UNIVERSITI SAINS MALAYSIA

LAPORAN AKHIR PROJEK PENYELIDIKAN JANGKA *PENDEK*

FINAL REPORT OF SHORT TERM RESEARCH PROJECT

Sila kemukakan laporan akhir ini melalui Jawatankuasa Penyelidikan di Pusat Pengajian dan Dekan/Pengarah/Ketua Jabatan kepada Pejabat Pelantar Penyelidikan

1. **Nama Ketua Penyelidik:** **Dr Zunaina Embong**
   Name of Research Leader
   ☐ Profesor Madya/ *Assoc. Prof.* ☑ Dr./ *Dr.* ☐ Encik/Puan/Cik *Mr/Mrs/Ms*

2. **Pusat Tanggungjawab (PTJ):** **Pusat Pengajian Sains Perubatan**
   School/Department

3. **Nama Penyelidik Bersama:** **Dr Bakiah Shaharuddin, Dr Raja Azmi Mohd Noor**
   Name of Co-Researcher

4. **Tajuk Projek:** Title of Project
   Preliminary study to compare the prediction error of post operative refraction in pediatric cataract surgery between 2 different intraocular lens power calculation formula

5. **Ringkasan Penilaian**/*Summary of Assessment*:	Tidak Mencukupi *Inadequate*		Boleh Diterima *Acceptable*	Sangat Baik *Very Good*	
	1	2	3	4	5
i) **Pencapaian objektif projek:** *Achievement of project objectives*	☐	☐	☐	☑	☐
ii) **Kualiti output:** *Quality of outputs*	☐	☐	☐	☑	☐
iii) **Kualiti impak:** *Quality of impacts*	☐	☐	☐	☑	☐
iv) **Pemindahan teknologi/potensi pengkomersialan:** *Technology transfer/commercialization potential*	☐	☑	☐	☐	☐
v) **Kualiti dan usahasama :** *Quality and intensity of collaboration*	☐	☐	☐	☑	☐
vi) **Penilaian kepentingan secara keseluruhan:** *Overall assessment of benefits*	☐	☐	☐	☑	☐

6. **Abstrak Penyelidikan**
(Perlu disediakan di antara 100 - 200 perkataan di dalam **Bahasa Malaysia dan juga Bahasa Inggeris.** Abstrak ini akan dimuatkan dalam Laporan Tahunan Bahagian Penyelidikan & Inovasi sebagai satu cara untuk menyampaikan dapatan projek tuan/puan kepada pihak Universiti & masyarakat luar).

Abstract of Research
(An abstract of between 100 and 200 words must be prepared in Bahasa Malaysia and in English).
This abstract will be included in the Annual Report of the Research and Innovation Section at a later date as a means of presenting the project findings of the researcher/s to the University and the community at large)

Sila rujuk lampiran

7. **Sila sediakan laporan teknikal lengkap yang menerangkan keseluruhan projek ini.**
[Sila gunakan kertas berasingan]
Applicant are required to prepare a Comprehensive Technical Report explaning the project.
(This report must be appended separately)

Sila rujuk lampiran

Senaraikan kata kunci yang mencerminkan penyelidikan anda:
List the key words that reflects your research:

Bahasa Malaysia	*Bahasa Inggeris*
Katarak kanak-kanak	**Paediatric cataract**
Kanta intraokular	**Intraocular lens**
Ralat refraksi	**Prediction error**

8. **Output dan Faedah Projek**
Output and Benefits of Project

(a) * **Penerbitan Jurnal**
Publication of Journals
(Sila nyatakan jenis, tajuk, pengarang/editor, tahun terbitan dan di mana telah diterbit/diserahkan)
(State type, title, author/editor, publication year and where it has been published/submitted)

Jenis : Article
Tajuk : Comparison of the prediction error and the accuracy of predictability of intraocular lens power calculation in paediatric patient between SRK II and Modified Formula
Pengarang: Azlyn Azwa Jasman, Bakiah Shaharuddin, Raja Azmi Mohd Noor, Zulkifli Abdul Ghani, Zunaina Embong
Diserahkan: 2009, Biomedcentral (BMC) Ophthalmology

(b) **Faedah-faedah lain seperti perkembangan produk, pengkomersialan produk/pendaftaran paten atau impak kepada dasar dan masyarakat.**
State other benefits such as product development, product commercialisation/patent registration or impact on source and society.

