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The Optical Coherence Tomography (OCT) and Fundus Autofluorescein (FAF) examinations of the retina in the early diagnosis and follow-up of central nervous system diseases

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The optic nerve and retina of the eye have been closely related with the white and gray matters of the brain, so the diseases affecting the central nervous system can be detected by the examination of the eye. Alzheimer' s disease (AD) has become extremely common in the recent years and the early diagnosis is very important, because the drugs used in the treatment of AD are ineffective unless the disease is detected early in its course. Some layers of the eye heve become the regions of research and the deposition of beta amyloid ın the eye has been reported. Some researchers in Boston have examined the lens of the eye and reported beta amyloid plaques early in the course of the disease. They have also invented a device which scans the lens and is said to detect beta amyloid in it. The deposition of this material has been suggested to occur in the eye earlier than the brain. We have been examining the retinas of the individuals who are the relatives of patients with established AD. FAF examination of the retina may show drusen- like accumulations and OCT performed through these regions may detect depositions in layers of the retina which are not classical for drusen. We believe these may be beta amyloid plaques in the retina. Also, the examination of OCT nerve fiber layers show thinning or atrophy of certain regions early in AD. We believe that OCT of the retinal nerve fiber layers , macula and drusen- like accumulations may give clues about early stages of the disease.

OCT findings of retinal nerve fiber layers and macula are linked with the early diagnosis and follow- up of Multiple Sclerosis (MS), too. The increase in the thinning of the nerve fiber layers and thinning of the macula are closely related to the course of MS. Detection of OCT findings (atrophy of certain nerve fiber layers, etc) in the unaffected eye is very important for the early diagnosis of MS.

Examination of the eyes with new technology devices may help us understand, detect and follow devastating neurological diseases and may be of utmost importance for the early diagnosis.

Biography

Umur Kayabasi, MD. Being a graduate of Istanbul Medical Faculty completed his neuro- ophthalmology clinical fellowship at Michigan State University, MI in 1995. He also worked as a researcher and observer at the neuro- ophthalmology department of Wills Eye Institute, Philadelphia, PA in 2007. He has been working at World Eye Hospital, Istanbul for three years. He has written chapters in different books and published and presented many clinical studies and cases.

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