Residents' Presentations

Chairperson: C Reifer

Trabeculectomy Augmented with Avastin: A Possible Alternative to Mitomycin C

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Introduction: Surgical management of glaucoma with mitomycin C-augmented trabeculectomy is often avoided due to potential postoperative complications. This aversion, combined with an unreliable supply of mitomycin C, has contributed to a low glaucoma surgical rate in Trinidad and Tobago.
Objective: To evaluate the long-term outcomes and efficacy of trabeculectomy augmented with bevacizumab (Avastin).
Methods: A retrospective, observational study was done at a tertiary hospital in Trinidad and Tobago. Eight consecutive patients diagnosed with glaucoma underwent augmented trabeculectomy with intracameral or subconjunctival bevacizumab between March 2012 and January 2015. Patients with a history of previous intraocular surgery or in whom another antifibrotic agent was used intra-operatively or postoperatively were excluded. All procedures were performed by a single surgeon (consultant ophthalmologist). The primary outcome measure was intraocular pressure (IOP) recorded at one, six and 12 months.
Results: At six months, 75% achieved IOP $\leq$ 21 mmHg (38% complete and 38% qualified success). At one year, there was a mean reduction in IOP from 29.5 mmHg preoperatively to 19.1 mmHg ($p < 0.03$). One case of transient postoperative hypotony was observed. There were no cases of blebitis, endophthalmitis, suprachoroidal haemorrhage or hypotony maculopathy.
Conclusion: Bevacizumab use may be feasible in the surgical management of glaucoma in the Caribbean. Further studies comparing its use to that of mitomycin C are needed.

Pterygium Surgery at Kingston Public Hospital: How to Mitigate Recurrence

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Pterygia are non-malignant slow-growing proliferations of wing-shaped fibrovascular tissue arising from the subconjunctival tissues which may extend over the cornea, thus disturbing vision. They have a high incidence in hot climates such as Jamaica and are thought to be related to exposure to ultraviolet radiation. In the past, pterygium excision with the fairly simple and fast bare sclera technique resulted in a low recurrence rate with few adverse effects on the eye when the alkylating agent, thioTEPA, was used topically as an adjunct postoperatively. With thioTEPA eye drops being out of production circa 2010, high recurrence rates were noted with the bare sclera technique alone, thus resulting in an increased need for further procedures to remove recurrent pterygia.

The aim of this study is to compare the recurrence rates of the conjunctival autograft, which is the recognized gold standard, to the rotational flap, which is a much easier technique. Patients with pterygia which were $\geq$ 2 mm and who had not previously had pterygium surgery on the affected eye met the inclusion criteria. They were then randomly assigned to receive either conjunctival autograft or rotational flap performed by one of two surgeons with similar techniques. Intra-operatively, 0.02% mitomycin C, an alkylating agent, was applied to the scleral bed for two minutes. The postoperative regime consisted of combination antibiotic and steroid eye drops to the affected eye for a month, as well as lubricant eye drops for the duration of follow-up for all patients. Recurrence rates for the two groups were compared after one year of postoperative follow-up.

Toward Creation of a Blind Registry: A Pilot Study of Causes of Registration as Blind in Barbados

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Rationale: Blindness is a disability which in many cases can be prevented. Although the definition varies based on location, the impact on quality of life remains constant. Prevalence of blindness in a country is important from a public health perspective to inform appropriate policies and apportioning of resources to prevent this disability. The Barbados Eye Study, which was conducted between 1988 and 1992, showed that the most common cause of blindness was due to cataract, followed by primary open angle glaucoma. These data are over 20 years old and in that time there has been a significant increase in the number of ophthalmologists performing cataract surgery on the island, with increasingly more modern and effective techniques. It is likely that cataract blindness has diminished, but without an accurate means of capturing the data, we cannot be certain. The only blind registration data currently recorded are for persons who have to leave the workforce as a result of visual impairment. Even these data have not been previously analysed. Our study aims to examine these registrations for blindness to evaluate the most common causes. The authors anticipate that this will serve as a pilot study for a wider re-evaluation of causes of blindness in Barbados, and thus make a case for establishment of a suitable registry.
Methods: This study is a retrospective observational study. The study is aimed at retrieving information on persons registered as blind in Barbados from January 1 to December 31, 2014. Records will be accessed from the National Insurance Scheme of Barbados where documentation is made of those persons registered as blind. This will allow identification of the numbers of cases registered in a one-year period as well as causes of blind registration in Barbados.

Prevalence of Proliferative Diabetic Retinopathy 15–25 Years Post Diagnosis of Type 2 Diabetes Mellitus and Its Association with Traditional Risk Factors for Cardiovascular Disease in Barbados

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Objective: This pilot study was done to determine the prevalence of proliferative diabetic retinopathy among non-urgent diabetic referrals to the eye clinic at the Queen Elizabeth Hospital in 2015.
Methods: This is a cross-sectional study. The study included all new patients given routine appointments to the general eye clinic in 2015. The number of patients with diabetes and those found to have proliferative diabetic retinopathy at first visit were recorded. Also, type and duration of diabetes, gender, age, insulin *vs* oral therapy and presence of hypertension were recorded.
Results: Five hundred and thirty-four patient notes were reviewed and an additional 72 notes were recorded missing. A total of 191 (35.7%) patients were diabetic, 68% of those diabetic patients being female. All patients had Type 2 diabetes. Nine patients (4.7%) were found to have proliferative diabetic retinopathy at their first visit.
Conclusions: The prevalence of proliferative diabetic retinopathy in new non-urgent eye clinic patients with diabetes at the Queen Elizabeth Hospital was 4.7%. This study highlights a need for the development of strategies at the primary care level targeted toward early detection of diabetic retinopathy.