Kewujudan Modified Formula ini memberi alternatif kepada pakar mata dalam pemilihan formula bagi pengiraan kuasa kanta intraokular bagi kanak-kanak.

* Sila berikan salinan/*Kindly provide copies*

(c) **Latihan Sumber Manusia**
Training in Human Resources

i) Pelajar Sarjana: **Dr Azlyn Azwa Jasman**
Graduates Students
(Perincikan nama, ijazah dan status)
(Provide names, degrees and status)

Nama : Dr Azlyn Azwa Jasman
Degrees : MMed (Ophthalmology)
Status : Pakar Ophthalmology

ii) Lain-lain: **Tiada**
Others

Tandatangan Penyelidik
Signature of Researcher

10 December 2009
Tarikh
Date

Komen Jawatankuasa Penyelidikan Pusat Pengajian/Pusat
Comments by the Research Committees of Schools/Centres

This project has achieved all its objectives.
The project has produced one oral and one poster presentation.
A manuscript for publication is now been submitted to Biomedcentral (BMC) Ophthalmology. The project has been used as part of human resource training of Dr Azlyn Azwa Jamal (Trained Ophthalmologist)
Overall, this project has achieved the minimum required output.

PROFESSOR AHMAD SUKARI HALIM
Chairman of Research Committee
School of Medical Sciences
Health Campus
Universiti Sains Malaysia
16150 Kubang Kerian, Kelantan

TANDATANGAN PENGERUSI
JAWATANKUASA PENYELIDIKAN
PUSAT PENGAJIAN/PUSAT
Signature of Chairman
[Research Committee of School/Centre]

7/1/2010
Tarikh
Date

ABSTRAK

Tajuk: Kajian preliminari untuk membandingkan ketepatan ramalan refraksi pada 3 bulan selepas pembedahan bagi kanak-kanak yang menjalani pembedahan katarak dengan menggunakan dua formula yang berlainan dalam pengiraan kuasa kanta intraokular.

Pengenalan: Rawatan katarak di kalangan kanak-kanak telah berkembang pesat sejak 15 hingga 20 tahun yang lalu. Kini terdapat kecenderungan untuk memasukkan kanta intarokular pada bayi dan juga kanak-kanak kecil semasa mereka menjalani pembedahan katarak meskipun telah diketahui bahawa mata kanak-kanak ini masih dalam proses pertumbuhan pesat and sentiasa mengalami perubahan status refraksi.

Objektif: Kajian ini bertujuan menilai ketepatan ramalan refraksi pada 3 bulan selepas pembedahan bagi kanak-kanak yang menjalani pembedahan katarak berserta implantasi kanta intraokular.

Tatacara: Kajian intervensi ini dijalankan secara rawak. Ia melibatkan 31 mata daripada 24 kanak-kanak yang berjaya menjalani pembedahan katarak berserta implantasi kanta intraokular. Semua kanak-kanak ini berusia 12 tahun ke bawah. Kuasa kanta intraokular ini dikira menggunakan formula 'SRK II' atau 'Modified Formula For Paediatric IOL Calculation'. Tiga bulan selepas pembedahan, refraksi dilakukan bagi mendapatkan nilai refraksi sebenar. Nilai refraksi ini kemudian ditukar kepada nilai 'spherical equivalent'. Beza di antara refraksi sebenar selepas pembedahan dengan refraksi ramalan sebelum pembedahan dikira sebagai ralat refraksi. Analisa data dilakukan bagi menilai ketepatan kedua-dua formula ini berdasarkan ralat refraksi tadi.

Keputusan: Min ralat refraksi bagi kumpulan SRK II ialah 1.03 D (SD, 0.69 D) manakala bagi kumpulan Modified Formula pula ialah 1.14 D (SD, 1.19 D). Walau bagaimanapun nilai ini secara statistiknya adalah tidak signifikan ($p > 0.05$). Sebanyak 3 mata (18.75%) daripada pesakit dalam kumpulan SRK II telah berjaya mendapat refraksi sebenar diantara $\pm$ 0.5 D daripada nilai ramalan; dan bagi kumpulan Modified Formula pula, sebanyak 7 mata (46.67%). Ralat ramalan dalam lingkungan $\pm$ 0.5 D dianggap tepat. Namun tidak terdapat perbezaan yang signifikan dari segi statistik bagi kedua-dua formula ini ($p = 0.097$).

