

INTRODUCTION

FAZ is a capillary-free area which surrounded by interconnected retinal capillary beds which sharply demarcating the avascular area. It is considered an anatomical reference mark for locating the point of fixation. The size of the FAZ reflects the status of the micro apillarycirculation in the foveal area. The FAZ area is strongly positively correlated with the degree of capillary no nperfusion in several retinovascular diseases. Also, the FAZ area quantification has a great value in monitoring the retinovascular disease progression as in diabetic retinopathy Any trauma associated with cataract surgery causes disturbance in the blood- aqueous barrier (BAB) and can lead to an inflammatory response and release of the inflammatory mediators like prostaglandins and leukotrienes from arachidonic acid. Prostaglandins are released naturally from the iris and ciliary body and migrate to the retina after surgery. The inflammatory response can cause the activation of the immune system, including neutrophils, macrophages, T lymphocytes and inflammatory mediators.

AIM OF THE WORK

The aim of this study was to evaluate macular perfusion changes and foveal avascular zone after uneventful cataract surgery using optical coherence tomography angiography.

PATIENTS AND METHODS

This study was carried out on 30 eyes of 30 patients with significant cataract who were scheduled for phacoemulsification. This was a prospective study. Biometry measurements by IOLMASTER700 (Carl Zeiss Meditec AG, Jena, Germany), Preoperative OCT angiography, Postoperative OCT angiography, OCT images obtained by Zeiss AngioPlex OCT Angiography (Cirrus HD-OCT, model 6000, software version 11.5.2.54532, Carl Zeiss Meditec, Inc, Germany). Data collection: The foveal avascular zone (FAZ) area measurements were automatically

calculated by the OCT angiography system. The central retinal thickness (CRT) measurements were obtained manually by drawing a line on the OCT a scan image. The superficial capillary plexus (SCP) vessel density (VD), perfusion density (PD) parameters are obtained from the OCT angiography machine itself which calculated them automatically pre and postoperatively.

RESULTS

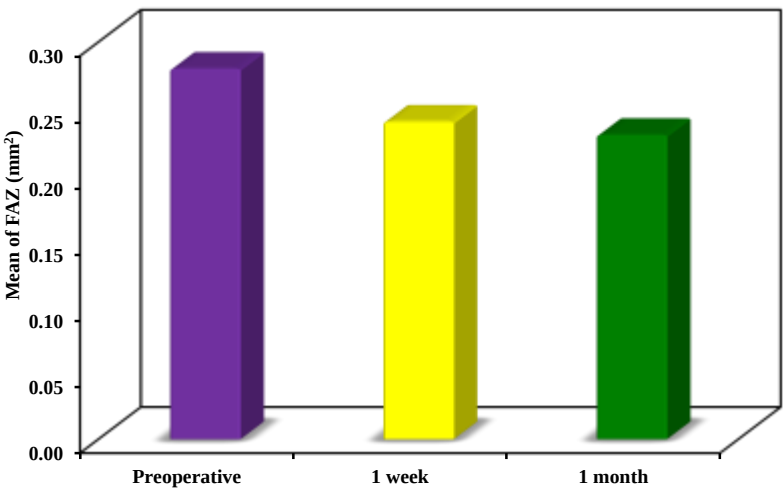


Figure 1: Comparison between the three periods according to FAZ (n=30)

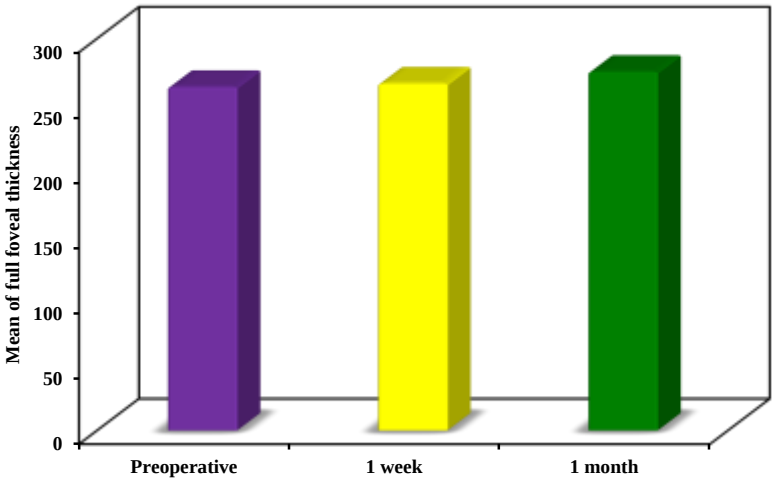


Figure 2: Comparison between the three periods according to full foveal thickness (n=30)

Table 1: Comparison between the three periods according to ETDRS Superficial perfusion density (n = 30)

ETDRS superficial perfusion density (%)	Preoperative	1week	1month	p
Min.–Max.	28.0–38.0	31.0–42.0	33.0–44.0	<0.05*
Mean±SD.	34.03±3.15	37.17±3.22	38.43±3.11	
Median (IQR)	34.50(32.0–37.0)	37.50(35.0–40.0)	38.50(36.0–41.0)	
Sig. bet. periods	p ₁ <0.05*, p ₂ <0.05*, p ₃ <0.05*			

IQR: Interquartilerange SD: Standard deviation
p: p value for comparing between the three periods
p₁: p value for comparing between **Preoperative** and **1 week**
p₂:pvalueforcomparingbetween **Preoperative** and **1 month**
p₃:pvalueforcomparingbetween **1 week** and **1 month**
*:Statistically significant at p≤0.05

CONCLUSION

Phacoemulsification in the elderly population demonstrated benefits beyond restoring visual acuity. These positive outcomes may support the decision to consider earlier cataract removal in healthy aging patients. Phacoemulsification proved to be highly effective, resulting in reduced foveal avascular zone (FAZ) area, and significant improvements in macular microvascular density following cataract surgery.