SELECTIVE PERIMETRY IS OFTEN USEFUL
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"Pre-perimetric" glaucoma is frequently present in clinical practice. What this means is that some patients loose ganglion cells but do not have evidence of damage on standard white-on-white perimetry. Significant worsening of the disease can occur without any identifiable changes in the visual field. Following patients in this early stage with white-on-white perimetry is not effective, and alternative approaches to testing are helpful. Frequency doubling technology can often identify patients as having visual field loss who do not demonstrate field loss using standard techniques. So too can alternative testing strategies such as short-wavelength automated perimetry ("blue-on-yellow"). Adding these selective perimetry approaches can result in better care of patients with concerning optic nerve head findings. Abnormalities on testing with them is predictive of later abnormalities on white-on-white perimetry.

Q1. What are alternative approaches to testing the visual field in patients with pre-perimetric glaucoma?
   a. HRT
   b. OCT
   c. GDx
   d. FDT
   e. All of the above
Correct = d

Q2. Persons with abnormalities on SITA SWAP testing:
   a. Always develop abnormalities on white-on-white testing
   b. Are more likely to have high IOP
   c. Develop white-on-white defects at higher rates than those with normal SITA SWAP testing
   d. All of the above
Correct = c

Screening for glaucoma is justified: Glaucoma is an asymptomatic condition that results in progressive loss of visual function. Self-referral for vision loss due to glaucoma results in only the most advanced cases being identified (as is typically the case in many developing countries where over 90% of glaucoma cases are undiagnosed). Even in developed countries the rate of diagnosis of POAG is about 50% and among minority populations of Hispanics in the United States it was only 25% to 33%. Treatments have been proven effective in slowing the rate of progression of glaucoma damage. If unnecessary blindness is to be prevented, persons with asymptomatic disease must be identified.

Screening can be done in the community or it can be done opportunistically or in a targeted fashion. While community-based screening may not be feasible at present, current technology allows us to identify subjects with glaucoma at relatively low cost provided the testing is applied intelligently. A combination of fast visual field testing and optic nerve imaging can identify the vast majority of those with glaucoma and also performs as well as or better than a clinician examining the patient. Provided appropriate logistics and attention to cost control, routine screening should be performed in high risk populations. Screening should be aggressively carried out in first-degree family members of persons with known glaucoma as they are at high risk. Similarly, certain populations are at substantial risk of glaucoma (such as Afro-Caribbeans and older persons) and should be screened.

Q1. Siblings of those with POAG have an increased risk of POAG. This is about:
   a. 3x the rate of those in the community
   b. 5x the rate of those in the community
   c. 10X the rate of those in the community
   d. The rate is about the same as others in the community
Correct = c

Q2. Screening in populations with low prevalence of disease requires a very high:
   a. Sensitivity
   b. Specificity
   c. Positive Predictive Value
   d. All of the above
   e. None of the above
Correct = b

Iridotomy is the Preferred Treatment of Closed Angle Glaucoma: Primary angle closure glaucoma (PACG) is a likely a more severe condition than primary open angle glaucoma. Angle closure is the result of multiple factors in these eyes, and one component is pupil block. Even in eyes where other factors clearly are at play (such as the ciliary body or the lens), laser iridotomy leads to substantial angle opening in most eyes. Therefore, there is no a priori way to know who will and will not respond to iridotomy.

Iridotomy is effective at controlling IOP in persons with PACG. In a community based study in Mongolia, 70% of those with PACG had IOP > 19 prior to iridotomy and this dropped to 40% after in iridotomy. Those with CDR >= 0.8 and PAS >= 3 angles and IOP => 19 were unlikely to respond, but all others retained a relatively low IOP after iridotomy. Furthermore, the fact that iridotomy more or less completely prevents acute angle closure attacks means that iridotomy in primary angle closure glaucoma patients can prevent potentially devastating attacks.

Cataract surgery in PACG eyes can be more difficult than in eyes with open angles and there are risks of malignant glaucoma, endothelial damage and other harms from cataract extraction. Furthermore, cataract surgery can lower IOP somewhat, but this is variable and unpredictable. Many of these persons can be managed with medications alone and it is hard to justify the risk of surgery without compelling evidence that it leads to better outcomes than iridotomy and medical treatment as needed.

Iridotomy is generally safe and frequently effective and therefore should be the first line of therapy in persons with PACG.

Q1: Treatment for primary angle closure glaucoma includes all of the following except
   a. Observation
   b. Laser iridotomy
   c. Medical therapy
d. Cataract surgery
  e. Trabeculectomy

Correct answer = a