

Efficacy of GLP-1 Analogues at Different Baseline Levels of HbA1c in T2DM

A Systematic Review and Meta-Analysis

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Introduction:

Glucagon-like peptide-1 receptor analogues (GLP-1a) are a group of medications used in treating type 2 diabetes mellitus (T2DM) with added beneficial effect on weight and blood pressure since 2005. In this systematic review and meta-analysis, we gathered evidence to show whether baseline level of glycosylated haemoglobin (HbA1c) predicts the efficacy of GLP-1a in T2DM.

Aim:

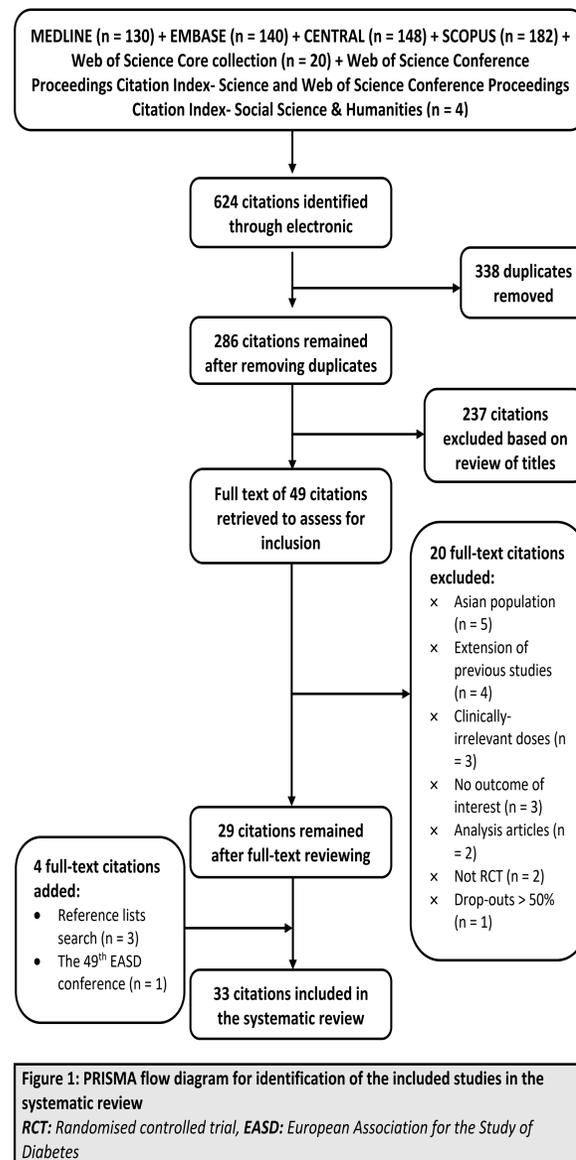
Baseline levels HbA1c predict the efficacy of GLP-1a in T2DM. The aim of this systematic review and meta-analysis is to assess the efficacy of GLP-1a at different levels of baseline HbA1c in T2DM.

Methods:

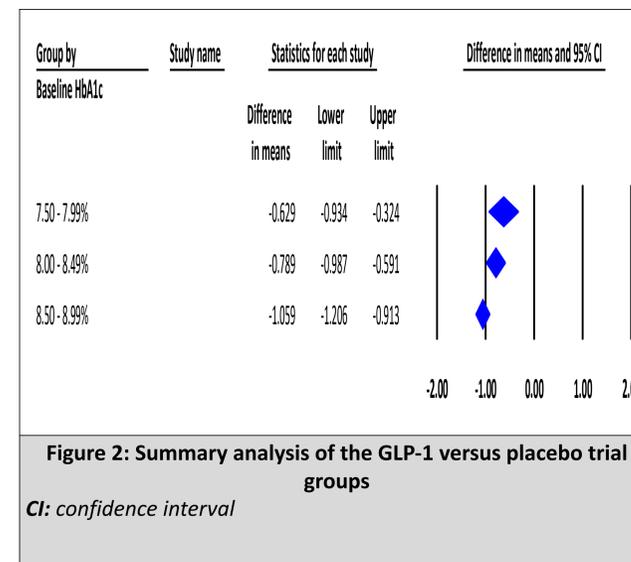
Five electronic databases were searched: MEDLINE (1990 – July 2014), EMBASE (1990 – July 2014), Cochrane Central Register of Controlled Trials (Issue 6 of 12, June 2014), SCOPUS (1990 – 2014) and Web of Science Core Collection (1990 – 2014) and abstracts proceedings. Trials were included if they were randomised, controlled and involved one or more of the GLP-1a in clinically-relevant doses compared to placebo and/or other glucose-lowering agents except GLP-1a. The identified trials were stratified according to level of baseline HbA1c.

