The Diabetes Control and Complications Trial (DCCT) - 1995

THE LENS

Objective

To determine if "intensive" blood glucose control would slow the development and progression of diabetic retinopathy (in Type 1 Diabetics)

Methods

Design: Multicenter RCT

Sample Size: 1441 with T1DM
- Cohort 1: N = 726 (patients with 1-5 years of DM and no retinopathy)
- Cohort 2: N = 715 (patients with 1-15 years of DM and mild-mod DR)

Treatment Groups:
- "Intensive Control": multiple (3+) daily insulin injections/pump + frequent monitoring
- "Conventional": limited (1-2) insulin injections + quarterly appts

Outcome Measures:
- Development or progression of DR

Results

Point 1: "Intensive" control reduced both the rate of development of diabetic retinopathy as well as the risk of progression
- Intensive control had an average 1.07 patients per year develop DR compared to 4.51 in conventional control (78.5% risk reduction [95% CI: 64.9% - 86.9%])
- Intensive control had an average of 2.15 patients per year show DR progression compared to 5.94 with conventional control (64.5% risk reduction [49.8% - 74.8%])

Point 2: Lowering Hgb A1c lowered risk of DR progression in both groups
- In the conventional group, a 10% lower A1c (from screening level) led to a 45% relative risk reduction in the likelihood of sustained retinopathy progression
- In the intensive group, a 10% lower A1c (from screening level) led to a 43% relative risk reduction in the likelihood of sustained retinopathy progression

TLDR: Intensive glycemic control was associated with a reduced risk of both new onset retinopathy and progression of existing retinopathy in patients with Type 1 Diabetes Mellitus