Predictors of response to injectable once-weekly Semaglutide: Insights from the Association of British Clinical Diabetologists nationwide audit

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Association of British Clinical Diabetologists

Introduction

Trials have observed individual differences in response to glucagon-like peptide-1 receptor agonists (GLP1RA) according to baseline characteristics(1,2). The ABCD audit launched in January 2019 to assess the clinical utility, efficacy and safety of injectable semaglutide in routine practice.

The aim of this analysis was to explore which baseline characteristics might predict larger weight or HbA1c reductions in the real-world. This work has since been published in the British Journal of Diabetes(3).

Methods

Data were extracted from the secure online tool and individuals with baseline and follow-up data available within a defined 6 (3-9) month window were included. Variables were assessed as both continuous variables and categorical variables in a multivariate regression model. Missing data were multiply imputed.

Results

620 individuals with baseline (mean±SD) age 58.7±10.7years, HbA1c 81.6±18.5mmol/mol (9.5±1.7%), weight 108.2±24.2kg and BMI 37.6±7.6kg/m2. Median diabetes duration was 11.2 years (IQR 6.6-16) and 50.5% (313/620) were male.

The median follow-up 0.5 years. HbA1c reduced by 14.9mmol/mol (95% CI 13.5, 16.1, P<0.001) and weight reduced by 4.2kg (95% CI 3.6, 4.8; P<0.001). Individuals with higher HbA1c, who were younger or GLP1RA naive had the largest HbA1c reductions. Higher baseline weight/BMI and being GLP1RA naïve were associated with larger weight reductions.

These results (categorized) are demonstrated in the Forest plots in **figures 1 and 2.** The univariate analysis for continuous covariates is displayed in **table 1.**

Table 1. Univariate association between baseline characteristics and change in both HbA1c and weight following injectable semaglutide

Outcome	Covariate	β (95% CI)	P-Value
ΔHbA1c, mmol/mol	Age, Years	-0.07 (-0.35, 0.21)	0.626
	Gender, Male	-3.58 (-0.92, 2.01)	0.209
	Baseline HbA1c, mmol/mol	0.97 (0.94, 1.00)	<0.001
	Baseline weight, kg	-0.04 (-0.16, 0.08)	0.502
	Diabetes duration, Years	-0.10 (-0.47, 0.27)	0.600
	Previous GLP1RA use*	-10.21 (-16.49, -3.93)	0.001
ΔWeight, Kg	Age, Years	0.02 (-0.04, 0.09)	0.482
	Gender, Male	-0.71 (-1.97, 0.55)	0.270
	Baseline HbA1c, mmol/mol	-0.01 (-0.01, 0.01)	0.792
	Baseline weight, kg	0.04 (0.01, 0.07)	0.004
	Diabetes duration, Years	-0.06 (-0.16, 0.04)	0.245
	Previous GLP1RA use*	-1.39 (-2.98, 0.19)	0.084

**GLP1RA - Glucagon-like peptide-1 receptor agonist*

Figure 1. Forest plot showing association between key baseline variables (categorised) and change in HbA1c

