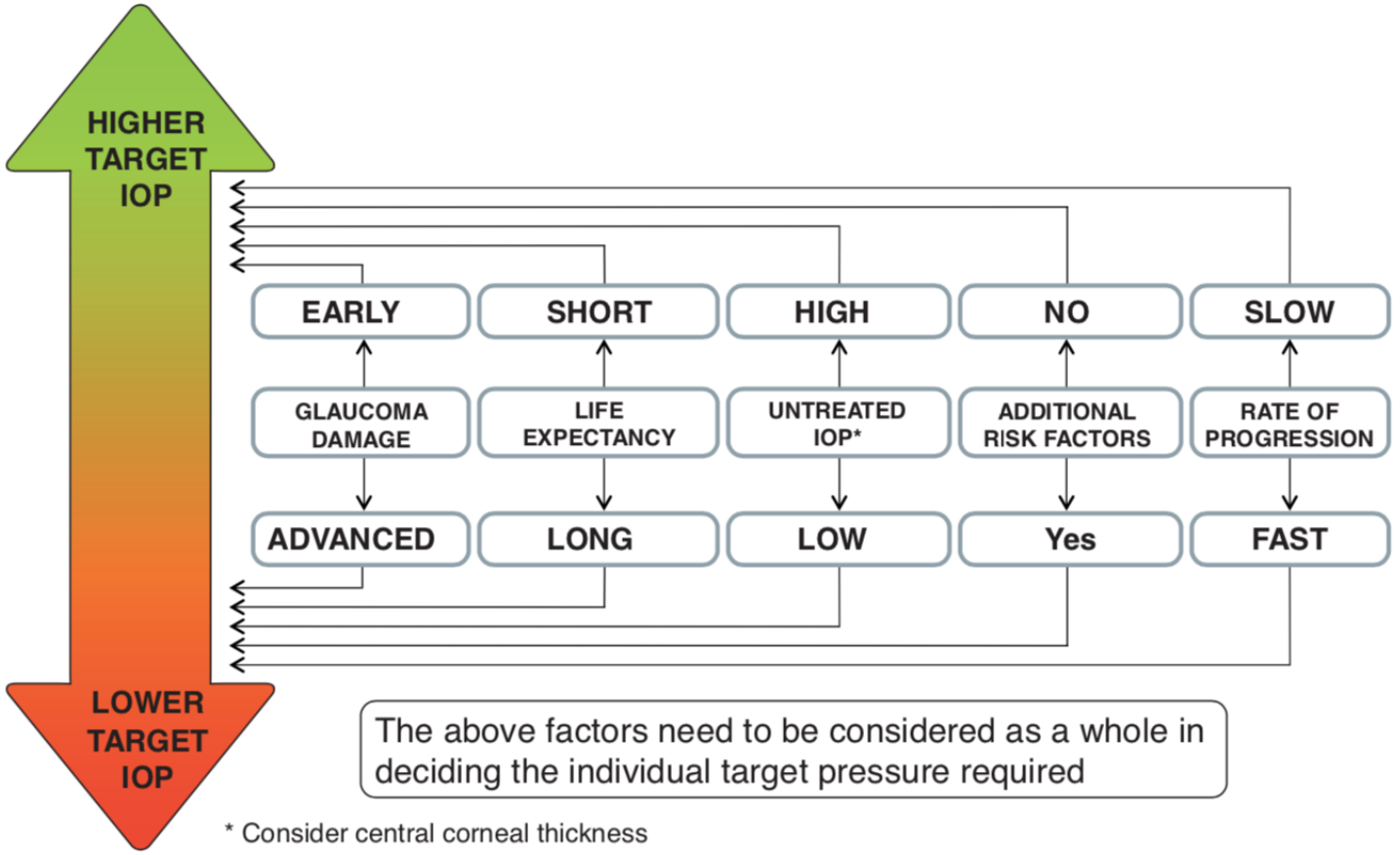
Target pressure



Rate of progression

- Not possible to predict at the individual level at baseline. All glaucoma patients progress sooner or later
- A progression estimate available after 5-6 visual field tests, in 2 or 3 years. Do not use OCT!
- Progression is most often linear, related to mean IOP over time.
- Too much progression – increase treatment. New baseline.

