RELATIONSHIP BETWEEN REFRACTIVE ERROR, AXIAL LENGTH AND MACULA THICKNESS IN MALAY SUBJECTS

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BY :

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Contents

2. Letter of Offer (Research Grant)

Surat Kami : 600-RMI/ST/DANA 5/3/Dst (3/4/2011)
Tarikh : 23 Mei 2011

Pn Noor Hidayah Mohamad
Fakulti Sains Kesihatan
Universiti Teknologi MARA Kampus Puncak Alam
Bandar Puncak Alam
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Y. Brs. Profesor/Tuan/Puan

KELULUSAN PERMOHONAN DANA KECEMERLANGAN 05/2011

Tajuk Projek	:	Correlation Between Retinal Thickness, Axial Length And Refractive Error Of Healthy Eyes Among Malay Students In UiTM
Kod Projek	:	600-RMI/ST/DANA 5/3/Dst (3/4/2011)
Kategori Projek	:	Kategori F (2011)
Tempoh	:	01 Jun 2011 – 31 Mei 2012 (12 bulan)
Jumlah Peruntukan	:	RM 10,000.00
Ketua Projek	:	Pn Noor Hidayah Mohamad

Dengan hormatnya perkara di atas adalah dirujuk.

2. Sukacita dimaklumkan pihak Universiti telah meluluskan cadangan penyelidikan Y. Brs. Profesor/tuan/puan untuk membiayai projek penyelidikan di bawah Dana Kecemerlangan UiTM.

3. Bagi pihak Universiti kami mengucapkan tahniah kepada Y. Brs. Profesor/tuan/puan kerana kejayaan ini dan seterusnya diharapkan berjaya menyiapkan projek ini dengan cemerlang.

4. Peruntukan kewangan akan dikeluarkan melalui tiga (3) peringkat berdasarkan kepada laporan kemajuan serta kewangan yang mencapai perbelanjaan lebih kurang 50% dari peruntukan yang diterima.

Peringkat Pertama	20%
Peringkat Kedua	40%
Peringkat Ketiga	40%

5. Untuk tujuan mengemaskini, pihak Y. Brs. Profesor/tuan/puan adalah dirujuk untuk melengkapkan semula kertas cadangan penyelidikan sekiranya perlu, mengisi borang setuju terima projek penyelidikan dan menyusun perancangan semula belanjawan yang baru seperti yang dikehendaki. Sila lihat lampiran bagi tatacara tambahan untuk pengurusan projek.

Sekian, harap maklum.

"SELAMAT MENJALANKAN PENYELIDIKAN DENGAN JAYANYA"

Yang benar

MUSTAFAR KAMAL HAMZAH
Ketua Penyelidikan (Sains dan Teknologi)

5. Report

5.1 Proposed Executive Summary

(Original proposal – 300 words) – 1 page only

Background: In myopic eyes, the axial length of the globe exceeds normal dimensions, and the sclera becomes thinner, especially at the posterior pole. Therefore, the retina at the posterior pole may stretch in myopic eyes. Thus, it has been hypothesized that highly myopic eyes have thinner retinas as compared with emmetropic eyes.
Problem statement: It is still controversial on the results of the correlation between the axial length, the retinal thickness and refractive error in healthy eyes. It may be because of the ocular dimensions are varies according to race. There is no study has been done to measure the correlation between the axial length, retinal thickness and refractive error among the Malay population.
Objective: This research will be done to measure the correlation between the axial length, retinal thickness and refractive error of the healthy eyes among Malay students in UiTM.
Methodology: A cross-sectional study will be conducted at Optometry Clinic, FSK, UiTM, which 45 UiTM students will be screened with history taking and preliminary tests to be a subject. The preliminary tests include visual acuity measurement using Snellen chart, Hirschberg test using pen torch, fundus examination using direct ophthalmoscope and anterior segment examination using slit lamp. The refractive error of the subject then will be objectively examined by autorefractor and will be refined subjectively. The retinal thickness will be measured using Optical Coherence Tomography (OCT) and the axial length will be measured using B-scan. Data will be analyzed using SPSS programme.
Hypothesis: There are correlation between the axial length, retinal thickness and refractive error of healthy eyes among Malay students in UiTM.
Outcomes: If this hypothesis is proven, these parameters should always be considered when assessing axial length progression, or retinal thickening, or refractive error progression among Malay population in future study.

5.2 Enhanced Executive Summary

(Abstract of the research) – 1 page only

Background: The outer macula (perifovea) thickness of the retina has consistently been shown to be thinner in myopes. The inner macula, however, have had mixed reporting although several studies have shown that similar thinning is more likely to occur at the inner macula (parafovea). The fovea itself, on the other hand has been shown to be undergoing thickening instead, in myopic eyes using the OCT.
Objectives: The study aimed to determine the relationship between macula thickness and spherical equivalent refraction (SER), and axial length of the eyeball (AL) in Malay subjects.
Methods: A cross-sectional study was conducted at Optometry Clinic, FSK, UiTM, which 45 UiTM students were screened with history taking and preliminary tests to be a subject. The preliminary tests include visual acuity measurement using Snellen chart, Hirschberg test using pen torch, fundus examination using direct ophthalmoscope and anterior segment examination using slit lamp. The refractive error of the subject then was objectively examined by autorefractor and refined subjectively. The retinal thickness was measured using Optical Coherence Tomography (OCT) and the axial length was measured using B-scan. Data were analyzed using SPSS programme.
Results: Positive correlation was found between the outer macula (perifovea) thickness and SER at the temporal ($R = 0.46$, $p < 0.05$). Negative correlation was found between the outer macula thickness and axial length at the temporal ($R = -0.414$, $p < 0.05$).
Conclusion: This study shows that myopia, as well as elongation of the globe, is associated with thinning of temporal region of the perifovea. These anatomical changes, as demonstrated by OCT findings, may prompt the clinician to consider the existence of changes in the thickness profile of the macula of a young myopic patient who presents with reduced best corrected visual acuity.