

TSJ Crabtree¹⁻³; K Dhatariya⁴; A Bickerton⁵; S Sivappriyan⁶; S Tarpey⁷; S Rowles⁷; K Adamson⁸; I Gallen⁹; REJ Ryder¹
on behalf of ABCD SGLT2i audit contributors

1. Sandwell and West Birmingham Hospitals NHS Trust; 2. University Hospitals of Derby and Burton NHS Trust; 3. University of Nottingham; 4. Norfolk & Norwich University Hospitals NHS Trust; 5. Yeovil District Hospital NHS Foundation Trust; 6. Maidstone and Tunbridge Wells Hospitals NHS Trust; 7. Pennine Acute Hospitals NHS Trust; St John's Hospital, Livingston; 9. Royal Berkshire Hospitals NHS Trust

Introduction

The ABCD SGLT2i audit programmes have been providing insights from real-world use since 2014. Previous analyses have focused on the drugs in the class individually and have demonstrated significant weight-loss and decreases in HbA1c at first follow-up in the real-world, comparable with randomised controlled trial outcomes, but in a less “idealistic” cohort.

This is the first analysis comparing effects between SGLT2i, to see if there are statistically significant differences in the magnitude of weight loss or HbA1c decrease dependent on which SGLT2i is used.

Methods

Data obtained from the audit programmes were included a baseline and follow-up measurement for HbA1c and/or weight was available over the requisite time frame.

Changes in HbA1c and weight at 6-months (3-9months) were assessed using paired T-Tests; differences between drugs were assessed by ANOVA. This analysis has been updated to include Bonferroni corrections for pairwise comparisons of drugs.

Results

15,044 datasets were included in for analysis. The population baseline characteristics for each drug, and the cohort overall, are displayed in **Fig 1**. 14,359 were included in HbA1c analysis and 10,459 for weight, due to availability of data.

Significant reductions in HbA1c of -10.6mmol/mol (95% CI -10, -11.1, P<0.0001) and in weight of -3.4kg (95% CI -3.3,-3.6, P<0.0001) from baseline were observed across the class. **Figures 2 and 3** show the changes across the class and for each drug.

Empagliflozin was associated with superior reductions in weight (-3.7kg, 95% CI -3.6, -3.9, P<0.0001) and HbA1c (-11.7, 95% CI -11, -12.4, P<0.0001) as compared to Dapagliflozin (P<0.01) where weight reduced by -3.1kg (95% CI, -3,-3.3, P<0.001) and HbA1c reduced by -9.2mmol/mol (95% CI -10.1, -11.1, P<0.001).

Empagliflozin was associated with superior HbA1c reductions to Canagliflozin (-10.4mmol/mol, 95% CI -8.8, -12, P<0.001) with P<0.05 between the drugs, but not weight (P=0.07) (-3.3kg, 95% CI -3, -3.6, P<0.001). No significant difference was noted between the between Canagliflozin and Dapagliflozin.

Fig 2. Bar chart showing change in weight following SGLT2i commencement at 6-months across the class and for each drug. P<0.001 for all, error bars showing 95% confidence interval

