Utilizing neuroretinal rim analysis with the SPECTRALIS Spectral Domain (SD)- Optical Coherence Tomography (OCT) in the detection of glaucoma
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Abstract: OCT devices have become an important part of the glaucoma diagnosis. Retinal nerve fiber layer (RNFL) analysis was the first method used to spot glaucoma damage. The Spectralis OCT has a new method to detect glaucoma using a rim analysis module. This poster will describe the module and its role in glaucoma detection.

Methods:
Glaucoma damage develops in the optic nerve with thinning of the neuroretinal rim, loss of the RNFL and loss of ganglion cell in the macula region. OCT devices measure most or all of these areas. Recently, the Spectralis OCT added a module that evaluates rim tissue. The module, called the Glaucoma Module Premium Edition (GMPE) software highlights the importance of assessing the optic nerve rim in the detection of glaucoma. GMPE measures the neuroretinal rim by using Bruch’s Membrane opening (BMO), the anatomical outer border of the rim, instead of the traditional clinical disc margin. The GMPE then measures the BMO to the nearest point at the internal limiting membrane (ILM). This depicts the minimum cross section of the nerve fibers exiting the eye, allowing for the BMO-based minimum rim width (BMO-MRW) to be assessed.

- Case History
  - Patient demographics: 52yo BM
  - Chief complaint:
    - Initial presentation in 2010 for CC of blurry vision at distance and near
  - Ocular Hx
    - Diagnosed (Oct. 2013): Glaucoma suspect vs. Ocular Hypertensive
    - Diagnosed (July 2014): Primary Open angle Glaucoma
  - Medical Hx
    - Hypertension
  - Medications: Latanoprost, Amlodipine Besylate, Cetirizine, Fluconazole

Pertinent findings
- Clinical
  - BCVA: OD: 20/20; OS 20/20
  - Pupils: PERRL, (-) APD
  - Anterior Segment: Unremarkable
  - GAT:
    - Maximum untreated IOP: 22/21
    - Treated IOP 15/15 (latanoprost qHS)
  - Dilated exam:
    - Optic nerve: vertically elongated nerves
      - OD: .6Hx .65V
      - OS: .4rd
Visual Fields
- FDT N30-5: Normal OD, OS
- Humphery 24-2 SITA Standard:
  - OD: Full field, Fixation losses: 3/14
  - OS: Full field, Fixation losses: 5/14
- Humphery 10-2
  - OD: Full field, fixation losses: 5/16, false positive: 5%
  - OS: Full field, fixation losses: 4/15, false positive: 1%

Imaging
- Cirrus OCT
- Spectralis OCT
  - OD: Superior temporal RNFL dropout

Differential diagnosis
- Physiological optic nerve cupping
- Ocular hypertension
- Normal tension glaucoma
- Secondary open angle glaucoma
- Previous glaucomatous damage (steroid, trauma etc.)
- Optic atrophy
- Optic nerve drusen
- Congenital optic nerve defects

Diagnosis and discussion
- Primary open angle glaucoma
- Results: Using the GMPE confirmed glaucoma damage was present and active change within the neuroretinal rim tissue was occurring. GMPE was able to reveal active undermining occurring within in the right optic nerve head of the patient.

References