Sandwell and West Birmingham Hospitals NHS
NHS Trust

The Glycaemic Response to Dapagliflozin among Type 2 Diabetes Patients according to Intensity of Background Diabetes Treatment or Duration of Diabetes: the Association of British Clinical Diabetologists Nationwide Dapagliflozin Audit

K.Y. Thong[1], M. Yadagiri[2], P. Sen Gupta[2], P. Winocour[3], M. Joshi[4], J. Wilding[5], J.W. Stephens[6], S.C. Bain[6], A. Robinson[7], I.W. Gallen[8], K. A. Adamson[9], R.E.J. Ryder[2], the ABCD nationwide dapagliflozin audit contributors [10]

(1) Rockingham General Hospital, Rockingham,Australia (2) Sandwell & West Birmingham NHS Trust BirminghamUK (3) East & North Hertfordshire NHS Trust, Welwyn Garden City,UK (4) Guy's and St Thomas NHS Trust London UK (5) Aintree University NHS Trust, Liverpool,UK (6) Abertawe Bro Morgannwg University ,NHS Trust Swansea, UK (7) Royal United Hospital, Bath NHS Trust,Bath, UK (8) Royal Berkshire NHS Foundation Trust, Reading, UK (9)West Lothian NHS Trust , Livingston,UK (10) Various hospitals and health centres, various towns, UK

Introduction

- Treatment with dapagliflozin, a sodium glucose transporter 2 (SGLT2) inhibitor, increases glucosuria and improves glycaemic control in patients with type 2 diabetes.
- This action is independent of beta cell function. Conceptually, dapagliflozin should be equally efficacious among patients with early or advanced diabetes.
- We investigated whether the glycaemic response to dapagliflozin treatment differed according to intensity of background treatment or duration of diabetes diagnosis. We analysed data from a nationwide audit in the UK.

Methods

The ABCD nationwide dapagliflozin audit

- The Association of British Clinical Diabetologists (ABCD) conducted a nationwide audit of the use of dapagliflozin based in real-life clinical practice. Diabetes centres across UK were invited to participate.
- Participating physicians provided anonymised information on demographic data (age, gender, ethnicity, height, weight), duration of diabetes, cardiometabolic parameters (glycaemia, blood pressure, lipids, alanine aminotransferase and creatinine) and treatments prescribed, before and after treatment with dapagliflozin. Information on adverse events were also collected.
- Between October 2014 and December 2015, 57 centres submitted data on 1720 patients started on dapagliflozin in routine practice.

Analysis of outcomes

- Patients were stratified for receipt of none, one, two or three background diabetes drugs (oral therapies or GLP-1 receptor agonists), or insulin (± oral therapies/GLP-1 receptor agonists).
- In a separate analysis, patients were stratified according to diabetes duration of 0-5, 6-10 and >10 years.
- Changes in HbA1c were compared across groups (ANCOVA) using baseline HbA1c and eGFR as covariates.
- The latest HbA1c at 26 weeks, with a minimum of 13 weeks after treatment were used.

Subjects

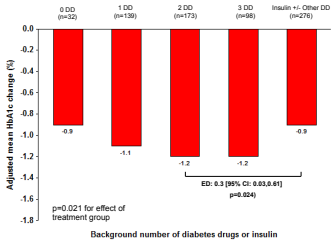
- **Exclusions**
  - Switch from canagliflozin = 3
  - Background 4 diabetes drugs = 23
  - HbA1c <7% = 40
  - No HbA1c data after 13 weeks = 882
  - Insufficient data to calculate eGFR = 54
- 718 patients were analysed according to intensity of diabetes treatments. 612 patients were analysed according to duration of diabetes.

Results

Table 1: Baseline characteristics of 718 patients on dapagliflozin

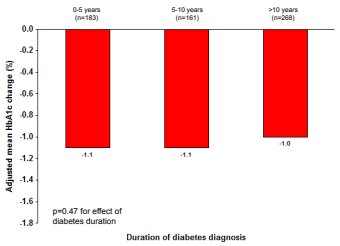
Sex (M:F)	405:313
Age (years)	57.7 ± 10.0
Duration of diabetes (years) (n=612)	9.9 ± 7.4
HbA1c (%)	9.6 ± 1.4
Weight (kg)	102.5 ± 22.4
BMI (kg/m2)	33.4 ± 17.5
On GLP-1 receptor agonist (%)	22.0
On insulin (%)	38.4

Figure 1: Change in HbA1c stratified by background diabetes therapy



Data are adjusted mean and estimated difference (ED) were analysed by ANCOVA with baseline HbA1c and eGFR as covariates.
DD; diabetes drugs

Figure 2: Change in HbA1c stratified by duration of diabetes



Data are adjusted mean analysed by ANCOVA with baseline HbA1c and eGFR as covariates.

No differences in glycaemic reduction were observed between patients on various number of diabetes drugs except comparing patients on two diabetes drugs with patients on insulin.
No differences in glycaemic reduction were observed between patients with short or long diabetes duration

Conclusions

- Patients on different number of background diabetes treatments, or with different duration of disease, all achieve significant glycaemic improvement with dapagliflozin treatment.
- Dapagliflozin should be considered comparably as effective in patients with more advanced type 2 diabetes.

Acknowledgement:

The ABCD Nationwide Dapagliflozin Audit has received a grant from Astra Zeneca. The audit was independently initiated and performed by ABCD, and the authors remained independent with the analysis and writing of this report.