Surgery for glaucoma in Africa

Peter R. Egbert MD
Professor of Ophthalmology
Stanford University
Case presentation
60 yr old man from Cape Coast

Jan 1994
CC “Gradual decline in vision for 2 yrs”
VA 6/12, 6/24
IOP 34, 39
C/D .9, .9
CCT  507, 516
Gonio open to SS 360 OU
IMP: POAG
Timolol

July 1994
“No drops 5 days”
V 6/12, 6/24
IOP 32,31
Stressed to use meds

1996
“Vision worse”
V 6/18, 6/36
IOP 27, 29
Trab OS with intraoperative 5-FU

2003
VA NLP, 6/60
IOP 32, 21
Thick bleb OS
Moderate cataract OU
Glaucoma in Africa is often a surgical disease

• Early surgery is frequently necessary and appropriate.
Operations for glaucoma: Which is right for Africans?

- Trabeculectomy with antifibrotic agent
- Trabeculectomy without antifibrotic agent
- Glaucoma drainage tube
- Laser trabeculoplasty
- Transscleral cyclophotocoagulation
- Non-penetrating surgery
  - Deep sclerectomy, viscocanalostomy
- Trabectome goniotomy
- Canaloplasty, etc.
Risk factors leading to failure of trabeculectomy

- Failure is due to unwanted fibrosis (healing)
- Black patients
- Previous ocular surgery
- Ocular inflammation
  - Onchcerciasis
- Risk is countered by antifibrotic agent
Onchocerciasis is a potential risk factor for glaucoma

- Skin snips recorded on 286 surgical pts

- Positive oncho results in:
  - 10.6% of trabeculectomy pts
  - 2.6% of cataract pts
  - OR 3.50, p<0.01

1. **Ghana intraoperative 5-FU trabeculectomy study**

- Prospective randomized, 5-FU 50 mg/ml vs no antifibrotic
  - 5 min Weck cell sponge between sclera and conjunctiva
  - 55 pts, follow-up 9 (range 3-12) mos
- 5-FU greatly improved results
  - No hypotony (IOP<5) or endophthalmitis

Ghana intraoperative 5-FU trabeculectomy study

5-FU is beneficial in various regions

- **Kenya (prospective study)**

- **Nigeria (retrospective study)**
2. **5-FU vs Mitomycin C study**

- Prospective randomized trial:
  - 5-FU 50mg/ml for 5 min vs MMC 0.5 mg/ml for 3.5 min
  - 81 pts
  - Follow-up 10.3 mos (4-18mos)
- MMC a little better IOP reduction
- No hypotony or endophthalmitis

2. **Prospective 5-FU vs Mitomycin**

**Post-op IOP**

3. 5-FU vs Mito
Retrospective 7 year follow-up

- Mito slightly superior
  - More likely to have good IOP without meds

- VA’s equal

- Complications
  - Rare endophthalmitis
  - No hypotony maculopathy
  - Cataract induction

# Antifibrotic agent comparison

<table>
<thead>
<tr>
<th></th>
<th>5-FU</th>
<th>Mito</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Inexpensive</td>
<td>Expensive ($80)</td>
</tr>
<tr>
<td></td>
<td>No refrigeration</td>
<td>Requires refrigeration</td>
</tr>
<tr>
<td></td>
<td>Long shelf life</td>
<td>Short shelf life after mixing (1-2 wk)</td>
</tr>
</tbody>
</table>
Suggestions for surgery

- Broad application of antifibrotic
- Releasable sutures
Releasable sutures for trabeculectomy

Summary

- Do trabeculectomy if vision is useful, medicines not feasible, or not effective, AND if pt wants it.
- Antifibrotic always. Mito a little better than 5-FU but expensive.
- Broad application of antifibrotic.
- Releasable sutures.
- Be open to improving surgery.