Reviewer's report

Title: Prevalence and progression of visual impairment in patients newly diagnosed with clinical type 2 diabetes: a 6-year follow up study

Version: 1 Date: 20 September 2010

Reviewer: Kåre I. Birkeland

Reviewer's report:

In the present study, 807 of originally included 1,241 persons with newly diagnosed type 2 diabetes aged >40 years were followed up for 6 years with respect to ophtalmological status. The abstracts states that blindness rose from 0.9% to 2.4% and the prevalence of moderate visual impairment rose from 5.4% to 6.7%. Baseline predictors of level of visual acuity and speed of continued visual loss were identified.

The manuscript contains potential important information, but it is difficult at least for this reviewer to follow the numbers through the text and tables, and the authors should try to simplify the presentation.

Major comments

1. The data are 10-20 yrs old, which reduces their relevance for today’s practice. Hence, the statement in the Discussion part that “Our patients are likely to be representative of Danish patients with newly diagnosed…diabetes” may be modified. Even though the subjects is commented on by the authors later in the Discussion part, the former paragraph is misleading as rather big changes in diabetes care have taken place during the last 20 yrs.

2. It is stated in the abstract that the prevalence of moderate visual impairment rose from 5.4% to 6.7%. This must be a misleading expression, the correct is probably that prevalence was 6.7% after 6 yrs in those with normal vision at baseline. But than n is not 807.

3. Diagnosis of diabetes was made “Based on hyperglycaemic symptoms and/or raised blood glucose values measured in general practice, the diagnosis was established by a single whole blood or plasma glucose concentration # 7.0/8.0 mmol/l...”
   a. What is the impact of including subjects with only symptons of hyperglycaemia? Of only a single glucose measurement?
   b. Why were these limits used – at variance with international guidelines?

Minor comments

1. The expression “For the health practitioner visual acuity is a ubiquitous and handy measure of visual function” is of course correct, but it needs to be stated that it is a crude measure and is not enough for follow-up of patients with
diabetes, as prevention mostly is too late when visual impairment is present.

2. The discrepencies in numbers in the following should be corrected or commented: “At 6-year follow up, the 159 noncensored patients without information about visual acuity (Fig. 1) did not differ from the 807 re-examined patients with regard to age (p=0.23), sex (p=0.82), diagnostic plasma glucose (p=0.43), prevalence of DR at diagnosis (3.2% (5/158) vs. 4.4% (35/800))

3. Of the 25 subjects that were moderately impaired at baseline, more than half had normal visual acuity at 6-year follow-up. Please comment?

4. The major reasons for visual impairment in this population seem to be AMD and cataract; both not directly related to diabetes and metabolic control. May be this should have some more emphphasis?

5. “Fraction of haemoglobin A1c was determined by ion-exchange, high-performance liquid chromatography (reference interval: 5.4-7.4%).” Please use either the expression “HbA1c” or “fraction of glycosylated haemoglobin” and state which method that was used, or was it different methods? With same reference interval? What was the coefficient of variation? This is important information, especially because HbA1c did not turn out to predict progression of retinopathy, at variance with other studies.

6. Urinary albumin concentration was an important predictor of baseline eye disease and also significant for progression in the unadjusted analysis. This is important information to the practitioner that only is found in the on-line table; please include in the result section.

7. Median diagnostic plasma glucose was 13.7 (10.7-17.0) mmol/l. Was that the fasting level?

Level of interest: An article whose findings are important to those with closely related research interests

Quality of written English: Acceptable

Statistical review: Yes, but I do not feel adequately qualified to assess the statistics.

Declaration of competing interests:

I declare that I have no competing interests