

Symposium on Glaucoma

Chairperson: J Pawiroredjo

The Magnitude of Glaucoma: The Leading Cause of Blindness in Trinidad and Tobago

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Introduction: The National Eye Survey of Trinidad and Tobago (NESTT) reported glaucoma as the leading cause of presenting blindness, accounting for 32% of blindness in Trinidad and Tobago (T&T), followed by cataract (29%) and diabetic retinopathy (13%). However, the prevalence and incidence of glaucoma and, by extension, the magnitude of the disease remain unknown, making health services planning a continued challenge.

Objective: To estimate the magnitude of glaucoma in T&T.

Method: Epidemiological data on the incidence and/or prevalence of open angle glaucoma (OAG), suspect OAG and ocular hypertension (OHT) were obtained by means of a structured literature search. Peer-reviewed publications (population-based, randomized cluster sampling surveys, cross-sectional surveys, meta-analyses and systematic reviews) containing data on the two main ethnic groups in T&T were retrieved. Data were extracted from Barbados and St Lucia (West Indies), Ghana (Africa), Chennai (India), Baltimore (USA) and a Bayesian model pooled prevalence and extrapolated to T&T.

Results: In T&T, 10 000 persons aged 30–39 years could have OAG. As many as 45 000 persons aged 40 years and over may be living with OAG, increasing to 56 000 if suspect OAG or OHT are included. For those aged 60 years and over, 21 000 may be living with OAG. Each year, a further 2600 new cases of OAG are expected to arise in the over 40 years age group.

Conclusion: This is the first study to estimate the magnitude of glaucoma in T&T, the leading cause of blindness in the country. The World Health Organization/Pan American Health Organization recognizes glaucoma as the leading cause of irreversible blindness in the region and recommends that persons over 40 years with risk factors for glaucoma be motivated to have periodic eye examinations to

increase early detection and referral. However, this increase must be accompanied by enhanced service delivery, if the ultimate goal of preventing avoidable blindness from glaucoma is to be attained.

Experience with Pars Plana Glaucoma Implants

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Objective: To evaluate the effectiveness of pars plana implantation of Ahmed glaucoma valve with extensive vitrectomy and shaving of the vitreous base in the vicinity of the tube in the treatment of neovascular glaucoma in a busy retinal practice.

Methods: Six patients with uncontrolled neovascular glaucoma and who were on full medical therapy underwent pars plana placement of Ahmed valve (FP 7 model.) At each postoperative visit, intraocular pressures, visions, complications and requirement of additional treatment to control intraocular pressure were evaluated. Visits were at day one, week one, week three and monthly thereafter for four months.

Results: Mean preoperative intraocular pressure was 42 mmHg. Mean intraocular pressure at day one was 12.8 mmHg, rising to a 15 mmHg at weeks two and three. In one case, at week one, intraocular pressure rose to 35 mmHg. The patient was found to have vitreous plug to the tube which was removed; the average intraocular pressure over the last two monthly visits was 16 mmHg. One case had slight elevation of the pericardial patch graft at the limbus, resulting in mild transient dellen formation. There has been no recorded reduction in vision of any of the patients who had surgery.

Conclusions: Although this approach is complex and requires vitreoretinal and glaucoma expertise, there seems to be significant sustainable reduction in intraocular pressure with its attendant benefits. Much longer follow-up is mandatory with a larger patient base to ensure consistent surgical outcomes.

Cystoid Macular Oedema following Glaucoma Drainage Implant Surgery

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Purpose: We hypothesize that glaucoma drainage implant (GDI) surgery increases the risk of cystoid macular oedema (CME) in patients with specific risk factors.

Methods: A retrospective study of all patients that underwent GDI at Bascom Palmer Eye Institute Palm Beach Gardens between 2011–2014 were reviewed.

Results: Two hundred and fifty-one charts were reviewed. Fifty-one patients excluded with pre-existing macular pathology. Two hundred patients were enrolled, 41 eyes (20.5%) had OCT documented CME and 159 eyes (79.5%) were found without clinical evidence of CME. Epiretinal membrane (ERM), iritis and hypotony were all significant risk factors with hazard ratios of 3.7, 3.0 and 2.5, respectively.

Conclusion: This study identifies a high occurrence of CME after GDI surgery with ERM being the biggest risk factor.

Selective Laser Trabeculoplasty in St Lucia: Five-year Results

A Realini

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Purpose: To describe the five-year intraocular pressure (IOP)-lowering efficacy of selective laser trabeculoplasty (SLT) used as monotherapy in Afro-Caribbean subjects with primary open-angle glaucoma in St Lucia, West Indies.

Methods: In this prospective interventional cohort study, 61 St Lucians with open-angle glaucoma treated with no more than one medication underwent 30-day washout of IOP therapy, baseline IOP determination by two measurements at least two hours apart and bilateral 360-degree SLT. Follow-up examinations occurred one hour, one week, one month, three months and every three months thereafter. Intraocular pressure at every visit was measured using a modified Ocular Hypertension Treatment Study protocol by a single examiner using a single Perkins tonometer, using the average of two to three measurements per time point.