Kesimpulan: Kesimpulannya ralat refraksi selepas pembedahan katarak di kalangan kanak-kanak adalah setara bagi formula SRK II dan Modified Formula. Kewujudan Modified Formula ini telah memberi alternatif kepada pakar mata dalam pemilihan formula bagi pengiraan kuasa kanta intraokular bagi kanak-kanak.

ABSTRACT

Title: Preliminary study to compare the prediction error of post operative refraction in pediatric cataract surgery between 2 differrent intraocular lens power calculation formula

Introduction: The treatment of paediatric cataracts has progressed tremendously in the past 15 to 20 years. There is a growing trend towards intraocular lens implantation in infants and younger children whose eyes are still undergoing rapid growth and refractive changes.

Objective: This study is intended to assess the predictability of desired refractive outcomes at 3 month postoperative period in paediatric patients undergoing cataract surgery with primary placement of an intraocular lens.

Methodology: This randomized interventional study of 31 eyes (24 patients) that successfully underwent cataract surgery and intraocular lens implantations. All patients were 12 years old and below. Intraocular lens power calculations were made using either SRK II or Modified Formula For Paediatric IOL Calculation. The postoperative refractive outcome was taken as the spherical equivalent of the refraction at 3 month postoperative follow-up. The prediction error was taken as the absolute difference between the predicted and the actual refraction. The data were analysed to compare the mean prediction error between SRK II and Modified Formula and evaluate the predictability.

Results: The mean prediction error in the SRK II group was 1.03 D (SD, 0.69 D) while in Modified Formula 1.14 D (SD, 1.19 D). The SRK II group showed lower prediction error of 0.11 D compared to Modified Formula group, but this was not statistically significant ($p > 0.05$). There were 3 eyes (18.75%) in SRK II group achieved accurate predictability where the refraction postoperatively was within ± 0.5 D from predicted refraction compared to 7 eyes (46.67%) in the Modified Formula group. However the difference of the predictability between the two formulas was also not statistically significant ($p = 0.097$).

Conclusion: The prediction error and the accuracy of predictability of postoperative refraction in paediatric cataract surgery are comparable between SRK II and Modified Formula. The existence of the Modified Formula provides an alternative to the ophthalmologist for intraocular lens calculation in paediatric patients.

BORANG LAPORAN HASIL PENYELIDIKAN
PPSP

Tajuk geran : Preliminary study to compare the prediction error of post operative refraction in pediatric cataract surgery between 2 differrent intraocular lens power calculation formula
Penyelidik : Dr Zunaina Embong, Dr Bakiah Shaharuddin, Dr Raja Azmi Mohd Noor
Jenis geran : USM Short Term Grant
Tempoh geran : 30 Sept 2006 – 29 Jun 2009

Jenis laporan: Laporan Kemajuan ☐ Alatan di beli ☑ Ya:nyatakan Head band ocular loupe.

Laporan Akhir*: ☑ ☐ Tidak

OBJEKTIF SPESIFIK KAJIAN (sama spt dalam proposal asal)	**SECARA RINGKAS TERANGKAN PENCAPAIAN/HASIL**	**OBJEKTIF TERCAPAI ATAU TIDAK**
1. To determine the prediction error of SRK II and Modified Formula at three months post cataract surgery in pediatric age group done in Hospital Univesiti Sains Malaysia and Hospital Raja Perempuan Zainab II, Kota Bharu	The mean prediction error in the SRK II group was 1.03 D (SD, 0.69 D) while in Modified Formula was 1.14 D (SD, 1.19 D).	Tercapai
2. To compare the prediction error of SRK II and Modified Formula for pediatric intraocular lens calculation	The SRK II group showed lower prediction error of 0.11 D compared to Modified Formula group, but this was not statistically significant ($p = 0.74$). There were 3 eyes (18.75%) in SRK II group achieved acccurate predictability where the refraction postoperatively was within ± 0.5 D from predicted refraction compared to 7 eyes (46.67%) in the Modified Formula group. However the difference of the accuracy of predictability of postoperative refraction between the two formulas was also not statistically significant ($p = 0.097$).	Tercapai

