Reviewer's report

Title: Antihyperglycaemic treatment patterns, observed glycaemic control and determinants of treatment change among patients with type 2 diabetes in the United Kingdom primary care: a retrospective cohort study

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Reviewer: Nicholas Tentolouris

Reviewer's report:

The authors of this retrospective cohort study examined determinants of treatment change following initiation of non-insulin antihyperglycaemic treatment (OAD) for UK patients with type 2 diabetes. The authors used data from Clinical Practice Research Datalink (CPRD) between January 2006 and February 2011, which contains individual patient-level medical and demographic information on approximately 8% of the UK population from more than 630 general practices. The patient population captured in the database is broadly representative of the UK population.

The main treatment pattern outcomes were discontinuation, switching, augmentation and initiation of insulin. Glycaemic control was assessed using HbA1c. A total of 63,060 patients initiated OAD therapy and 3.4% were prescribed insulin during follow-up. On initiating OAD, half the patients had HbA1c values >65 mmol/mol (8.1%) and one quarter >80 mmol/mol (9.5%). The initial values of HbA1c were reduced after 12 months and remained stable afterwards. There were 15%-18% of patients whose values increased since initiating OAD. Increased baseline HbA1c was associated with increased chance of augmentation and decreased chance of discontinuation. HbA1c values at 1 year were associated with a three-fold increase in the chance of augmentation, 130% increase in the chance of switching and 14% increase in the chance of discontinuation with each 10 mmol/mol increase. Following initiation of OAD, HbA1c was reduced by an average of 16 mmol/mol during the first year.

The authors conclude that there are patients for whom glycaemic control worsens and a majority remained above the recommended level, suggesting an unmet need despite the availability of many OAD.

Strengths of the study is the large number of patients, the fact that they are representative of the primary care diabetes adult population with type 2 diabetes, the clear presentation of the results and the robust methodology used for the analysis of the data. Weakness of the study is its retrospective design.

I suggest acceptance of the manuscript as it is.

Level of interest: An article of importance in its field

Quality of written English: Acceptable
Statistical review: No, the manuscript does not need to be seen by a statistician.

Declaration of competing interests:

I declare that I have no competing interests