Real world evidence on the prescribing trends in sodium glucose co-transporter 2 inhibitors in UK primary care

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Aim

The sodium glucose co-transporter 2 (SGLT2) inhibitors are a relatively new class of oral diabetes medication. We analyse the current use of this drug class in the real world and compare their clinical characteristics with those of people included in phase 3 trials.

Background

SGLT2 agonists have the dual benefits of improved glycaemic control and weight loss as demonstrated by phase 3 trials. However, there are often important differences in patient characteristics between people included in trials and those using diabetes medication in clinical practice[1].

Methods

A large cohort of people with type 2 diabetes (N=34,278) was identified from the University of Surrey-Lilly Real World Evidence (RWE) centre database, using routinely collected primary care data. Monthly prescription data was extracted from primary care records on the use of SGLT2 inhibitors in this group. We report prescription rates and the characteristics of people prescribed these medications compared with the characteristics of an aggregated population of people included in phase 3 trials.

Results

A small proportion of the cohort (2.2%; n=752) had been initiated on SGLT2 inhibitors since their introduction. Prescribing rates are increasing rapidly; rates in our sample (prescriptions per 10,000 people with type 2 diabetes) increased from 34 in April 2014 to 133 in April 2015 (Figure 1).

People using SGLT2 inhibitors in the real world had similar characteristics to those in clinical trials (Table 1) although there were a lower proportion of women prescribed SGLT2 inhibitors in clinical practice (RWE: 39.9%; clinical trial: 46.2%).

Comparison with the EMPA-REG trial

Only 120 (16.0%) of the RWE cohort had the same cardiovascular risk factors as the population of the EMPA-REG trial[3]. The clinical characteristics of these people were similar to those included in the EMPA-REG trial (Table 2).

	Clinical trial population n (%) or mean (SD)	Real world population n (%) or mean (SD)
Total population	7,121 (100.0)	752 (100.0)
Female	3,291 (46.2)	300 (39.9)
Age (years)	56.4 (9.9)	57.2 (9.9)
BMI (kg/m²)	30.6 (5.2)	34.7 (6.4)

Table 1. Characteristics of SGLT2 inhibitor phase 3 trial participants compared with those using SGLT2s in the real world. List of clinical trials excerpted from a recent review[2].

Key findings

- SGLT2 inhibitors prescribing rates are increasing rapidly.
- SGLT2 inhibitor use in women is low in clinical practice.
- Only 16% of people prescribed SGLT2 inhibitors in clinical practice had the same cardiovascular risk as people included in the EMPA-REG trial.

Conclusion

Whilst the population in which SGLT2 inhibitors are used appears similar to trial populations prescribing rates are low in women. This may be due to concerns regarding increased risk of genitourinary infection.

Caution should be used when applying the finding of the EMPA-REG trial to people in clinical practice. Only 16% of people prescribed SGLT2 inhibitors had the same level of high cardiovascular risk as the participants of EMPA-REG.

	Clinical trial population n (%) or mean (SD)	Real world population* n (%) or mean (SD)
Total population	7,121 (100.0)	120 (100.0)
Female	1,351 (28.8)	32 (26.7)
Age (years)	63.1 (8.6)	62.1 (7.8)
BMI (kg/m²)	30.6 (5.3)	34.2 (6.6)

**Table 2. Characteristics of participants of the EMPA-REG trial compared with those using SGLT2s in the real world. ***Only people with similar cardiovascular risk factors to those in the EMPA-REG trial are included.

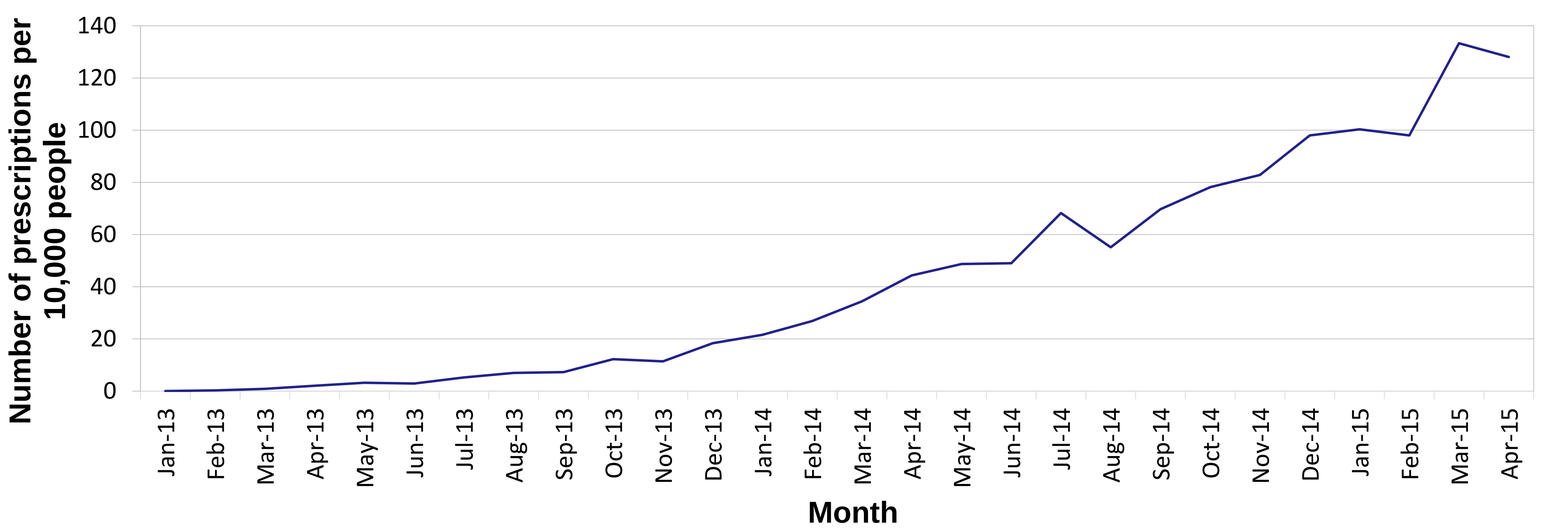

Figure 1. Rates of prescribing for SGLT2 inhibitors dispensed per month in a population of 34,278 people with T2DM. Prescriptions for dapagliflozin, empagliflozin, and canagliflozin are included.

References

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2. Nauck MA. *Update on developments with SGLT2 inhibitors in the management of type 2 diabetes.* Drug Des Devel Ther. 2014; 8: 1335–1380.

3. Zinman B, Wanner C, Lachin JM, Fitchett D, Bluhmki E, Hantel S, et al. Empagliflozin, Cardiovascular Outcomes, and Mortality in Type 2 Diabetes. *New England Journal of Medicine* (373):2117-28.

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