- *Laporan Akhir perlu disertakan salinan manuskrip dan surat yang dihantar kepada mana-mana jurnal untuk penerbitan.*

Nama Penyelidik Utama (PI): Dr Zunaina Embong t.t.: 

Tarikh: 10 December 2009

Comparison of the prediction error and the accuracy of predictability of intraocular lens power calculation in paediatric patient between SRK II and Modified Formula

Azlyn-Azwa Jasman[1], Bakiah Shaharuddin[1], Raja-Azmi Mohd Noor[1], Zulkifli Abdul Ghani[2], Embong Zunaina[1]

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Abstract

Background

Despite growing number of intraocular lens power calculation formulas, there is no evidence that these formulas have good predictive accuracy in paediatric, whose eyes are still undergoing rapid growth and refractive changes. This study is intended to compare the prediction error and the accuracy of predictability of intraocular lens power calculation in paediatric patients at 3 month post cataract surgery with primary implantation of an intraocular lens using SRK II formula versus Modified Formula for paediatric intraocular lens calculation.

Methods

This randomized interventional study of 31 eyes (24 patients) that successfully underwent cataract surgery and intraocular lens implantations. All patients were 12 years old and below. Intraocular lens power calculations were made using either SRK II or Modified Formula for paediatric intraocular lens calculation. The postoperative refractive outcome was taken as the spherical equivalent of the refraction at 3 month postoperative follow-up. The data were analysed to compare the mean prediction error and the accuracy of predictability of intraocular lens power calculation between SRK II and Modified Formula.

Results

The mean prediction error in the SRK II group was 1.03 D (SD, 0.69 D) while in Modified Formula was 1.14 D (SD, 1.19 D). The SRK II group showed lower prediction error of 0.11 D compared to Modified Formula group, but this was not statistically significant ($p = 0.74$). There were 3 eyes (18.75%) in SRK II group achieved acccurate predictability where the refraction postoperatively was within ± 0.5 D from predicted refraction compared to 7 eyes (46.67%) in the Modified Formula group. However the difference of the accuracy of predictability of postoperative refraction between the two formulas was also not statistically significant ($p = 0.097$).

Conclusions

The prediction error and the accuracy of predictability of postoperative refraction in paediatric cataract surgery are comparable between SRK II and Modified Formula. The existence of the Modified Formula provides an alternative to the ophthalmologist for intraocular lens calculation in paediatric patients.

Background

Management of childhood blindness is priority in the 'Vision 2020: the right to sight'. Cataract is a major cause of blindness in children throughout the world, particularly in developing countries[1] because of its potential for inhibiting and restricting early visual development.

Early surgery now is universally accepted for younger age children with cataract[2], and the placement of an intraocular lens in children and infants undergoing lens aspiration

is gaining wider acceptance[3,4]. However few major issues need to be addressed when determining the power of intraocular lens to be implanted. Should a myopic shift be anticipated in the calculation? And if myopic shift need to be considered, how much, at what age and what is the target refraction should be sought immediately following the implantation?

A wise choice of desired postoperative refraction for the individual patient is crucial in the calculation of intraocular lens power. It is fundamental that the calculation of intraocular lens power should be as accurate as possible in giving a predictable postoperative refraction. The accuracy of this cataract and 'refractive surgery' will permanently enhance the patient's visual life, whereas inaccurate postoperative refractive error may result in lifelong problems.

A number of intraocular lens power calculation formulas have been developed and their accuracy reported[5-7]. There is no general consensus as to which approach or which particular formula is the most accurate.

The Sanders-Retzlaff-Kraff (SRK) power formula, originally derived and published in 1980-1981, has become the most widely used formula for implant power calculation throughout the world[8-10]. However, we must bear in our mind that this formula does not consider myopic shift, one of the important element in calculating intraocular lens power in paediatric age group.

All children undergo a myopic shift. In normal eyes of children, axial length increases rapidly until 2 to 3 years of age, slow and stabilizes between 8 and 10 years of age. In contrast, corneal curvature decreases with age and stabilizes at approximately 1 year of age[11].

Because of the complexity of the functions of the eye and the numerous factors involved in its refraction, the calculation of the implant power is somewhat complicated. Axial elongation and changes in corneal curvature are major factors influencing refractive changes in the early childhood life. It is thought that the presence of cataract, surgical removal of cataract and the implantation of an intraocular lens into the eye; influence the further growth of the eye, thus create difficulties regarding the choice of the power of the appropriate intraocular lens[12].

