Purpose: To assess the parameters of macular volume and thickness with optical coherence tomography (OCT) in patients with chronic use of hydroxychloroquine.

Methods: 15 subjects with a history of the chronic use of hydroxychloroquine (HCQ) monotherapy for at least 1 year without fundus changes (group 1) and 15 subjects without ocular or systemic pathology (group 2) were enrolled in this study. All participants underwent systemic and ocular examination, visual field testing and OCT imaging of the macula.

Results: The mean ages of group 1 and 2 were 49.0 ± 9.89, 48.9±9.50 years, respectively. Mean duration of drug usage was 2.53±1.58 (range;1-6 years) years in group 1. Visual field testing with central 10-2 threshold program was normal in all subjects. The mean parafoveal and perifoveal inner retinal thickness in group 1 was significantly thinner than group 2 (or control group) (p<0.01 for perifoveal, p<0.05 for parafoveal retinal measurements). Perifoveal full-thickness retinal measurements in group 1 were significantly less than those in group 2 (p<0.05). Parafoveal inner retinal volume and perifoveal full-thickness volume measurements in group 1 were significantly lower than group 2 (p<0.05). Perifoveal inner retinal volume was significantly less in group 1 compared to control group (p<0.01).

Conclusion: Significant reduction of retinal thickness and volume measurements especially in perifoveal inner retinal layers in the absence of clinical fundus changes and visual field defects was observed in our study. We considered that OCT could be a useful method for the early detection of retinal toxicity in HCQ treated patients.