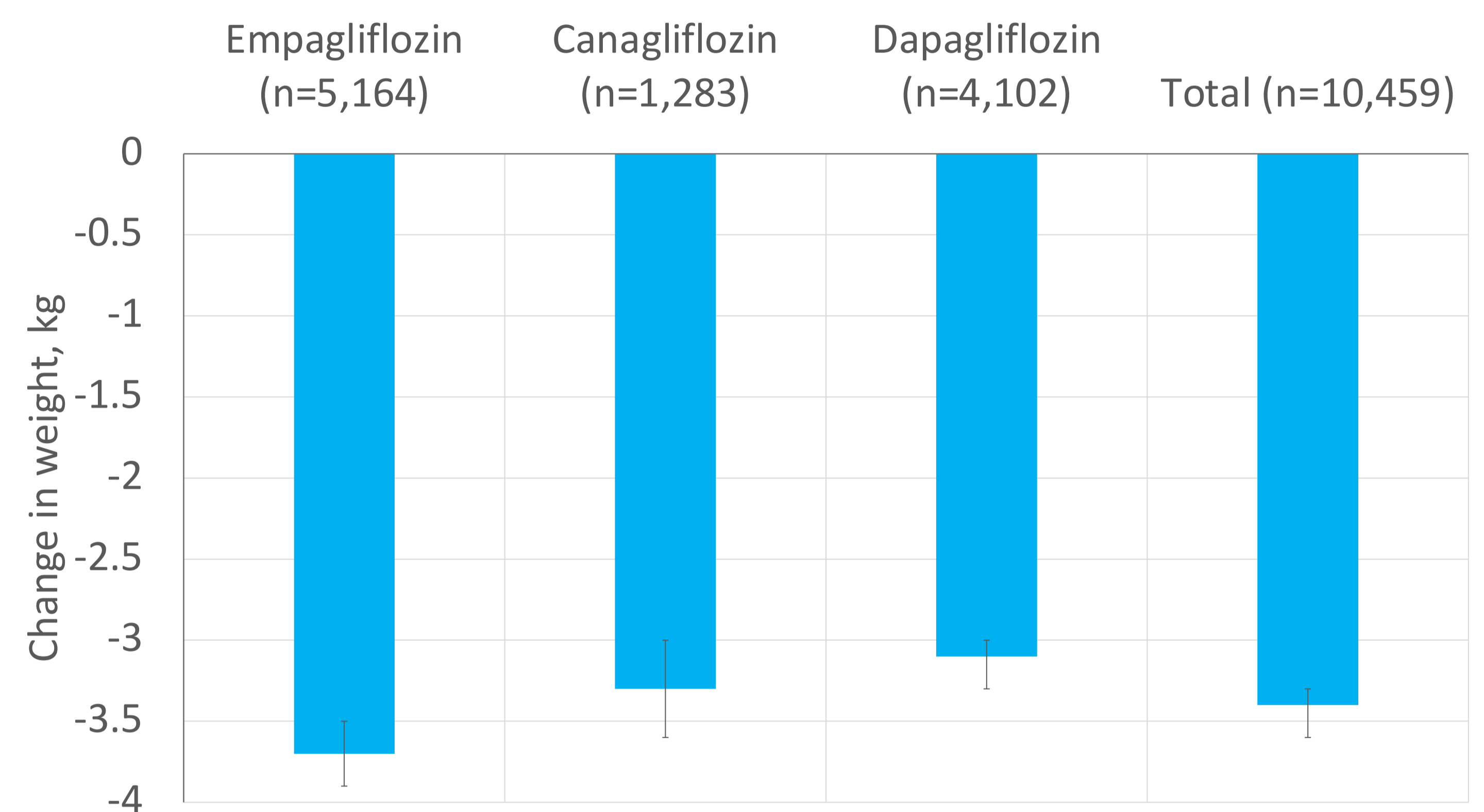
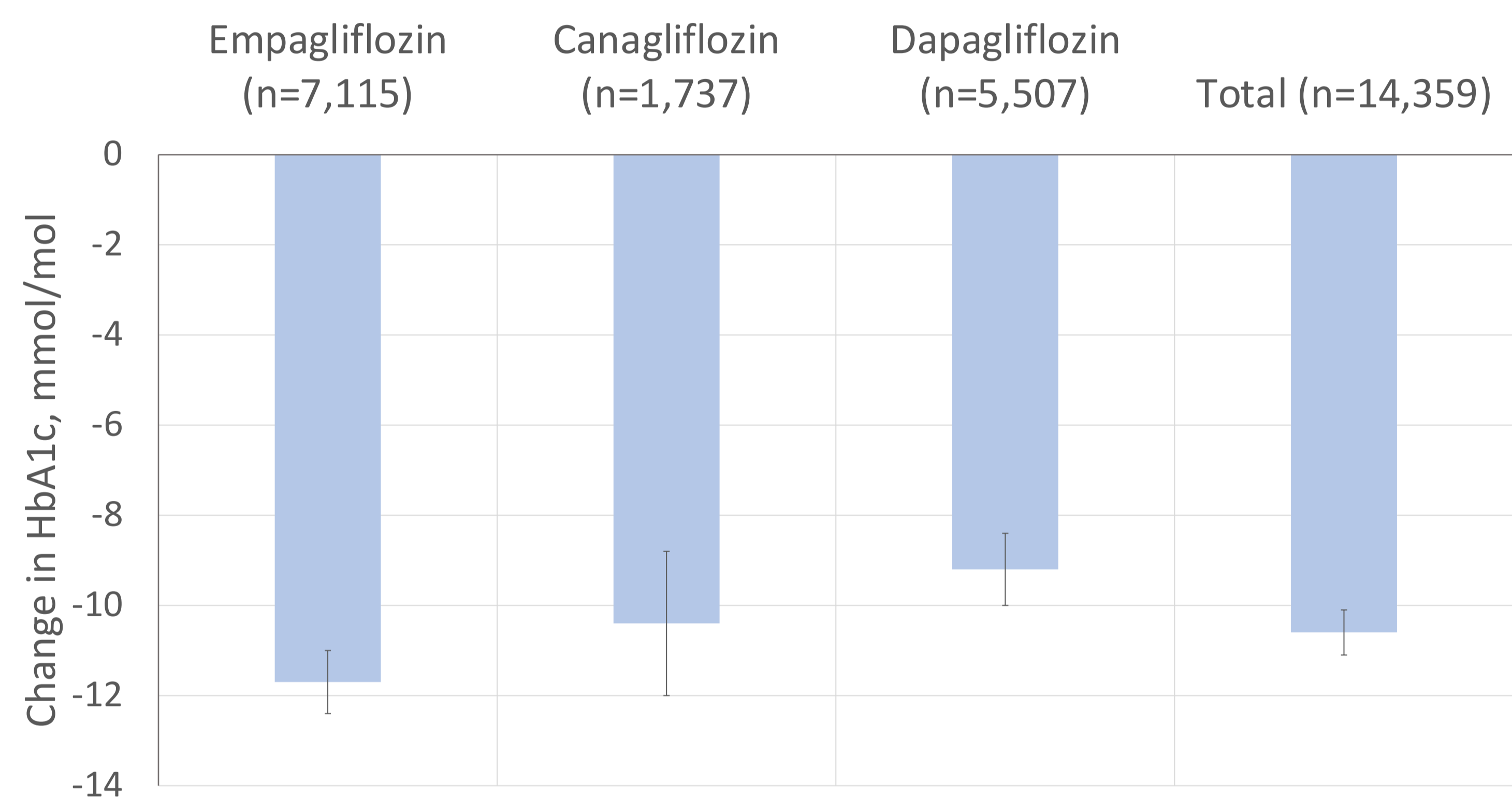