Modified Formula is computer software consists of formula uses the Holladay formula for intraocular lens calculation, and on top of that, it taking into account the myopic shift expected in children, based on the logarithmic model of myopic shift; that not considered in SRK II Formula.

The Modified Formula for paediatric intra-ocular (IOL) calculation comes with a program. The model used in this program is based on analysis of the refractive changes in aphakic children underwent surgery before age 10 (with documented refractions for more than 7 years) and collaborate it with the predictions of a logarithmic model of myopic shift[13,14]. This program calculates the predicted refraction of a child made pseudophakic, given biometric measurements and intraocular lens parameters. It shows this prediction in graphical form, and allows the surgeon to dynamically view the effects of changing any parameter. It also allows the

Laporan Komprehensif

Tajuk geran	Preliminary study to compare the prediction error of post operative refraction in pediatric cataract surgery between 2 differrent intraocular lens power calculation formula
Penyelidik Utama	Dr Zunaina Embong
Penyelidik Besama	Dr Bakiah Shaharuddin Dr Raja Azmi Mohd Noor
Jenis geran	USM Short Term Grant
Tempoh geran	30 Sept 2006 – 29 Jun 2009
Pembentangan Oral	The predictability of postoperative refraction in paediatric cataract surgery between SRK II and Modified Formula for paeditric IOL calculation Azlyn Azwa J, Zunaina E, Bakiah S, Raja Azmi MN, Wan Hazabbah WH NHG Eye Institute International Ophthalmology Congress Singapore 23 – 25 Oct 2008
Pembentangan Poster	Comparison of the predictive error and the accuracy of predictability of intraocular lens power calculation in paediatric patient between SRK II and Modified formula Azlyn-Azwa J, Bakiah S, RAzmi MN, Zulkifli AG, Zunaina E 25th Malaysia Singapore Joint Ophthalmic Congress Kuala Lumpur, Malaysia 20 – 22 Nov 2009
Penerbitan	Submission of manuscript Nov 2009 Biomedcentral (BMC) Ophthalmology Comparison of the prediction error and the accuracy of predictability of intraocular lens power calculation in paediatric patient between SRK II and Modified Formula Azlyn Azwa Jasman, Bakiah Shaharuddin, Raja Azmi Mohd Noor, Zulkifli Abdul Ghani, Zunaina Embong

NHG EYE INSTITUTE INTERNATIONAL OPHTHALMOLOGY CONGRESS

(In conjunction with NHG Annual Scientific Congress 2008)

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Senior Parliamentary Secretary,
Ministry of Manpower and Ministry of Health, Singapore

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Method: Retrospective review of cases performed by a single surgeon, from 2004-2007.

Results: 13 cases of sensory heterotropia were operated on, with 8 cases of sensory exotropia (XT) and 5 cases of sensory esotropia (ET). Mean pre-operative deviation was 35.8 prism dioptres (PD) for sensory XT and 42.1PD for sensory ET. Postoperative mean deviation was 3PD for sensory XT and 10PD for sensory ET.

Success was defined as orthophoria within 10PD, which was cosmetically acceptable. Success was achieved in 9/13 patients (69.2%). Patients with sensory XT had better success [87.5% (7/8cases)] than patients with sensory ET [40% (2/5cases)].

Females had better success [100% (6/6 cases)] than males [42.9% (3/7 cases)]. Interestingly, patients with visual acuity of counting fingers and poorer had better success [100% (8/8 cases)] than those with better visual acuity [71.4% (5/7 cases)]. Unsurprisingly, success for patients undergoing primary strabismus surgery [75% (6/8 cases)] was better than for patients undergoing repeat surgery [60% (3/5 cases)]. Age and the amount of pre-operative deviation did not seem to affect the

Conclusion: Unilateral recession and resection is a viable option for sensory heterotropia. Factors associated with success are female gender, poorer vision in the non-fixing eye, sensory exotropia and primary strabismus surgery. Further studies with more patients and longer follow-up duration will be needed to validate the findings of this study.