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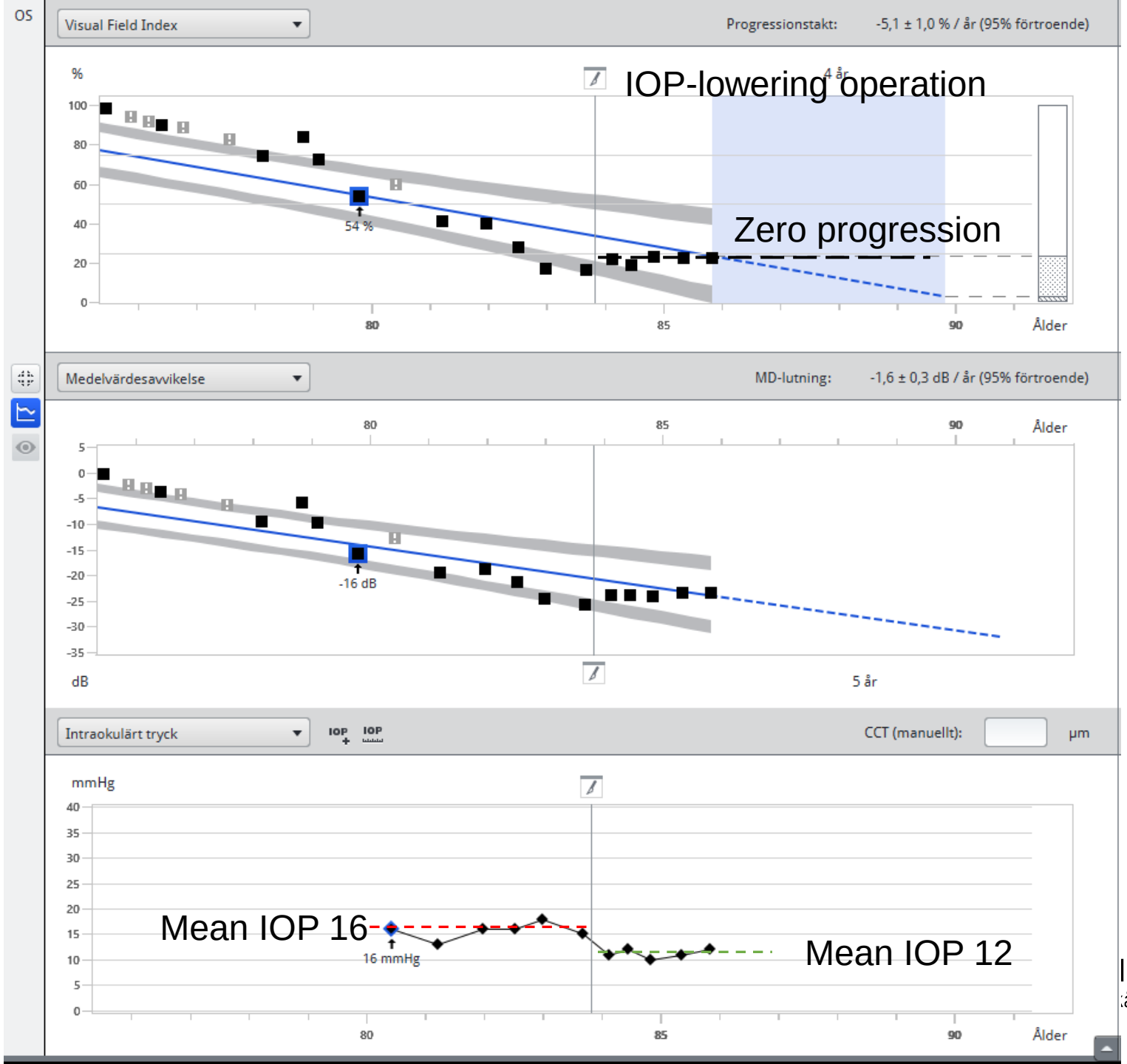

