


 Earn 2 hours

**Normal tension glaucoma requires oculosystemic approach**

1. Normal tension glaucoma (NTG) is a separate and distinct clinical entity defined by the following:
  - a. Initial IOP  $\leq$  20 mm Hg at the time of diagnosis
  - b. Reduced inferior optic nerve head rim tissue volume
  - c. Atypical glaucomatous visual field defect(s)
  - d. NTG is not a separate and distinct glaucomatous entity.
2. The American Optometric Association (AOA) and the American Academy of Ophthalmology (AAO) differ in their definition of glaucoma in that:
  - a. the AOA characterizes glaucoma as an IOP-dependent disease process.
  - b. the AAO characterizes glaucoma as an optic neuropathy.
  - c. IOP is not a factor in the AOA definition of glaucoma.
  - d. visual field loss is present, according to the AOA.
3. Balanced ocular hemodynamics can be influenced by which of the following?
  - a. VII nerve palsy
  - b. Pituitary adenoma
  - c. Herpes simplex keratitis
  - d. Diabetes mellitus
4. The differential diagnosis of unilateral or asymmetric NTG must include:
  - a. erythrocyte sedimentation rate.
  - b. MRI of the brain stem.
  - c. chest X-ray.
  - d. positive ANA finding.
5. In the absence of additional ocular pathology, best corrected visual acuity of 20/25 in advanced NTG suggests:
  - a. an associated blue/yellow color deficiency.
  - b. – not possible – glaucoma can never lead to reduced central visual acuity.
  - c. an afferent pupillary defect can be elicited.
  - d. a normal visual evoked potential (VEP).
6. Considering the best corrected visual acuity in advanced NTG is 20/25, which diagnostic results will help confirm a macular etiology yielding the reduced acuity?
  - a. Diminished red cap test in the affected eye
  - b. Normal VEP
  - c. Abnormal VEP
  - d. The absence of a blue/yellow color deficiency
7. With respect to IOP, corneal pachymetry:
  - a. is not related to corneal disease.
  - b. is greater in post-LASIK patients.
  - c. can influence the clinical differential diagnosis of NTG.
  - d. is not a factor in the treatment protocol of NTG.
8. Heidelberg Retinal Tomography in advanced NTG with associated glaucomatous optic atrophy may reveal the following except:
  - a. A positive cup-shape measure
  - b. Reduced ONH rim volume
  - c. Optic pallor
  - d. A progressive inferior quadrant RNFL defect
9. Visual field deficits in the differential diagnosis of NTG and ischemic optic neuropathy may reveal:
  - a. Coinciding Bjerrum scotoma and inferior altitudinal visual field deficit
  - b. Homonymous hemianopsia
  - c. Bitemporal superior quadransopia
  - d. "Pie in the sky" deficit
10. The significance of including a C-reactive protein in the laboratory work-up is:
  - a. A positive finding suggests a contributing pneumococcal etiology inducing vasculitis.
  - b. A positive finding must follow with aggressive broad-spectrum IV antibiotic treatment.
  - c. A negative finding is less indicative of contributing systemic inflammatory vascular disease.
  - d. A positive finding is less indicative of risk of myocardial infarction.
11. One reason to choose Travatan as an initial treatment regimen in NTG is that:
  - a. Topical prostaglandin analogs characteristically have an unfavorable systemic safety profile.
  - b. Topical alpha-agonists have proved to be effective as once daily monotherapy agents.
  - c. International studies have suggested that topical prostaglandins may decrease ocular blood flow.
  - d. Once daily monotherapy with travoprost 0.004% is as effective as a topical beta-blocker dosed twice daily.
12. A patient with unilateral progressive glaucomatous optic neuropathy and significant ipsilateral carotid obstruction may:
  - a. have optic cupping that is not glaucomatous.
  - b. need an emergency carotid endarterectomy.
  - c. have optic pallor that is not ischemic.
  - d. never and cannot be intertwined in the disease process.
13. An important reason to obtain an MRI of the brain and orbits in unilateral cases of presumed NTG is to:
  - a. rule out ischemic optic neuropathy.
  - b. confirm ischemic giant cell arteritis.
  - c. assess the integrity of the vertebral-basilar vasculature.
  - d. rule out a contributing orbital compressive etiology.
14. Selective laser trabeculoplasty therapy in the treatment of NTG is:
  - a. indicated only as a last resort when medical treatment is insufficient.
  - b. never indicated as a primary treatment.
  - c. predictably safe, effective and repeatable as primary or adjunctive therapy.
  - d. utilized "off label" – patients should be on maximum medical treatment.
15. Why might topical timolol 0.5% dosed one drop every 12 hours be considered a poorer choice in the treatment of NTG or ischemic optic neuropathy?
  - a. As a selective beta-blocker, there is a risk of ciliary body cytotoxicity.
  - b. As a nonselective beta-blocker, efficacy is compromised.
  - c. As a nonselective beta-blocker, potential negative cardiovascular or pulmonary effects may influence ocular perfusion.
  - d. As a selective beta-blocker, there is a risk of hypotony in the treatment of NTG.
16. Although the only proven treatment to hasten glaucomatous progression is IOP reduction, neuroprotective therapeutic considerations include all but:
  - a. Nimodipine decreasing arteriole vasoconstriction
  - b. Statin treatment producing cytoskeletal reorganization and cellular biochemical modification
  - c. Direct neuroprotection of retinal ganglion cells via estrogen hormone therapy
  - d. Ocular massage four times daily
17. A causative association in the development of NTG includes:
  - a. Thick central corneal thickness
  - b. Increased carotid blood flow velocity
  - c. Superior loss of ONH rim volume
  - d. Mean superior/inferior ratio of mean blood flow = 1:1
18. Suggesting an ischemic basis, the anatomic and functional severity of NTG can be consistently related to:
  - a. Vascular risk factors in the NTG patient compared with the normal population
  - b. The patient revealing a history of chronic obstructive pulmonary disease
  - c. Circadian fluctuations of mean ocular perfusion pressure
  - d. The presence of the apolipoprotein E-gene
19. Ischemic optic neuropathy as an etiologic basis in NTG is supported by the following high risk factors except:
  - a. Extreme drop in nocturnal systemic arterial blood pressure
  - b. Vascular risk factors are associated with greater progressive visual field loss in NTG vs. POAG.
  - c. Sleep apnea
  - d. Retinal cotton-wool spots
20. NTG is a fatal disease:
  - a. Yes – NTG can be propagated by life-threatening systemic conditions.
  - b. No – NTG is not a fatal disease.
  - c. Yes – NTG is associated with a high mortality rate.
  - d. No – NTG is not – but acute angle closure glaucoma leads to certain death.

**PCON February 2009**
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COPE Course ID: 24058-GL

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**Answers**

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|-------------|-------------|
| 1. a b c d  | 11. a b c d |
| 2. a b c d  | 12. a b c d |
| 3. a b c d  | 13. a b c d |
| 4. a b c d  | 14. a b c d |
| 5. a b c d  | 15. a b c d |
| 6. a b c d  | 16. a b c d |
| 7. a b c d  | 17. a b c d |
| 8. a b c d  | 18. a b c d |
| 9. a b c d  | 19. a b c d |
| 10. a b c d | 20. a b c d |

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