Results of Ganciclovir Ophthalmic Gel (Virgan; 0.15%) Treatment Trial in Cytomegalvovirus Acute Anterior Uveitis – A Non-comparative Treatment Trial

Owen Kim Hee[1], Stephen Charn-Beng Teoh[1], Su-Ling Ho[1], Wee-Kiak Lim[1]

[1] National Healthcare Group Eye Institute @ Tan Tock Seng Hospital, Singapore

Objective: To report the results of treatment with ganciclovir ophthalmic gel (Virgan; 0.15%) of cytomegalvovirus (CMV) acute anterior uveitis unassociated with retinal necrosis in immunocompetent patients.

Design: Retrospective, interventional case series.

Method: Immunocompetent patients presenting with recurrent anterior uveitis associated with elevated intraocular pressure (hypertensive anterior uveitis) seen at Tan Tock Seng Hospital Ophthalmology Department had their aqueous analysed for viral deoxyribonucleic acid by tetraplex polymerase chain reaction. These patients were also treated empirically with ganciclovir ophthalmic gel (Virgan; 0.15%). Their clinical records were reviewed for demographic data, ocular findings, laboratory results, treatment and subsequent course.

Results: 13 patients, 8 men and 5 women were included in the study. Median age was 47 years old (range 25-70 years). 12 patients had unilateral recurrent anterior uveitis and 1 patient had bilateral involvement. All eyes demonstrated CMV on aqueous sampling. All eyes were treated with ganciclovir ophthalmic gel (Virgan; 0.15%) for a minimum of 3 months (range 3-9 months). Raised intraocular pressures was observed in all cases with a median intraocular pressure of 35 mmHg (range 22-48 mmHg). All 13 patients responded initially to treatment with ganciclovir ophthalmic gel (Virgan; 0.15%) with resolution of both ocular inflammation and glaucoma. However, 6 eyes had recurrences within 9 months of stopping treatment and required further courses of ganciclovir ophthalmic gel (Virgan; 0.15%). One patient had intractable raised intraocular pressure requiring glaucoma surgery. There were no documented cases of complications specifically arising from the use of ganciclovir ophthalmic gel (Virgan; 0.15%).

Conclusion: Ganciclovir ophthalmic gel (Virgan; 0.15%) shows promise in the treatment of CMV anterior uveitis in immunocompetent patients and can potentially be an alternative to systemic ganciclovir treatment without its attendant side effects. Maintenance regimens may be required in recalcitrant cases with successful resolution subsequently in most patients.

The Predictability of Postoperative Refraction in Paediatric Cataract Surgery between SRK II® and Modified Formula for Paediatric IOL Calculation

Azlyn Azwa Jasman[1], Zunaina Embong[1], Bakiah Shaharuddin[1], Raja Azmi Mohd Noor[1], Wan Hazabbah Wan Hitam[1]

[1] Department of Ophthalmology, School of Medical Sciences, Health Campus Universiti Sains Malaysia, Kelantan, Malaysia

Objective: To assess the predictability of postoperative refraction in paediatric patients undergoing cataract surgery with primary intraocular lens implantation using two different intraocular lens power calculation.

Method: A randomised interventional study of 31 eyes (24 patients) that successfully underwent cataract surgery and intraocular lens implantations. Intraocular lens power calculations were made using either SRK II® or Modified Formula for Paediatric IOL Calculation. The postoperative refractive outcome was taken as a spherical equivalent at 3 months. The prediction error was taken as an absolute difference between the predictions and the actual refraction.

Results: The mean prediction error in the SRK II® group was 1.03 (0.69) Dioptre while in Modified Formula was 1.14 (1.19) Dioptre. The SRK II® group showed lower prediction error of 0.11 Dioptre compared to Modified Formula group, but was not statistically significant. 18.75% eyes in SRK II group achieved good predictability with postoperative refraction within ± 0.5 Dioptre compared to 46.67% eyes in Modified Formula group. However, the difference of the predictability between the two formulae was not statistically significant.

Conclusion: The predictability of postoperative refraction in paediatric cataract surgery is comparable between Modified

Long-term Visual Outcome of Photodynamic Therapy with or without Intravitreal Triamcinolone Acetonide for the Treatment of Polypoidal Choroidal Vasculopathy

Fiona Oi-Jing Luk[1], Timothy Yuk-Yau Lai[1], Carol Po-Shan Lam[1], Rose Pui-Shan Chan[1], Wai-Man Chan[1], Dennis Shun-Chiu Lam[1]

[1] Department of Ophthalmology & Visual Sciences, The Chinese University of Hong Kong, Hong Kong Eye Hospital, Kowloon, Hong Kong, People's Republic of China

Objective: To evaluate the long-term outcome of photodynamic therapy (PDT) with or without intravitreal triamcinolone acetonide (IVTA) in the treatment of polypoidal choroidal vasculopathy (PCV).

