Relationship Between Canagliflozin Treatment Response and Duration of Diabetes: The Association of British Clinical Diabetologists (ABCD) Nationwide Canagliflozin Audit

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INTRODUCTION

- In the ABCD nationwide liraglutide audit[1] the impact of liraglutide on HbA1c was found to lessen with increasing duration of diabetes (abstract 1038-P, ADA 2012)[1]
- Treatment with canagliflozin, a sodium glucose transporter 2 (SGLT2) inhibitor, increases glycosuria and improves glycaemic control in patients with type 2 diabetes.
- This action is independent of beta cell function. Conceptually, canagliflozin should be equally efficacious among patients with early or advanced type 2 diabetes.
- We investigated whether the glycaemic response to canagliflozin duration of diabetes diagnosis. We analysed data from a nationwide audit in UK.

METHODS

- The Association of British Clinical Diabetologists (ABCD) conducted a nationwide audit of the use of canagliflozin 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, cardio-metabolic parameters (glycaemia, blood pressure, lipids, alanine aminotransferase and creatinine) and treatments prescribed, before and after treatment with canagliflozin. Information on adverse events was also collected.
- Between January 2016 and December 2018, data was submitted on 972 patients started on canagliflozin in routine practice.

ANALYSIS OF OUTCOMES

- Patients were stratified according to diabetes duration of 0-5, 6-10 and >10 years.
- Changes in HbA1c were compared across groups (ANOVA).
- The baseline HbA1c and HbA1c at first return to clinic after commencing canagliflozin were used.

Subjects

- Inclusions
  - 604 patients with baseline and follow up HbA1c were analysed
  - 434 patients with duration of diabetes data were analysed
- Exclusions
  - HbA1c <7%
  - No follow up HbA1c data

RESULTS

Table 1: Baseline characteristics of 604 patients on canagliflozin

Data Input	Jan 2016 – Dec 2018
Number of patients	604
Sex (%male)	62
Age (years)	60.3 ± 11.1
Diabetes duration (years)*	6.0 (2.6-11)
HbA1c (%)	9.2 ± 1.5
BMI (kg/m^2)	33.7 ± 6.7

*Median (IQR)

Figure 1: Change in HbA1c at median (IQR) 4.1 (3-6.1) months after starting canagliflozin, stratified by duration of diabetes

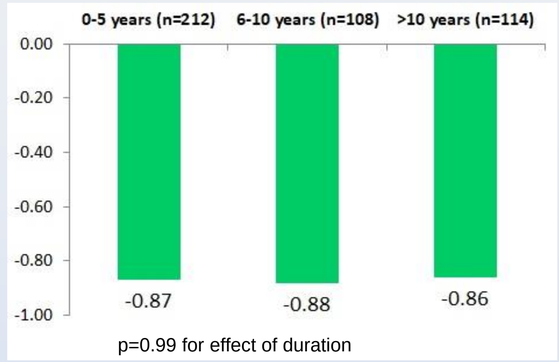
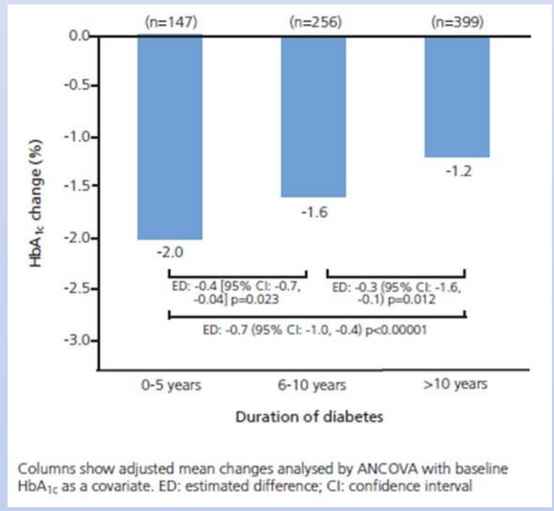


Figure 2: Change in HbA1c at 6 (3-9) months after starting liraglutide, stratified by duration of diabetes (From ABCD nationwide liraglutide audit[1] – see abstract 1038-P, ADA 2012) .



- It can be seen for figure 1 that no differences in glycaemic reduction were observed between patients with short or long diabetes duration
- By contrast it can be seen from figure 2 from the ABCD nationwide liraglutide audit, that glycaemic response to liraglutide decreases with increasing duration of diabetes

CONCLUSION

- There was thus no relationship between duration of diabetes and fall in HbA1c in this audit of canagliflozin in real clinical use in the UK
- Canagliflozin should be considered comparably as effective in patients with all durations of diabetes
- This result contrasts with that from the ABCD nationwide liraglutide audit and is in keeping with the differing modes of action of liraglutide and canagliflozin.

REFERENCE

1. Thong KY et al. Br J Diabetes Vasc Dis 2015; 15(4): 169–172

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