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Relationship between macula pigment optical density and visual performances in patients with Drusen maculopathy

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Objectives: To determine the relationship between macula pigment optical density and visual performances (foveal sensitivity, contrast sensitivity, visual acuity and color vision) in patients with drusen maculopathy. To determine the relationship between MPOD and drusen maculopathy and to evaluate the awareness of patients according the condition.

Materials: Descriptive cross sectional study was done with 1500 patients with age ranging from 40-50 for duration of 14 months. Data was recorded by carrying out a questionnaire including demographic profile, visual acuity, foveal sensitivity- Humphrey field analyzer, contrast sensitivity- LEA contrast acuity chart, color vision- Ishiharas' test, Thickness of macula and presence of drusen measured by Cirrus 4000 spectral domain optical coherence tomography and macula pigment optical density by Zeiss Visucam 500.

Methods: AMD was graded to 3 stages by the presence of 15 or more macular drusen $>63\ \mu\text{m}$ and all were again divided in to 3 sub-groups according to MPOD levels.

Results: Mean MPOD levels in 1600 subjects; Stage-1 mean MPOD- 0.41, Stage-2 -0.31 and Stage-3 -0.17. Mean foveal sensitivity was low range-MPOD group =11dB ($p=0.0013$), mid-range=16dB ($p=0.0019$) and high-range=26dB ($p=0.0041$). Mean contrast sensitivity was low-range=25% ($p=0.0003$), mid-range=5% ($p=0.0042$) and high-range=2.5% ($p=0.0048$). Mean stereo acuity was low-range=nil, mid-range=480sec of arc ($p=0.0005$) and high-range=120 sec of arc ($p=0.0012$). Color vision was low-range=2/24 plates (defected) ($p=0.02$), mid-range=20/24 plates (excluding vanishing plates) ($p=0.082$) and high-range=24/24 plates ($p=0.0041$). Visual acuity was low-range=6/36+/-2($p=0.021$), mid-range=6/18+/-2($p=0.032$) and high-range=6/9+/-2($p=0.048$). Patients awareness score was 7/7=10pt, 7/6=0pt, 7/5=12pt, 7/4=8pt, 7/3=15pt, 7/2=16pt, 7/1=34pt and 7/0=1105pt.

Conclusion: People aged 40-65 drusen maculopathy was found with a significant relationship of decreasing macula pigments (lowering MPOD values), as a result of it they are at a considerable risk of decreasing visual performances.

Biography

Amila Sampath Chandrasekera has completed the Certificate of Ophthalmic Assistance in 2011 and has done his Diploma in Optometry in 2015 form Academy of Vision Care Optical Services Sri Lanka. He has presented oral and poster presentations in Academic and international level poster presentation and has won the second place for Best Poster Award in International conference on Clinical and Experimental Ophthalmology 2015. Currently, he is practicing at the Retinal and Glaucoma Diagnostic Unit at Vision Care Optical Services Pvt. Ltd., Sri Lanka.

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