Method: Patients with symptomatic PCV who received PDT with or without IVTA who had follow-up of 3 years or more were retrospectively reviewed. The visual outcomes were compared with a non-treated control group.

Results: 43 eyes of 43 patients were included. 11 eyes had PDT monotherapy, 12 eyes had combined PDT and IVTA and 20 eyes served as controls. The mean line of vision change at 1, 2 and 3 years were 1.5, 1.2 and -0.1 lines in the PDT group and were 1.5, 0.1 and -0.8 lines in the combined group respectively. The mean lines of vision change was significantly higher for the PDT group at 1 and 2 years (P=0.001, 0.023, 0.26 at 1, 2 and 3 years respectively) while for the combined group, the mean lines of vision change was significantly higher only at 1 year (P=0.003, 0.10, 0.45 at 1, 2 and 3 years respectively). Two (18%) eyes, five (55%) eyes and 11 (55%) eyes in the PDT, combined, and control groups respectively lost 3 or more lines of vision at 3 years. PDT monotherapy were less likely to develop visual loss of 3 lines or more during the follow-up compared with the control group (P=0.030).

Conclusion: PDT monotherapy reduced the risks of long-term visual loss in PCV patients. IVTA did not provide additional benefit on the long-term visual outcome.

Effect of Waiting Time on Corneal Thickness and Visual Outcome after Intralase Flap Creation in Patients with Opaque Bubble Layer

Priti Manjunath[1], Hung-Ming Lee[2], Colin Siang-Hui Tan[1]

[2] Parkway Eye Centre, Singapore

Objective: To evaluate the effect of waiting time (for the opaque bubble layer to be resorbed) on the corneal thickness after flap creation by Intralase.

Method: Prospective comparison (generalised estimating statistical method) of corneal thickness changes between two groups of patients – those who did (n=45) or did not (n=69) develop OBL during intralase flap creation is described. Corneal thickness was measured using online optical coherence pachymetric unit (4 Optics AG) before flap creation. Patients with OBL were held on wait for 20 minutes until it resorbed, corneal thickness was remeasured. Difference in the change between pre-post flap corneal thickness between the groups was analysed using stata 9 software. Postoperative uncorrected, best corrected visual acuity and manifest refraction were also compared among them.

Results: Change in the mean corneal thickness (between pre and post flap creation) in patients who waited for OBL resorption was -3.92 microns compared to -1.39 microns in those who did not develop OBL. This difference was not significant. Preplanned excimer settings in the group that waited for OBL resorption did not lead to any undesirable

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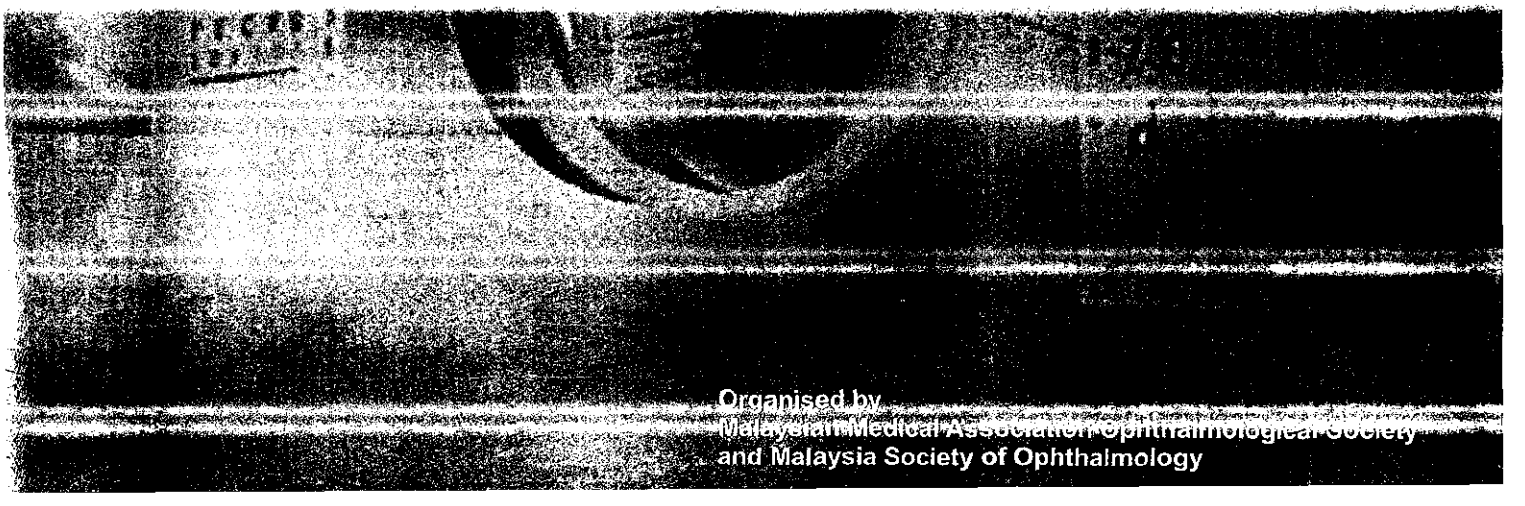

