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Titel des Beitrags: Wide-Field Megahertz OCT Imaging of Patients with Diabetic Retinopathy.

Abstract: To evaluate the feasibility of wide-field Megahertz (MHz) OCT imaging in patients with diabetic retinopathy. A consecutive series of 15 eyes of 15 patients with diagnosed diabetic retinopathy were included. All patients underwent Megahertz OCT imaging, a close clinical examination, slit lamp biomicroscopy, and funduscopic evaluation. To acquire densely sampled, wide-field volumetric datasets, an ophthalmic 1050 nm OCT prototype system based on a Fourier-domain mode-locked (FDML) laser source with 1.68 MHz A-scan rate was employed. RESULTS. We were able to obtain OCT volume scans from all included 15 patients. Acquisition time was 1.8 seconds. Obtained volume datasets consisted of 2088 × 1044 A-scans of 60° of view. Thus, reconstructed en face images had a resolution of 34.8 pixels per degree in x-axis and 17.4 pixels per degree. Due to the densely sampled OCT volume dataset, postprocessed customized cross-sectional B-frames through pathologic changes such as an individual microaneurysm or a retinal neovascularization could be imaged. Wide-field Megahertz OCT is feasible to successfully image patients with diabetic retinopathy at high scanning rates and a wide angle of view, providing information in all three axes. The Megahertz OCT is a useful tool to screen diabetic patients for diabetic retinopathy.