



Two year metabolic outcomes in the Association of British Clinical Diabetologist (ABCD) Nationwide Canagliflozin Audit: a comparison of glycaemic improvements

A Puttanna¹, M Yadagiri¹, P Sen Gupta¹, I W Gallen², A Bickerton³, S Phillips⁴, A Evans⁴, D Sennik⁵, R E J Ryder¹ and ABCD nationwide canagliflozin audit contributors⁶

¹ Sandwell and West Birmingham NHS Trust, Birmingham, UK, ² Royal Berkshire Hospitals NHS Trust, Berkshire, UK, ³ Yeovil District Hospital NHS Trust, Yeovil, UK, ⁴ Cheltenham General Hospital, Cheltenham, UK, Princess Alexandra Hospital, Harlow, UK, ⁶ ABCD nationwide canagliflozin audit contributors, UK

Sandwell and West Birmingham Hospitals



Background

The ABCD audits new pharmacotherapies for diabetes across the UK to collect real-world data on their usage, accelerate the understanding of new agents in patients in the UK and ascertain whether experience from clinical usage matches phase 3 trial data. The ABCD nationwide canagliflozin audit was launched in January 2016 to evaluate the efficacy of canagliflozin in a real world setting of clinical use in the United Kingdom (UK).

Aims

To evaluate the metabolic outcomes and assess clinical safety of canagliflozin-treated type 2 diabetes patients in UK.

Methods

The ABCD nationwide audit of canagliflozin in real clinical use in the UK, was launched in January 2016. Anonymised data of patients treated with canagliflozin in the UK was collected by an online password protected questionnaire:

- Patient demographics
- HbA1c, weight, BMI, Systolic BP
- Diabetes medications
- Adverse events

Two year follow up data from 21 centres across the UK on 690 patients treated with canagliflozin. Male 60.2%, mean age (±SD) 58.9 ± 10.9 years, weight 101.3 ± 22.2 kg, BMI 34.0 ± 6.9, HbA1c 76.3 ± 16.3 mmol/mol. Patients with baseline, first and second return. Follow up data were included in the analysis. ABCD members, clinicians in both primary care and secondary care, were emailed to invite them to submit clinical data on their patients treated with canagliflozin.

Those with baseline and follow-up HbA1c within a median (range) of 14.8(10.2-21.0) weeks, after commencing canagliflozin were included. Data at baseline and first follow-up were compared using student's paired t-test. From this data add on to existing medication was further analysed.

Baseline Characteristics

Data Input	Jan 2016 – March 2017
Centres	21
Contributors	40
Number of patients	690

	Mean±SD
Age(years)	58.9±10.9
Duration of Diabetes(years)* *Median(range)	7.0 (2.7-12.0)
Sex[Males(%)]	60.2
Baseline HbA1c(mmol)	76.3±16.3
BMI(Kg/m ²)	34.0± 6.9
Weight(Kg)	101.3±22.2

*Mean HbA1c fell by 9.0±13.4 mmol/mol at first return and 11.1±14.7 mmol/mol at second return (n=297, p<0.001) with 2.1mmol/mol fall between first and second return (p=0.001). Mean weight fell by 2.8±4kg at first return and 4.0±5.4kg at second return (n=242, p<0.001) with 1.3kg fall between first and second return (p<0.001). Mean alanine aminotransferase (ALT) fell by 3.8±23.2 U/L at first return (p<0.031) and 5.6±18U/L at second return (n=177, p<0.001) with 1.8U/L fall between first and second return (p=0.25). Mean systolic blood pressure (SBP) fell by 1.9±15.4mmHg at first return (p=0.035) and 3.7±16.2mmHg at second return (n=285, p<0.001) with 1.8mmHg fall between first and second return (p=0.05). Mean diastolic blood pressure (DBP) fell by 1.0±10.1mmHg at first return (p=0.086) and 2.6±11.1mmHg at second return (n=284, p<0.001) with 1.5mmHg fall between first and second return (p=0.006).

Results

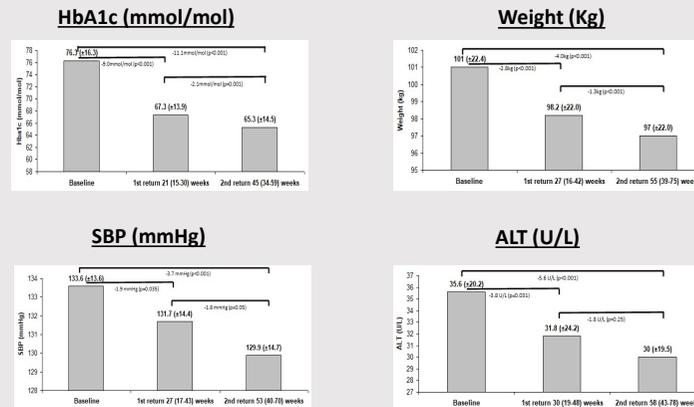
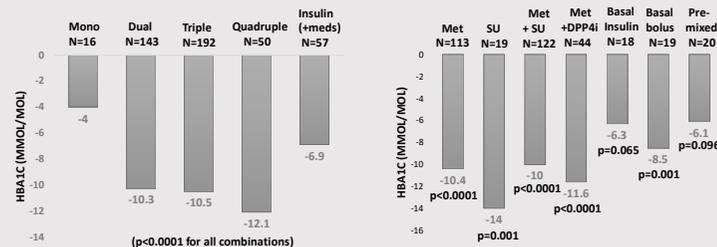


Figure: Mean (±SD) HbA1c (n=297), weight (n=242), ALT (n=177) and systolic blood pressure (n=285), baseline vs first and second return (after median (interquartile range) weeks) to clinic following commencement of canagliflozin.

Figures below: Mean HbA1c (mmol/mol) reduction following add-on canagliflozin to existing combination therapies and specific medications.



Add on therapy

Hba1c (mmol/mol)	Monotherapy	Dual therapy	Triple therapy	Quadruple therapy	Insulin (+ meds)
N	16	143	192	50	57
p value	p=0.268	p<0.0001	p<0.0001	p<0.0001	p<0.0001

Hba1c (mmol/mol)	Metformin (Met)	Sulphonylurea (SU)	Met+ SU	Met+ DPP4i	basal insulin	basal bolus	pre-mixed
N	113	19	122	44	18	19	20
p value	<0.0001	0.001	<0.0001	<0.0001	0.065	0.001	0.096

Discussion

Canagliflozin showed statistically significant and sustained reduction in HbA1c, weight, ALT and systolic blood pressure across a wide range of real-world UK patients with type 2 diabetes. Further benefit was seen between first and second returns with statistically significant reductions in HbA1c, weight, systolic blood pressure and ALT.

Furthermore, addition of canagliflozin to existing regimes showed significant HbA1c reductions in mono, dual, triple, quadruple therapy and add-on to insulin.

Acknowledgement

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