Reviewer’s report

Title: Characteristics and outcomes of patients with type 2 diabetes mellitus treated with canagliflozin: a real-world analysis

Version: 0 Date: 04 Aug 2015

Reviewer: Taiga Shibata

Reviewer's report:

The authors reported the outcomes of patients with type 2 diabetes mellitus (T2DM) treated with canagliflozin in real world study by use of administrative claims data during the period immediately FDA approval. A total of 4017 patients who were continuously enrolled in the health plan for 6-month prior to and after the first prescription of canagliflozin were included in the analysis.

The mean age, gender, race, hyperglycemic agents count, prescribing provider type of the patients were well reflected in the real-world setting. Among those patients, 826 patients had A1c measurements and the mean decrease in A1c from baseline was 0.81% as a whole. Those results were supported by the results of clinical trails previously reported.

The mean treatment adherence was 86% (interestingly high in real-world) in patients with T2DM, which was assessed as the proportion of days covered. The authors concluded that therapies associated with weight loss as well as improvement in A1c had leaded to better treatment adherence to medication among patients with T2DM.

As a whole, the authors have well examined the efficacy of canagliflozin in the real-world and have evaluated patients' adherences to their treatments, which would be of special interest to most readers. I have provided more specific suggestions below to raise the quality of this manuscript.

Major points

1) The authors reported that 13% of the patients treated with insulin discontinued during follow-up. If available, insulin dose changes and/or regimen changes should be shown in the manuscript.

2) How was the treatment adherence among the A1c available patients? Similar to whole patients result?

3) How was the rate of discontinued medications in the patients with A1c measurements available? Was it similar to that of all patients? If available, these should be shown.
Minor points

1) I suggest that "29% with two or more AHAs" should be corrected to "29% with two AHAs" in 12th and 13th lines of abstract.

2) It would be better to discuss about the problem related to patient adherence analysis in limitations with more caution (about uncertainness of real dosage and administration).

3) In discussion, it would be ideal to make mention that future researches to demonstrate the effectiveness of SGLT-2 inhibitors will aim to discuss and evaluate treatment adherences, not just improvement in A1c level and weight loss.

Are the methods appropriate and well described?
If not, please specify what is required in your comments to the authors.

Yes

Does the work include the necessary controls?
If not, please specify which controls are required in your comments to the authors.

Unable to assess

Are the conclusions drawn adequately supported by the data shown?
If not, please explain in your comments to the authors.

Yes

Are you able to assess any statistics in the manuscript or would you recommend an additional statistical review?
If an additional statistical review is recommended, please specify what aspects require further assessment in your comments to the editors.

I am able to assess the statistics

Quality of written English
Please indicate the quality of language in the manuscript:

Needs some language corrections before being published

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