

Collaborative Normal Tension Glaucoma Study (CNTGS) - 1998



Objective

To determine if intraocular pressure (IOP) plays a role in normal tension glaucoma and if pressure-lowering agents can improve outcomes in these patients

Methods

Design: Multicenter RCT

Sample Size: 140 eyes (140 patients) with normal tension glaucoma

Treatment Groups:

- N = 61 in treatment group (IOP lowered by >30% from baseline)
- N = 79 control group (no IOP lowering interventions)

Outcome Measure:

- Progression of disease over five years (measured via optic disc changes or visual field loss)

Results

Point 1: When using the defined endpoints of optic disc changes or visual field loss, survival analysis showed significantly greater progression of glaucomatous disease in the untreated control ($p < 0.0001$)

- At follow-up, mean IOP was significantly lower in the treatment group compared to the control (10.6 mm Hg vs 16.0 mm Hg, $P < 0.0001$)
- However, cataracts developed more often in the treatment group, likely due to surgical intervention (38% vs 14%, $P = 0.0011$)

Point 2: A follow-up, intention-to-treat analysis initially found no difference in visual field survival analysis outcomes between cohorts, but after excluding patients with cataracts, they found favorable outcomes for the treatment group ($P = 0.0018$)

- Survival at 3 years: 80% in the treatment & 60% in the control
- Survival at 5 years: 80% in the treatment & 40% in the control

TLDR: Lowering intraocular pressure can prevent disease progression of normal tension glaucoma. However, the benefit only exists when controlling for the increased incidence of cataracts.

1. Comparison of glaucomatous progression between untreated patients with normal-tension glaucoma and patients with therapeutically reduced intraocular pressures. Collaborative Normal-Tension Glaucoma Study Group. Am J Ophthalmol. 1998 Oct;126(4):487-97. doi: 10.1016/s0002-9394(98)00223-2. Erratum in: Am J Ophthalmol 1999 Jan;127(1):120. PMID: 9780093.
2. The effectiveness of intraocular pressure reduction in the treatment of normal-tension glaucoma. Collaborative Normal-Tension Glaucoma Study Group. Am J Ophthalmol. 1998 Oct;126(4):498-505. doi: 10.1016/s0002-9394(98)00272-4. PMID: 9780094.