United Kingdom Prospective Diabetes Study (UKPDS) – 1977-1997

THE LENS

Objective

To elucidate the risk factors related to the incidence and progression of diabetic retinopathy in patients with Type II (non-insulin-dependent) diabetes mellitus & to determine the impact of intensive glycemic control on diabetes-related complications

Methods

Design: Cross sectional study with additional randomized controlled trial

Sample Size: N=5357 patients with T2DM

- 3867 newly diagnosed patients were randomized

Treatment Groups:

- N=1138 to conventional control
- N=2729 to intensive control

Outcome Measures:

- HgbA1c
- DR progression

Results

Point 1: Risk factors for development and progression of diabetic retinopathy were noted

- There was a strong positive association between HbA1c and both development of new and progression of established retinopathy (8-fold relative progression reduction with A1C <6.2 vs. >7.5)
- Higher blood pressure was strongly associated with the onset and progression of retinopathy
- Interestingly, current smokers were less likely to develop or further the progression of established retinopathy (possibly secondary to lower blood pressure)

Point 2: Intensive glycemic control treatment group had significant impact on A1c and associated outcome measures

- Treatment group with mean A1c 7.0% versus 7.9% in the conventional group
- The intensive group had a 25% reduction in "microvascular endpoints" including the need for PRP
- Weight gain and hypoglycemic episodes were greater in the Intensive groups

TLDR: Risk factors associated with the onset and/or progression of retinopathy in patients with Type II diabetes include hypertension and hyperglycemia; intensive treatment lowered the risk of progression

https://www.dtu.ox.ac.uk/UKPDS/index.php

Intensive blood-glucose control with sulphonylureas or insulin compared with conventional treatment and risk of complications in patients with type 2 diabetes (UKPDS 33). UK Prospective Diabetes Study (UKPDS) Group. Lancet. 1998 Sep 12;352(9131):837-53. Erratum in: Lancet 1999 Aug 14;354(9178):602. PMID: 9742976.