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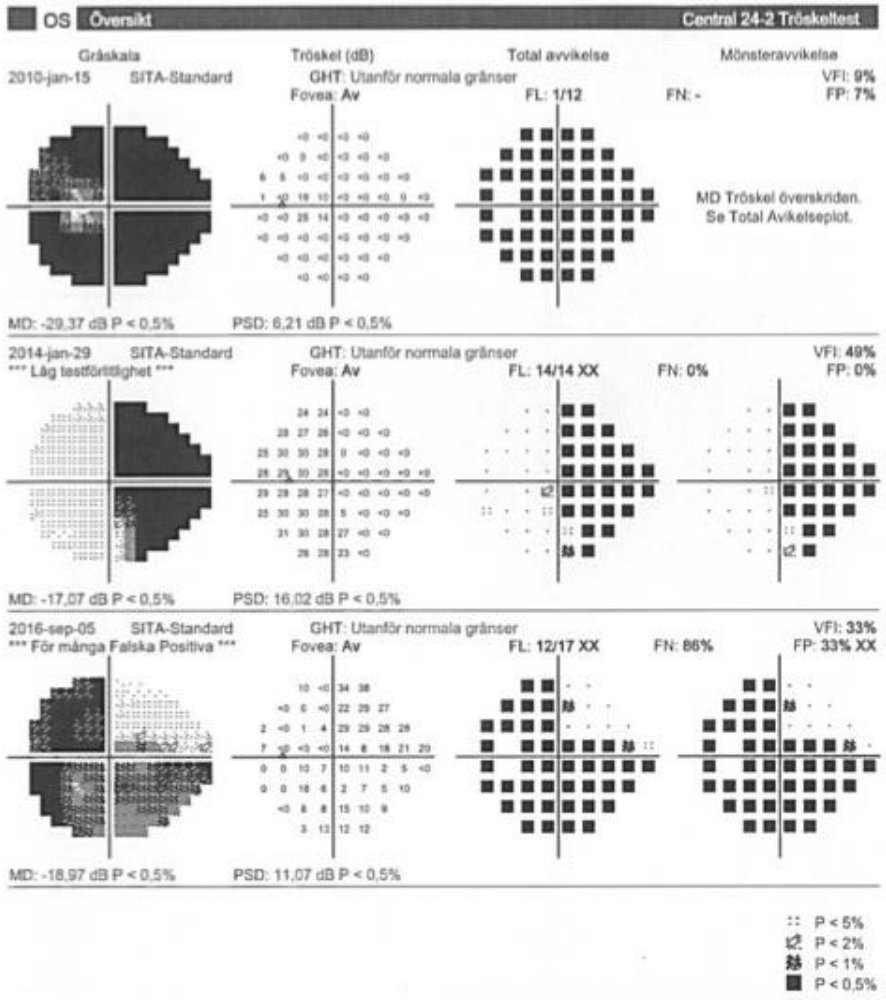
True progression or not?

- IOP – the same or higher than before?
- Bilateral progression? Equal amount?
- Other disease (AMD, stroke)?
- Compliance?

