



## RELATIONSHIP BETWEEN CENTRAL CORNEAL THICKNESS AND MYOPIA

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**ABSTRACT** **Aim:** To study relationship between Central Corneal Thickness and Myopia. **Materials and method:** This is a Prospective, Case Control, Cross sectional study conducted at the OPD of department of Ophthalmology of a Medical college. 100 eyes of 50 Myopic patients were included in the study and 100 eyes of 50 Emmetropic age matched patients were taken as controls. The study period was between January 2018 to March 2018. Patients between 18- 60 years were included in the study. Patients with history of previous ocular surgeries, glaucoma, trauma, external eye disease and contact lens usage were excluded from the study. Informed consent was obtained from all participants. All cases were examined by an experienced Ophthalmologist using Snellens Chart, Slit lamp, Auto refractometer, Streak retinoscope and Pachymeter. **Results:** To check for correlation between CCT and Myopia Karl Pearson's coefficient was used.  $P < 0.05$  was considered statistically significant. Mean CCT among myopes was  $535.3 \mu\text{m}$ . Mean CCT among emmetropes was  $531.5 \mu\text{m}$ . Mean CCT showed no association with age. P value is 0.473 in this study. Hence it is not statistically significant. This study demonstrates that CCT does not correlate with the degree of myopia. **Conclusions:** This clinical study showed that there was no difference in CCT between emmetropic and myopic eyes. CCT did not correlate with the degree of myopia. Pattern of CCT in high myopes and simple myopes does not correlate. Some patients having high power had  $>550 \mu\text{m}$  CCT and some patients having less power had  $<490 \mu\text{m}$  CCT. The central corneal thickness is not significantly involved in the process of myopic progression.

**KEYWORDS :** Central corneal thickness (CCT), Myopia, Emmetropes.

**INTRODUCTION:**

Central Corneal thickness is an essential parameter to help assess the Corneal barrier status, Endothelial function and general corneal well being<sup>1</sup>. Measuring Central corneal thickness is Vital investigation in the diagnosis and management of Corneal disorders like Keratoconus<sup>2</sup>. CCT is a measure of Corneal rigidity and the amount of Corneal Stroma available for Refractive surgery<sup>3</sup>. CCT has a direct impact on IOP measurement and management of Glaucoma<sup>4</sup>. In this study we want to see the correlation between CCT and Myopia.

**MATERIALS AND METHOD:**

This is a Prospective, Case Control, Cross sectional study conducted at the OPD of department of Ophthalmology of a Medical college. 100 eyes of 50 Myopic patients were included in the study and 100 eyes of 50 Emmetropic age matched patients were taken as controls. The study period was between January 2018 to March 2018. Patients between 18- 60 years were included in the study. Patients with history of previous ocular surgeries, glaucoma, trauma, external eye disease and contact lens usage were excluded from the study.

Informed consent was obtained from all participants. All cases were examined by an experienced Ophthalmologist using Snellens Chart, Slit lamp, Auto refractometer, Streak retinoscope and Pachymeter.

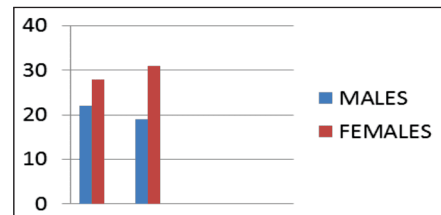
After preliminary examination of anterior segment using Slit lamp. Auto refractometer reading was recorded. Readings were cross checked by doing Streak Retinoscopy in the dark room without dilatation of pupil. Pachymetry was done using Ultra sound Pachymeter (Ocutome).

**RESULTS:**

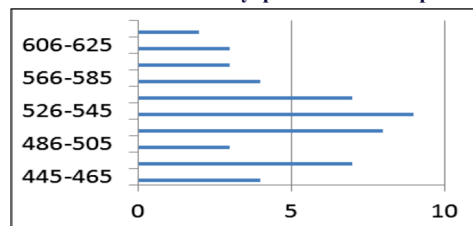
To check the correlation between CCT and Myopia Karl Pearson's coefficient was used.  $P < 0.05$  was considered statistically significant. Mean CCT among myopes was  $535.3 \mu\text{m}$ . Mean CCT among emmetropes was  $531.5 \mu\text{m}$ . Mean CCT showed no association with age.

P value is 0.473 in this study. Hence it is not statistically significant. This

study demonstrates that CCT does not correlate with the degree of myopia.



**Fig.1 Sex distribution between Myopes and Emmetropes**



**Fig. 2 Distribution of CCT in Myopes of various dioptric powers**

**DISCUSSION:**

This study demonstrates that CCT does not correlate with the degree of myopia. Pattern of CCT in high myopes and simple myopes does not correlate. Some patients having high power had  $>550 \mu\text{m}$  CCT and some patients having less power had  $<490 \mu\text{m}$  CCT. Our results was supported by various studies done elsewhere in the world.

Chen et al<sup>5</sup> studied 500 myopes who had mean CCT of  $554 \mu\text{m}$ , did not find any correlation between CCT and Myopia. P value was 0.445 which is statistically not significant.

Chang et al<sup>6</sup> studied 216 patients whose mean CCT was  $533 \mu\text{m}$ . They

also didn't find any correlation between CCT and Mopia. P value was 0.14 which is statistically not significant.

Tahra Al Mahmoud et al<sup>7</sup> studied 1858 subjects of refractive errors ranging between +7.0Dsp to -14D sp. Also didn't find any correlation between CCT and Myopia or Hyperopia.

Nair Shobita et al<sup>8</sup> studied 240 eyes of 120 patients didn't find any correlation between, CCT Age and Degree of Myopia.

#### CONCLUSIONS:

This clinical study showed that there was no difference in CCT between emmetropic and myopic eyes. CCT did not correlate with the degree of myopia. Pattern of CCT in high myopes and simple myopes does not correlate. Some patients having high power had >550µm CCT and some patients having less power had <490µm CCT. The central corneal thickness is not significantly involved in the process of myopic progression.

**Financial interest :** Nil

**Conflict of Interest:** None

Institute ethics committee approval obtained.

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