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and Malaysia Society of Ophthalmology

POSTER PRESENTATION
Anterior Segment

PA29. EFFECT OF DIABETES MELLITUS ON REFRACTION AND VISION.

Yew YH, Chong P, Loo.

Purpose: A cross sectional study to investigate the effect of diabetes mellitus on patient's refractive status

Methods: 156 diabetic patients and 150 control subjects were randomly sampled in UMMC outpatient clinic. Best corrected visual acuity (BCVA), keratometry, pachymetry and contact A-scan biometry of the right or better seeing eye were determined and analyzed using SPSS. Diabetic control (HbA1C) and duration of diabetes were used as independent variables.

Results: Most diabetics had poor glycaemic control with mean (SD) HbA1C 8.09 ± (1.6) %. Multiple linear regression analysis showed significant positive correlation between K reading (KR) and diabetes mellitus (r=0.360 {95% CI=0.049, 0.671}, p=0.023) in which diabetics had significantly steeper KR (44.58 ± 1.38D, p=0.017). Mean central corneal thickness (CCT) in diabetics appeared thicker (572.88 ± 35.93 µm, p=0.064) when compared to control (565.31 ± 35.40 µm) but it did not reach statistical significance. Diabetes mellitus and its duration had no significant effect on BCVA, axial length (AL) or spherical equivalent (SE).

Conclusion: DM does not alter the refractive status of patients' eye despite a change in the keratometry. This observation highlights the need for more careful IOL selection for DM patient undergoing cataract surgery.

PA30. COMPARISON OF THE PREDICTION ERROR AND THE ACCURACY OF PREDICTABILITY OF INTRAOCULAR LENS POWER CALCULATION IN PAEDIATRIC PATIENT BETWEEN SRK II AND MODIFIED FORMULA

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Purpose: To compare the prediction error and the accuracy of predictability of intraocular lens power calculation in paediatric patients at 3 month post cataract surgery with primary implantation of an intraocular lens using SRK II formula versus Modified Formula for paediatric intraocular lens calculation.

Methods: Randomized interventional study of 31 eyes that successfully underwent cataract surgery and intraocular lens implantations. The postoperative refractive outcome was taken as the spherical equivalent of the refraction at 3 month postoperative follow-up. The data were analysed to compare the mean

Results: The mean prediction error in the SRK II group was 1.03 D (SD, 0.69 D) while in Modified Formula was 1.14 D (SD, 1.19 D). The SRK II group showed lower prediction error of 0.11 D compared to Modified Formula group, but this was not statistically significant (p = 0.74). There were 3 eyes (18.75%) in SRK II group achieved acccurate predictability where the refraction postoperatively was within ± 0.5 D from predicted refraction compared to 7 eyes (46.67%) in the Modified Formula group. However the difference of the accuracy of predictability of postoperative refraction between the two formulas was also not statistically significant (p = 0.097).

Conclusion: The prediction error and the accuracy of predictability of postoperative refraction in paediatric cataract surgery are comparable between SRK II and Modified Formula.