- Always look at the individual visual fields, not just GPA!
- If in doubt – new visual field test within a few months if IOP is ok

Unreliable visual field tests

- Everyone can have a bad day, or two, or three…



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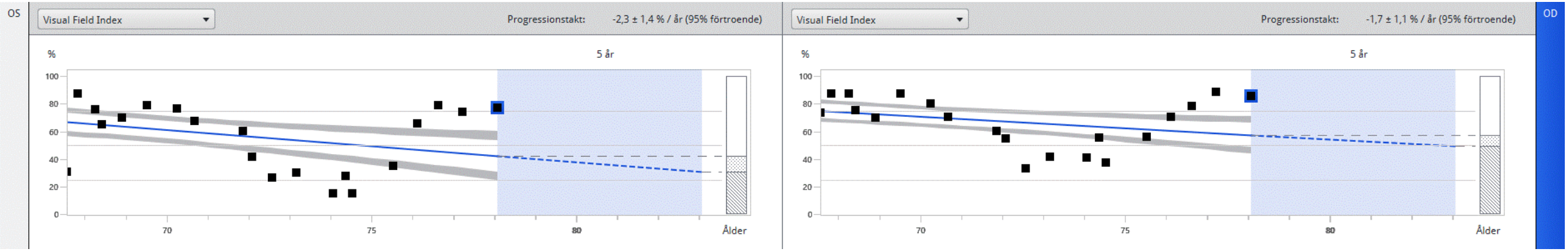
- Does the optic nerve appearance match the visual fields?



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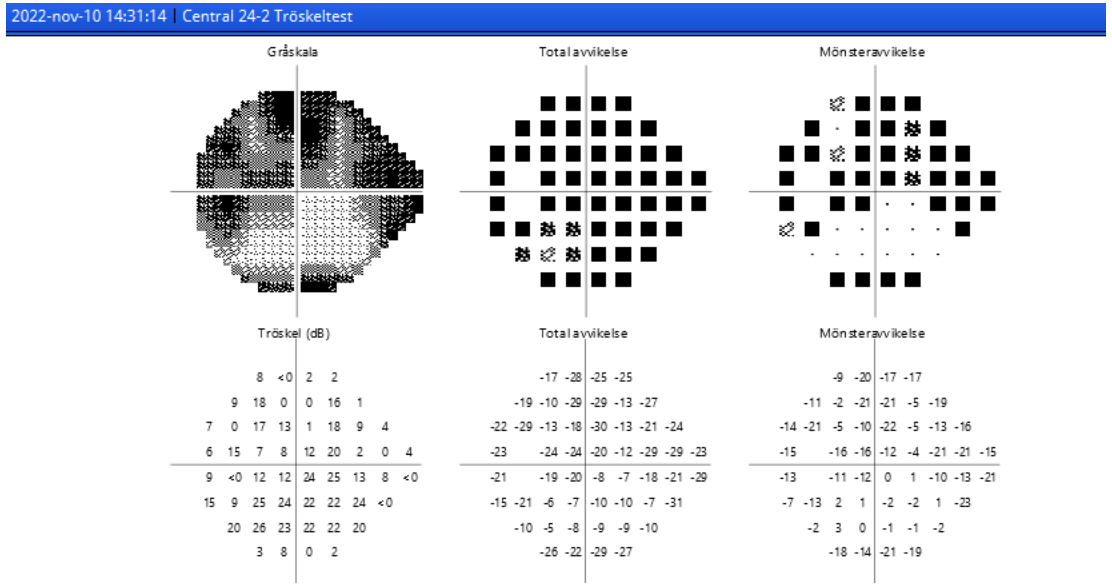
How to get reliable tests

