Effect of Diabetes Mellitus on corneal endothelial morphology and central corneal thickness following phacoemulsification.

**Session Details**

**Session Title:** Cataract surgery complications / management  
**First Author:** Yen Ham Yew MALAYSIA  
**Co. Authors:** May May Choo  Norlina Ramli  Terrence Soong  Amir Samsudin

**Abstract Details:**

**PURPOSE:** To investigate the effect of Diabetes Mellitus on corneal endothelial morphology and central corneal thickness following phacoemulsification.

**Setting:**  
University Malaya Medical Center, Kuala Lumpur.

**Methods:**  
This was a prospective, observational study on 100 diabetic patients (Hba1c > 8.0) and 100 non-diabetic patients (control), aged 50-80 years old who underwent uncomplicated phacoemulsification at University Malaya Medical Center. Topcon Specular Microscope SP-3000P was used to assess the central corneal thickness (CCT), average size of endothelial cells, coefficient of variation (CV) in cells' area, percentage of hexagonally-shaped cells and endothelial cell density at 1-week pre-op and 1-year post op. Independent sample t-test and paired t-test were used to assess differences in the parameters.

**Results:**  
There were no significant differences in the parameters between the diabetic and non-diabetic patients prior to surgery except the mean CV for diabetics (57 ± 19.39) was significantly higher than controls (46.34 ± 13.41), p = 0.021. At 1 year post-op, the differences between the groups were not significant either. However, both groups showed significant decrease in mean cell density and significant increase in cell size and percentage of hexagonally-shaped cells. Meanwhile, reduction of mean CV was seen in both groups but was significant only for the diabetics. CCT changes were not significant for all patients.

**Conclusions:**  
This study showed loss of endothelial cell counts for all patients who underwent phacoemulsification regardless of diabetic status. At 1-year post-op, although endothelial cell size increased, most cells were able to regain their hexagonal shape with less variation in size. FINANCIAL DISCLOSURE: The authors have neither financial interest nor received sponsorship from any pharmaceutical or intraocular lens company.