



THE DURATION OF DIALYSIS AFFECTS CENTRAL CHOROIDAL THICKNESS IN DIALYSIS PATIENTS

Sertac A. Kivanc¹, Berna Akova Budak¹, Aysegul Oruc², Abdulmecit Yildiz², Yavuz Ayar², Berkant Kaderli¹, Ahmet Ali Yucel¹, Alparslan Ersoy²

1Uludag University Faculty of Medicine, Department of Ophthalmology, Bursa, TURKEY

2 Uludag University Faculty of Medicine, Department of Nephrology, Bursa, TURKEY

INTRODUCTION AND AIMS

Ocular problems are not uncommon among hemodialyzed patients. Uremic milieu, underlying disease and dialysis procedure might cause ocular problems such as diabetic retinopathy, glaucoma, corneal and conjunctival abnormalities (red eye), metastatic calcifications, cataracts and retinal diseases. Central choroidal thickness (CCT) changes before and after hemodialysis (HD) sessions have been investigated in a few studies. We evaluated choroidal thickness by enhanced depth imaging (EDI) mode of spectral domain optical coherence tomography (SD-OCT) in patients with end-stage renal disease (ESRD) undergoing HD.

METHODS

This study included right eyes of 14 ESRD patients undergoing HD and 15 controls. The patients with a best corrected visual acuity (BCVA) of 20/20 were included. Diabetics, patients with a history of anterior/posterior segment surgery, laser photocoagulation, intravitreal injection, ocular diseases such as glaucoma, uveitis, retinitis, age-related macular degeneration and optic neuropathy were excluded. All patients were examined at afternoon visits. The measurements were performed one day after dialysis session to avoid fluid fluctuations. Choroidal thickness (CT) is measured by using SD-OCT.

RESULTS

The dialysis duration of 14 (10 male, 4 female, 46.2±11.2 years) HD patients was 6.8±7.8 years. The mean intraocular pressure (IOP) was 12.7±1.63 mmHg, Spherical equivalent was 0.52±0.6 D, central CT was 369.42±89.61 μ in HD group. No significant difference was found in central CT between HD patients and control groups (369.42±89.61 μ vs 353.31±70.54 μ, respectively, p=0.375). Central CT was negatively correlated with duration of dialysis (r = - 0.827 p<0.001). Mean retinal nerve fiber layer thickness (RNFL) and mean central macular thickness (CMT) were found statistically significantly thicker than control patients (p=0.026 and p=0.006, respectively).

CONCLUSIONS

HD patients have several extra-renal co-morbidities. Uremic milieu, dialysis modality, drugs and comorbidities contribute organ involvements in HD patients. Ocular problems are one of the extra renal involvements in HD patients. We conclude that duration of dialysis might be considered as an important predictor of ocular involvement in HD patients.

Groups*	SE (Diopter)	IOP (mmHg)	CMT (μ)	CCT (μ)	RNFL (μ)
Hemodialysis	0.48±0.63	12.5±1.45	218.5±12.81	369.42±89.61	100.07±10.62
Control	0.1±0.6	13.69±2.02	239.77±17.7	353.31±70.54	104.15±6.73
P value	0,185	0,076	0,006	0,375	0,026

SE: spherical equivalent; IOP: Intraocular pressure; CMT: central macular thickness; CCT:central choroidal thickness; RNFL: retinal nerve fiber layer
* Mann-Whitney U test