Results:

Thirty-three trials met inclusion criteria (Figure 1). RCTs were stratified into the predefined groups of baseline levels HbA1c.



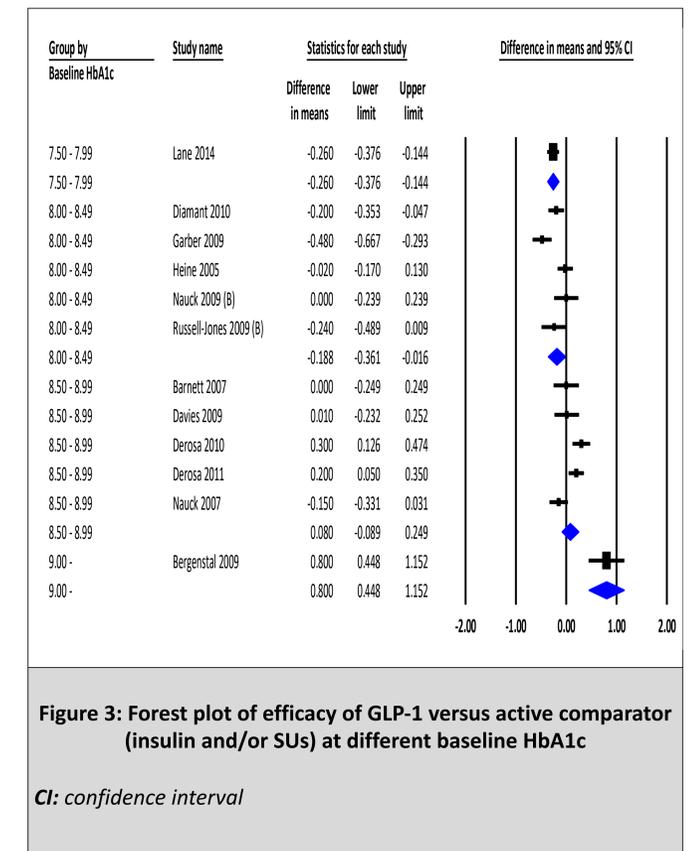
GLP-1a showed more efficacy against placebo at higher baseline level of HbA1c (absolute reductions of HbA1c were -1.06, -0.79 and -0.63% at baseline levels of HbA1c 8.5 – 8.99% (69.4 – 74.8mmol/mol), 8.0 – 8.49% (63.9 – 69.3mmol/mol) and 7.5 – 7.99% (58.5 – 63.8mmol/mol), respectively) (Figure 2).



When GLP-1a were compared to insulin and/or insulin secretagogues, the efficacy of GLP-1a was outweighed by those comparators at higher levels of baseline HbA1c $\geq 9.0\%$ ($\geq 74.9\text{mmol/mol}$) (Figure 3), indicating a good role for those medications at higher HbA1c profile.

Conclusion:

GLP-1a are highly efficacious glucose-lowering agents at any level of baseline HbA1c. The pooled data showed that efficacy of GLP-1a increase at higher baseline levels of HbA1c in T2DM.



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