



CORRELATION OF CORNEAL THICKNESS AND IOP RESPONSE IN THE OCULAR HYPERTENSION TREATMENT STUDY (OHTS)

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Purpose: To test the hypothesis that greater central corneal thickness (CCT) might be correlated with smaller measured IOP reduction in response to medication.

Design: Post hoc analysis of randomized controlled trial results

Participants: 1243 patients in the OHTS, including those in the medication group with CCT measurements

Main Outcome Measures: IOP reduction, CCT, and number of medications

Methods: We report IOP reduction from baseline in the medication group after the initial monocular trial and at follow-up visits at 12- 60 months. CCT was measured about 2 years after completion of randomization. We divided CCT into roughly equal tertiles and report results by tertile groups: a). baseline IOP and IOP reduction after the first monocular trial of 4-6 weeks on a non-selective β -blocker (N=554); b). baseline IOP and follow-up IOP reduction averaged for both eyes of all medication participants with CCT measurements (N=689); c). percentage of follow-up visits in which both eyes met the treatment IOP goal; d). the total number of different medications prescribed during follow-up; and e). medication-months of treatment during follow-up.

CCT Tertile (microns)	Monocular Treatment Trial (01-0950)		Follow-up IOPs 12 to 60 mos (01-0950)	
	Baseline IOP (mmHg)	AI IOP (mmHg)	Baseline IOP (mmHg)	AI IOP (mmHg)
<550	20.1 ± 3.3	-3.8 ± 3.4	20.1 ± 3.3	-3.3 ± 3.7
550 - 600	20.0 ± 2.7	-3.5 ± 3.4	20.0 ± 2.8	-3.0 ± 3.4
>600	20.0 ± 2.9	-3.0 ± 3.3	20.0 ± 2.8	-2.5 ± 3.3

Results: The eyes in the highest CCT tertile had the smallest drop in IOP in both short- and long-term measures of IOP response. A significant relationship between CCT and IOP response was found in regression models adjusting for baseline IOP in the monocular treatment trial ($p=0.0095$) and during follow-up ($p<0.0001$). Mean CCT was not correlated with the number of different medications prescribed, medication-months or the percent of visits at which goal IOP was met.

Conclusions: CCT is correlated with measured initial IOP response and follow-up IOP response, i.e., participants with thicker corneas have a smaller measured IOP response to treatment than those with normal or thin corneas. Differences in CCT may explain some of the differences between patients in IOP response to treatment.

