

# The Association between Medication Adherence and Visual Field Progression in the Collaborative Initial Glaucoma Treatment Study

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**PURPOSE:** To evaluate the relationship between medication adherence and visual field progression in participants randomized to the medication arm of the Collaborative Initial Glaucoma Treatment Study (CIGTS) .

**DESIGN:** The CIGTS was a randomized, multicenter clinical trial comparing initial treatment with topical medications to trabeculectomy for 607 participants with newly diagnosed glaucoma.

**PARTICIPANTS:** Three hundred seven participants randomized to the medication arm of the CIGTS.

**METHODS:** Participants were followed up at 6-month intervals for up to 10 years. Self-reported medication adherence and visual fields were measured. Medication adherence was assessed by telephone from responses to the question, "Did you happen to miss any dose of your medication yesterday?" The impact of medication adherence on mean deviation (MD) over time was assessed with a linear mixed regression model adjusting for the effects of baseline MD and age, cataract extraction, interactions, and time (through year 8, excluding time after crossover to surgery) . Medication adherence was modeled as a cumulative sum of the number of prior visits where a missed dose of medication was reported.

**MAIN OUTCOME MEASURE:** Mean deviation over time.

**RESULTS:** Three hundred seven subjects (306 with adherence data) were randomized to treatment with topical medications and followed up for an average of 7.3 years (standard deviation, 2.3 years) . One hundred forty-two subjects (46%) reported never missing a dose of medication over all available follow-up, 112 patients (37%) reported missing medication at up to one third of visits, 31 patients (10%) reported missing medication at one third to two thirds of visits, and 21 patients (7%) reported missing medication at more than two thirds of visits. Worse medication adherence was associated with loss of MD over time ( $P = 0.005$ ) . For subjects who reported never missing a dose of medication, the average predicted MD loss over 8 years was 0.62 dB, consistent with age-related loss (95% confidence interval <http://CI>, 0.17-1.06;  $P = 0.007$ ) ; subjects who reported missing medication doses at one third of visits had a loss of 1.42 dB (95% CI, 0.86-1.98;  $P$  **CONCLUSIONS:** This longitudinal assessment demonstrated a statistically and clinically

significant association between medication nonadherence and glaucomatous vision loss.

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