ASSOCIATION BETWEEN CONE-MEDIATED DARK ADAPTATION AND ABDOMINAL OBESITY IN OLDER ADULTS WITH NORMAL MACULAR HEALTH
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Purpose: Dark adaptation (DA) is a functional biomarker for early age-related macular degeneration (AMD) and the abdominal obesity is an anthropometric marker associated with AMD, inflammation and increased cardiovascular risk. We examined the association between cone-mediated DA and abdominal obesity in older adults with normal macular health. Methods: The cone-mediated section of DA was measured within the central retina for 6 minutes in darkness after photo-pigment bleaching. The recovery of contrast sensitivity for sine-wave gratings of low spatial frequency (1 cycle per degree) and low mean luminance (0.1 cd.m⁻²) was measured in 22 older subjects (47 – 69 years). Sensitivity recovery functions were fitted to an exponential decay function. The time constant for cone recovery (τ, seconds) and final contrast threshold (CT, log₁₀ units) were determined. Visual acuity (VA), weight, height and waist circumference were measured and body mass index (BMI) and waist-to-height ratio (WtHR) were calculated. Results: The mean cone τ and CT were 65.07 ± 36.3 s and -1.72 ± 0.20 log₁₀ units respectively. Forward stepwise regression analysis revealed that τ was independently correlated with WtHR (r = 0.68; p = 0.0005), but not with BMI, CT, VA or age. There was no significant relationship between abdominal obesity and CT. Mean cone τ was 49.6 s slower (p = 0.001) in subjects (32%) with WHtR ≥ 0.5. Conclusions: Delayed cone-mediated DA was associated with abdominal obesity in older adults with normal macular health. Testing for the combination of these risk factors would allow for early detection of AMD. Financial Disclosure: None