New Strategies for Glaucoma Management in Africa

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Disclosure Statement of Financial Interest

I, Dr Daniel Kiage DO NOT have a financial interest/arrangement or affiliation with one or more organizations which could be perceived as a real or apparent conflict of interest in the context of the subject of this presentation.
The Problem of Glaucoma in Africa

- High prevalence of POAG among Africans
- Unusual presentations and response to treatment
- Scarcity of Human Resources
- Equipment and Drugs
- Economic and literacy levels
Age-Specific prevalence of POAG from selected surveys

Color Figure 9.1. Age-specific prevalence of chronic open-angle glaucoma from selected surveys. Y axis: prevalence of COAG (%). X axis: age.
Some major POAG prevalence studies on Africans

<table>
<thead>
<tr>
<th>Survey</th>
<th>Prevalence</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tema [Ghana]</td>
<td>5.8%</td>
</tr>
<tr>
<td>Baltimore</td>
<td>4.7%</td>
</tr>
<tr>
<td>Kongwa [Tanzania]</td>
<td>4.2%</td>
</tr>
<tr>
<td>South Africa</td>
<td>3.8%</td>
</tr>
<tr>
<td>Whites [Baltimore]</td>
<td>1.29%</td>
</tr>
</tbody>
</table>
Unusual presentations and response

- Larger disc diameters and cupping
- Thinner corneas
- Lower age of presentation
- Reduced amenability to medical and surgical treatment

Who is diagnosing and treating glaucoma in Africa

- Glaucoma Specialist
- Ophthalmologist
- Ophthalmic Clinical Officers
- [Optometrist]
- Ophthalmic Nurses
- Community Health Workers
Health Care Personnel

- **Availability**
  - 1:0.5M Ophthalmology Pop Ratio
  - Only 2 or 3 Glaucoma specialist in SSA

- **Distribution**
  - Majority of Ophthalmologist live in Major cities
    while majority of African pop is rural

- **Skills**
  - clinical
  - surgical
  - research
Others

- Equipment and Drugs
- Economic status
- Literacy levels
- Awareness
# Essentials for Diagnosis

<table>
<thead>
<tr>
<th>Diagnostic stage</th>
<th>Certainty Of diagnosis</th>
<th>Facilities required</th>
<th>Example of facilities</th>
</tr>
</thead>
<tbody>
<tr>
<td>Advanced [Symptomatic]</td>
<td>++++</td>
<td>Basic</td>
<td>VA, Confrontational fields, Direct Ophthalmoscopy. ON.</td>
</tr>
<tr>
<td>Moderate [Pre-symptomatic]</td>
<td>+++</td>
<td>Modest</td>
<td>Stereoscopic Disc exam, Basic VF, OCO</td>
</tr>
<tr>
<td>Early [Structural, Functional]</td>
<td>+</td>
<td>Advanced</td>
<td>VF [high tech], Stereoscopic Disc exam + Photos, NFL exam, Ophthalmologist</td>
</tr>
<tr>
<td>Pre-Structural, pre-functional</td>
<td>+/-</td>
<td>High End</td>
<td>Serial highly reliable VF, NFL Imaging, [Fundus camera, OCT, HRT, GDx]. Fellowship trained Glaucoma specialist</td>
</tr>
</tbody>
</table>

Adapted from: World Glaucoma Association
Approach to Glaucoma care in Africa

- Glaucoma Education and Training
- Glaucoma Diagnosis and treatment Guidelines for Africa
- Screening for Glaucoma
- Glaucoma Centres of Excellence
- Embrace Technology e.g. Tele-glaucoma
- Involve the community, industry, government etc in the fight against glaucoma

WGA – 1st Africa Glaucoma Summit – August 6th 2010 – Accra Ghana
Glaucoma Education and Training

- Train glaucoma specialist in SSA
- Enhance undergraduate training in Glaucoma.
- Enhance glaucoma CME at society level – resources to be available in 3 languages [English, French and Portuguese]
- Provide training materials and resources from other countries, e.g.: Goniscopy lenses from Aravind Eye Center in India to Africa.
The Sandwich Fellowship: A Subspecialty Training Model for the Developing World

Faazil Kassam, Karim F. Damji, MD, MBA, Dan Kiage, MBChB, MMed, Chris Carruthers, MD, MBA, and K.H. Martin Kollmann, MBChB, MMed, MD, Diploma in Tropical Medicine and Medical Parasitology, MBA

Abstract

Health care systems in many developing countries are rapidly evolving to respond to urbanization and shifting epidemiological profiles, creating an environment favorable for subspecialty development. The struggle for developing nations to train and retain highly skilled clinicians within academic institutions has highlighted the need for creative approaches to subspecialty education in these regions. The “Sandwich fellowship” is an educational model in which a fellow completes rotations at an academic institution in the developed world as well as in his or her home environment. An important component of the model is the expansion of institutional capacity at the fellow’s home institution to create an enabling environment to practice newly acquired skills. The fellowship provides experience in diverse geographic and cultural contexts under the guidance of a preceptor from an institution in the developed world who teaches in both settings. Preceptors are given opportunities to continue professional growth and gain from exposure to pathology not commonly seen at home.

Successful pilots of a Sandwich fellowship took place in ophthalmology and orthopedic surgery at the University of Ottawa in 2007–2008 and required funding from multiple sources with bilateral institutional support. Emphasis was also placed on teaching, leadership, management, and research so the fellows could return home and lead the development of their subspecialty areas.

Early contact between administrations enables the model to serve as a gateway to a long-term partnership between developed world academic establishments and developing world institutions. Such a relationship yields a mutually beneficial exchange of knowledge and skills. Beneficiaries include the hospitals, their staff, and patients at both institutions.

Mutual benefits from the ‘Sandwich’ fellowship program

- Continued professional growth
- Exposure to unique pathology
- Future educational opportunity for staff, residents & students
- Improved global profile

Mutually beneficial exchange of knowledge, skills, approaches
- Clinical care
- Education
- Research
- Twinning

Institutional capacity building
- Competencies for subspecialty practice
- Management training
- Residency and fellowship training
- Research opportunities
Trab should be the Gold Standard of treatment.
All cases should have anti-metabolites.
There is a need for more information on Laser Trabeculoplasty results in Africa.
Selected patients may benefit from combined trab+cataract sx.
The use of GDD may be beneficial in selected cases.
Research of novel surgical techniques and new drugs in Africa should be encouraged.
Screening for Glaucoma

- Necessary in Africa
- Counseling should form an integral part of Glaucoma Screening Management.
- Increase awareness of Glaucoma through Media.
- Set up an efficient Referral System.
- Embrace technology for quicker results
Tele-Glaucoma
“Centers of Excellence” for Glaucoma in Africa

- A special committee will recommend at least 5 locations for establishing Centers of Excellence in different regions in Africa.
- These centers will adopt a Business Model for their activities.
- Teaching and appropriate research should be entrenched.
- Social and leadership roles should be developed.
- Diagnostic and Therapeutic Tools are important components of these centers.
End