Fig 3. Bar chart showing change in HbA1c following SGLT2i commencement at 6-months across the class and for each drug. P<0.001 for all, error bars showing 95% confidence interval



Conclusion

In this analysis, empagliflozin use was associated with superior HbA1c versus dapagliflozin and canagliflozin, possibly due to superior efficacy. Empagliflozin was associated with superior weight reduction to Dapagliflozin but not Canagliflozin,

Alternatively, differences in the populations at baseline not detected by our works e.g. recent myocardial infarction leading to increased motivation and adherence; different concomitant drugs or the differences in the numbers included in the audit may underpin these findings.

Fig 1. Table showing the baseline characteristics of the entire population included in this analysis and that for each drug group

	Empagliflozin	Canagliflozin	Dapagliflozin	Total
n=	7,404	1,847	5,793	15,044
Age, mean±SD	60.0±10.5	60.6±10.7	60.2±10.3	60.1±10.4
Gender, % male	60.9%	61.5%	59.7%	60.5%
Weight (kg), mean±SD	98.1±21.4	97.6±21.9	98.8±21.8	98.3±21.6
BMI (kg/m ²), mean±SD	34.0±6.7	33.7±6.8	34.3±6.8	34.1±6.7
Diabetes duration (years), median (IQR)	8.3 (4.2-12.8)	8.4 (4.1-12.7)	7.9 (4.1-12)	8.1 (4.1-12.4)
HbA1c (%), mean±SD	9.2±1.6	9.1±1.6	9.1±1.6	9.2±1.6
HbA1c (mmol/mol), mean±SD	77.5±17.2	76.3±17.2	76.0±17.1	76.8±17.2
eGFR (mL/min/1.73m ²), mean±SD	80.8±11.8	78.5±13.0	80.8±12.1	80.5±12.1