Results: Following washout, IOP in right and left eyes rose from 17.3 (5.0) and 17.5 (4.0) mmHg on medical therapy to 21.4 (3.6) and 21.1 (3.5) mmHg, respectively. At 48 months, 24 patients had been censored or deemed treatment failures, leaving 37 subjects (61%) still deemed treatment successes with at least a 20% IOP reduction from baseline in both eyes and no further IOP interventions after initial

SLT. Ten patients underwent one or more repeat SLT when initial SLT wore off, of whom nine remain controlled on no medications. The proportion of subjects who remain controlled (minimum 20% IOP reduction from baseline) at 48 months on no medications after one or more SLT treatments is 75% (46/61). Mean IOP reduction in controlled subjects at 48 months post-SLT was 8.8 (2.9) mmHg in right eyes and 8.5 (2.8) mmHg in left eyes, representing an average 40% IOP reduction from baseline in both eyes. Data are analysed on an annual basis. Five-year data will be collected in early 2016 and presented at the meeting.

Conclusions: Four years after bilateral 360-degree SLT treatment session, a majority of Afro-Caribbean patients with open-angle glaucoma enjoy a mean IOP reduction of 40% with no need for medical therapy. When initial SLT's effect wanes, repeat SLT safely and effectively restores IOP control. Selective laser trabeculoplasty could be an important part of the solution to the developing world's burgeoning glaucoma burden.

Mini-Symposium

1. Primary Open Angle Glaucoma and Neuro-Ophthalmology
2. Secondary Glaucoma after Vitreoretinal Surgery with Silicone Oil
3. Primary Angle Closure Glaucoma

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Glaucoma Therapy Update: Selective Laser Trabeculoplasty versus Eye Drops

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Glaucoma is a progressive neuropathy of the optic nerve and is one of the leading causes of blindness in North America and Europe and the second leading cause worldwide after cataract. Reduction of intraocular pressure (IOP) seems to be the only treatment proven to slow progression in glaucoma. There are several methods to reduce IOP: pharmaceutical treatment, laser treatment and surgery.

Eye-drop therapy is the standard in glaucoma therapy; on the other hand, selective laser trabeculoplasty (SLT; laser therapy) is a proven alternative. It was approved by the US Food and Drug Administration (FDA) in 2001. Around the world, thousands of patients have benefited. Long-term studies have followed patients over as much as 10 years without any negative findings. Selective laser tra-

beculoplasty can be used as a primary stand-alone therapy or in conjunction with drug therapy, and it is repeatable, depending on the individual patient's response, as well as performed at regular intervals to keep IOP low and stable.

The average response rate is over 70% and there are no major risks or complications associated with SLT. The worst that can happen is that the patient's eye does not respond.

Selective laser trabeculoplasty uses a 532-nm frequency-doubled, Q-switched Nd:YAG laser that delivers a low-energy, large spot, very brief pulse to selectively target cells of the trabecular meshwork. This "milder" laser application is thought to stimulate the pigmented trabecular meshwork cells and thus facilitate improved aqueous outflow.

Selective laser trabeculoplasty is an effective treatment method for patients with primary open angle glaucoma, normal tension glaucoma, pseudoexfoliation glaucoma or pigmentary glaucoma. Studies have also shown that SLT can prove effective in the treatment of primary angle closure glaucoma. We present our two-year experience with SLT in decreasing IOP in Peruvian patients.

Ocular and Orbital Pathology: The Role of B-scan Echography

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B-scan echography is a simple, non-invasive and very important tool in clinical assessment of various ocular and orbital diseases. With a general understanding of the indi-

cations and proper examination technique, one can obtain a vast amount of information not possible with clinical examination alone. We describe the principles, techniques, and indications for B-scan examination, as well as provide a general understanding of echographic characteristics of various ocular and orbital pathologies.

B-scan ultrasound is useful when direct visualization of intraocular structures is difficult or impossible due to opaque media (dense cataracts or vitreous opacities). Other situations that preclude normal examination are lid problems (eg severe oedema, partial or total tarsorrhaphy), keratoprosthesis, corneal scars or oedema, hyphaema, hypopyon, miosis and pupillary membranes. In the orbit, it also provides an excellent option to visualize tumours and other pathologies.

Diagnostic B-scan ultrasound can accurately image intraocular structures: vitreous, retina, choroid and sclera. Also, ultrasound is used for diagnostic purposes even though pathology is clinically visible, such as differentiating intraocular tumours, serous versus haemorrhagic choroidal detachments, exudative versus rhegmatogenous retinal detachments or optic disc drusen versus papilloedema. In orbit, it has special value in the diagnosis of tumours, vascular malformations and muscles and optic nerve diseases.

We present common conditions that can be accurately evaluated with this modality.