Disease Education as a Tool in the Management Protocol of the Diabetic Eye Patient

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Objective: To enhance the management of diabetes mellitus in the eye clinic setting by establishing an educational programme and developing a management protocol for diabetics within the eye clinic.
Method: A sample size of 250 clinic patients and all members of nursing staff directly involved in patient care were given a brief questionnaire about diabetes. This questionnaire was brief enough to be administered in the clinic waiting room and served to elicit what basic conceptions there were about diabetes mellitus in our clinic population. A side audit of a further sample of 250 new diabetic patients and 250 screeners (patients being screened for surgery) was done to ascertain level of glycaemic control (fasting blood sugar) at presentation. Subsequently, an educational programme was devised and set up within the eye clinic system to arm the diabetic population with the necessary knowledge and information about the disease and its care. This involves but is not limited to regular lectures by dietitians, internal physicians, ophthalmologists and nursing staff as well as a week of interactive/hands-on sessions targeted toward the diabetic population (and carers). In addition, all clinical staff has been given regular lectures/training sessions in diabetes care and management to provide adequate patient support and education in the clinic setting.
Conclusion: Education is an essential tool in the management of diabetes mellitus. This includes all clinical staff but most importantly, the patient. We believe that arming the diabetic population with the right information will result in not only better patient care, but better glycaemic control and ultimately decreased incidence of diabetic eye

disease. Re-audit to assess glycaemic control as well as improvements in education will be carried out in one year from establishment of the educational programme.

Analysis of the Effect of Intravitreal Bevacizumab Injection on Diabetic Maculopathy

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Objective: To report the visual acuity response after intravitreal injection of bevacizumab in patients with diabetic maculopathy.
Method: A retrospective study was done of 300 patients who were treated with at least one intravitreal injection of bevacizumab. The patients underwent Snellen visual acuity testing and funduscopic examination.
Results: The majority of patients demonstrated an increase in visual acuity. No adverse events were observed.
Conclusion: Bevacizumab appears to be effective at treating diabetic maculopathy. In settings where financial resources are very limited, bevacizumab offers a tangible alternative to other anti-vascular endothelial growth factor (VEGF) treatments.

Pterygium at Sangre Grande Hospital

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Objective: To determine the postoperative outcome and recurrence rate of pterygia in relation to patient occupation and duration of pterygium managed at the Sangre Grande Hospital.
Subjects and Method: Patients who underwent bare sclera (Group A) and conjunctival allografts (group B) were retrospectively observed and compared postoperatively. A total of 55 individuals were involved in the research. Ages ranged from 37 to 89 years. Thirty-two patients were managed using conjunctival grafts while 23 patients were repaired using a bare sclera technique. Surgeries were performed by one surgeon and information collected by an independent observer. Patient occupations were grouped as predominantly indoor, outdoor and unemployed. Durations of pterygia ranged from less than five years to greater than 20 years. Pterygia were classified as primary or recurrent and sized qualitatively as small, medium and large based on relation to the visual axis. Additional information was also collected on existence of other inflammatory or non-inflammatory eye diseases and use of topical eye drops in both groups.
Results: Rate of recurrence was found to be increased in outdoor occupations and bare sclera technique. Incidence of recurrence was highest in pterygia of 5–10 years duration. In spite of recurrence, most patients experienced improvement of symptoms after surgery. Granuloma formation was the main complication found.
Conclusion: Although there was greater recurrence when the bare sclera technique was used, this association was shown to be insignificant. There was a significant association between patient satisfaction and recurrence of pterygia ($p < 0.05$). There was no significant association between occupation and recurrence. No significant association was also found between duration of pterygia and recurrence. A retrospective study may not have been suitable for examining the factors contributing to pterygium recurrence since more standardized monitoring and objective measurements were required.

Prevalence of Glaucoma, Blindness in Glaucoma Patients and All-cause Blindness in a Dominican Nursing Home

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Objective: To determine the prevalence of glaucoma, blindness in glaucoma patients and all-cause blindness in Dominica's largest nursing home.
Methods: Dominican-born residents of the Dominica Infirmary were assessed in a routinely scheduled eye clinic. Participants received a comprehensive eye examination with the ophthalmologist, ophthalmology resident and optometrist. Uncorrected visual acuity (functional acuity in residents' daily lives), intraocular pressure (IOP) by Tono-Pen, anterior segment and posterior segment assessments and cup-to-disk ratio were recorded.
Results: Blindness was classified as a visual acuity of < 20/400 (< 3/60). Our classification for definite glaucoma required the presence of characteristic optic nerve damage with a cup-to-disk ratio of > 0.6, as well as Tono-Pen IOP measurement > 21 mmHg. Automated perimetry was not an available resource in this study. The Dominica Infirmary housed 80 full-time residents. Thirty-four (42.5%) of these residents were blind from all causes, 31 (38.75%) had glaucoma and 16 (20%) patients with glaucoma were blind. In these 16 patients, confounding variables that could have contributed to the blindness included concurrent significant cataracts (n = 12), corneal scarring (n = 4) and age-related macular degeneration (n = 1).
Conclusion: The prevalence of glaucoma, blindness in glaucoma patients and all-cause blindness are higher in the Dominica Infirmary nursing home compared to other institutional prevalence rates from other countries. Our study

provides important ophthalmologic and epidemiologic information that has not been previously established in Dominica, and is crucial for clinical and public health planning, patient education and resource allocation.

Uveitis-Glaucoma-Hyphaema Syndrome

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Two consecutive cases of uveitis-glaucoma-hyphaema syndrome following one-piece posterior chamber intraocular lens (IOL) implantation in the sulcus are discussed. There was resolution of symptoms post surgery, *ie* explantation of IOL. It is advisable to avoid one-piece posterior chamber IOL implantation in the sulcus.