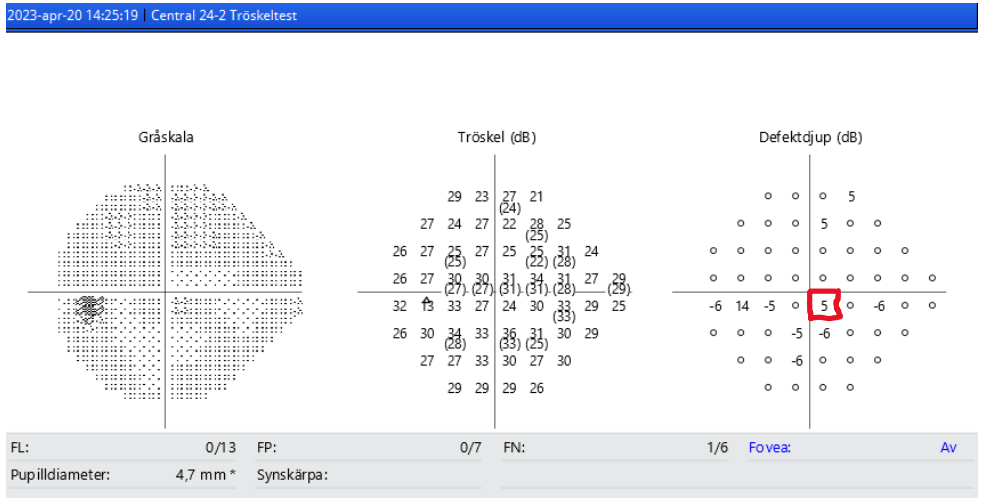
- Inform the patient on how to perform a visual field test
- Watch the patient for clues to bad performance
- Do a visual field test yourself!

- Try Stimulus V – easier due to larger stimulus size

Before



After



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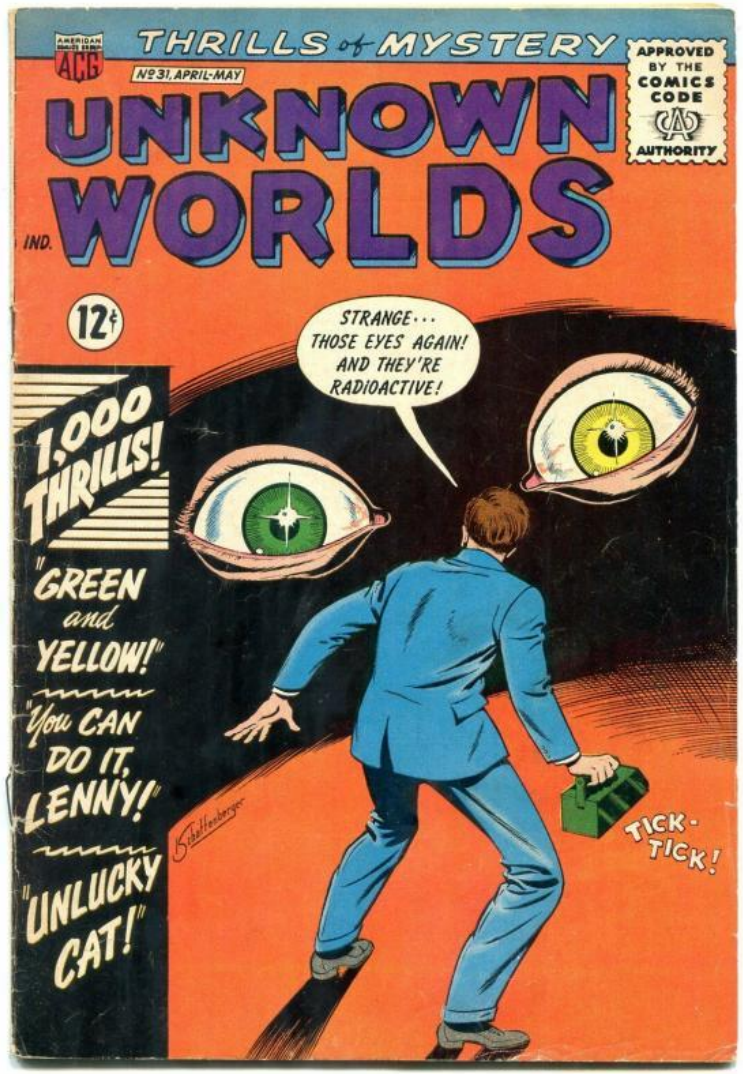
- Large diamond fixation ◊, e.g. AMD
- Fatigue – start testing the left eye
- SITA faster – takes less time, better results in some patients
- Slower tempo, adjust in the machine settings

Thank you!



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