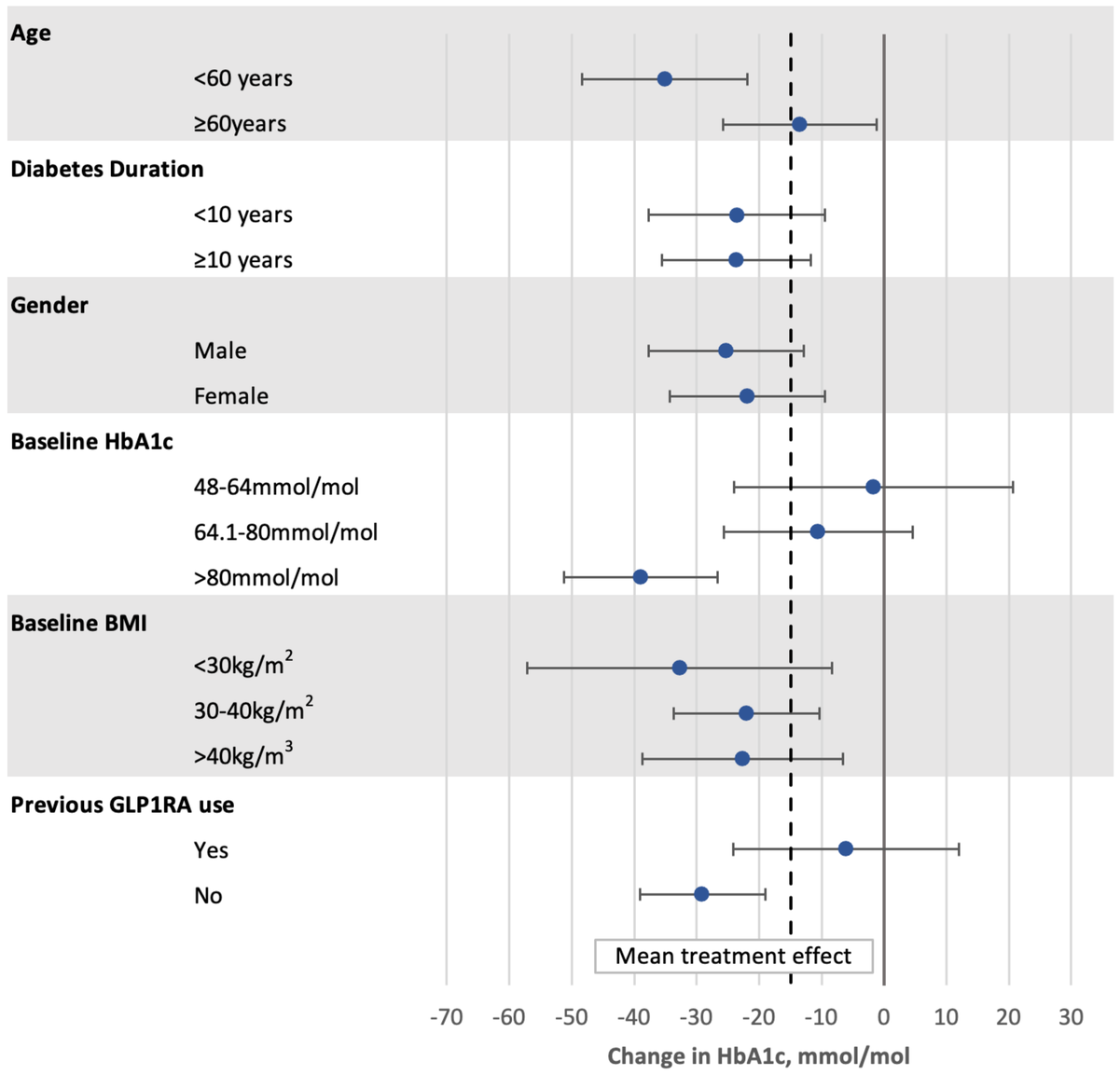
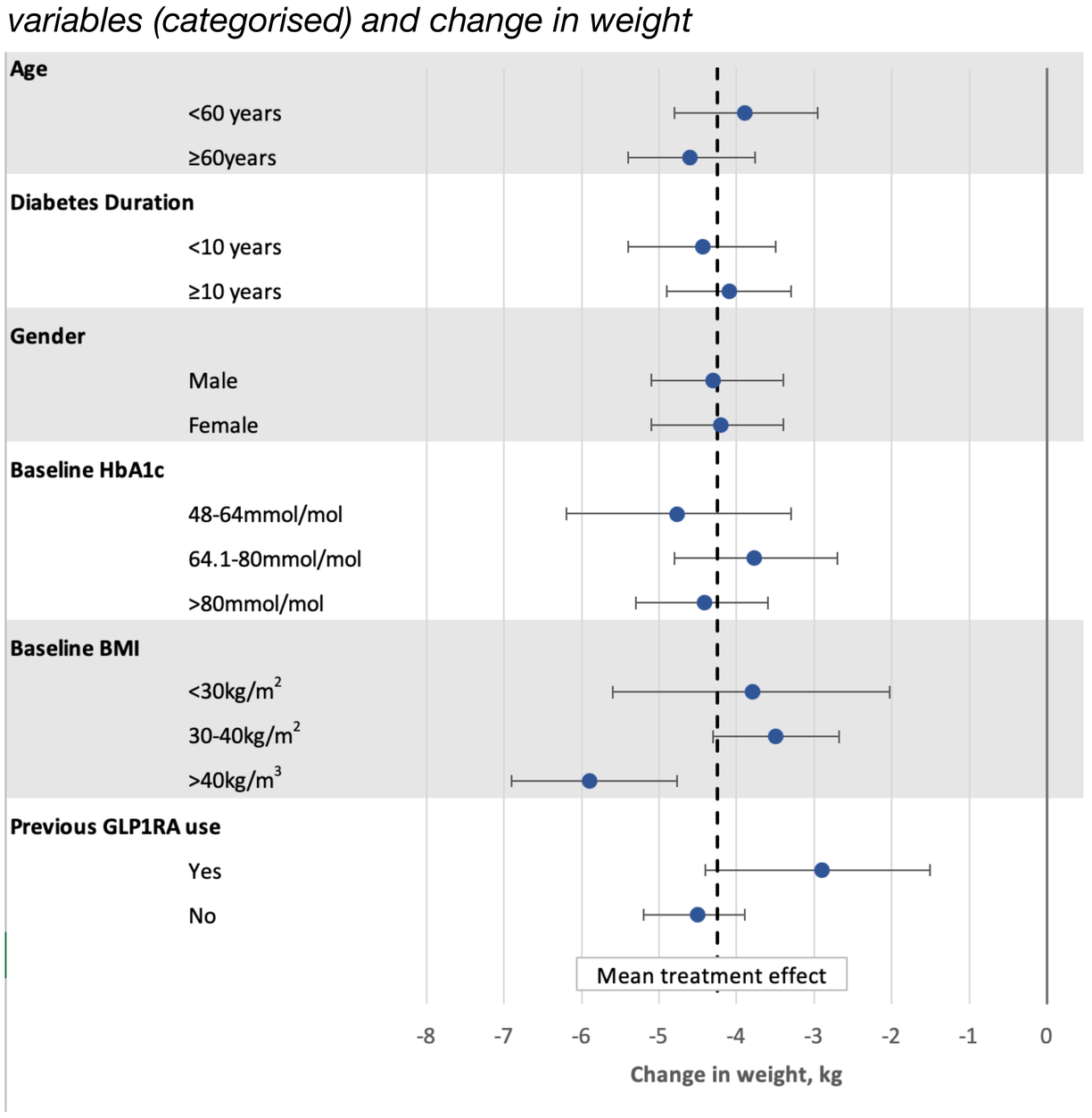


Figure 2. Forest plot showing association between key baseline variables (categorised) and change in weight



Conclusions

In this real-world study, baseline HbA1c and weight are predictors of the respective outcomes following initiation of semaglutide. Additionally, individuals who are younger may get more glycaemic benefit from semaglutide. Individuals switching to semaglutide from alternative GLP1RAs had smaller additional HbA1c and weight reductions. Our data mirror existing randomised control trial data and may have implications in view of current supply issues. Further evidence over a longer follow-up period is being collected.

References

1. *Lingvay et al, Lancet D&E 2019*
2. *Marzullo et al, J Endocrinol Invest 2022*
3. *Crabtree et al, BJD 2023*