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Clinical outcomes of sodium glucose cotransporter 2 (SGLT2) inhibitor use in a secondary care setting

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Aims: SGLT2 inhibitors are a new class of oral antihyperglycaemic agents used in treating Type 2 diabetes. Few studies have assessed the efficacy and safety of these medications outside the context of clinical trials. We aimed to assess clinical outcomes of SGLT2 inhibitor use and identify factors predicting response.

Method: We conducted a retrospective case note review of all patients with Type 2 diabetes who were initiated on dapagliflozin or canagliflozin within our foundation trust. Primary outcomes were reduction in glycated haemoglobin (HbA1c) and weight. Secondary outcomes were changes in blood pressure (BP), lipid profile, alanine aminotransferase (ALT) and serum creatinine. Reported side effects and discontinuations were noted.

Results: 62 patients met the study criteria (49 on dapagliflozin, 13 on canagliflozin). HbA1c and weight were significantly reduced by 11.06 mmol/l ($p = 0.0002$) and 2.89 kg ($p < 0.0002$) respectively. There were no significant changes in BP, lipid profile, ALT or serum creatinine. Higher baseline HbA1c was associated with greater reduction in HbA1c ($p = 0.00002$), independent of age, body mass index and duration of diabetes. There were no clinical predictors of weight loss. 65.5% of patients achieved both HbA1c and weight reduction. In addition, 45.2% of patients were able to stop or decrease the dose of other diabetes medications. 14.3% of patients discontinued SGLT2 inhibitors, with a third stopping treatment due to side effects.

Conclusions: SGLT2 inhibitors effectively reduce HbA1c and weight and are generally well tolerated. Additionally, the potential cost reduction from stopping other agents could prove attractive in the long-term management of Type 2 diabetes.

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Real-world evidence on the prescribing trends of glucagon-like peptide-1 agonists in UK primary care

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Aims: The use of glucagon-like peptide-1 (GLP-1) agonists in Type 2 diabetes is increasing. We present a description of their current use and prescribing trends in UK primary care.

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 were extracted from primary care records on the use of GLP-1 agonists in this group. We report prescription numbers over time and the demographics of people prescribed these medications compared to those of phase 3 trial populations.

Results: Prescribing rates of GLP-1 agonists in primary care have been consistently climbing since 2008. Rates in our sample were found to be increasing by 36.7 prescriptions per 10,000 people with Type 2 diabetes per year. 1,776 people (5.2%) had been prescribed GLP-1 agonists of whom 53.8% were male (51.1% male in aggregated clinical trials). The mean age of those prescribed GLP-1 agonists was 58.0 (SD 10.7) years (trials aggregate 57.1; SD 9.4 years). The mean body mass index (BMI) of 37.5 (SD 6.5)kg/m^2 was significantly higher than in trials (31.8; SD 5.3 kg/m^2, $p < 0.001$). The proportion of people prescribed GLP-1 agonists was highest in areas of lowest deprivation (upper quintile 6.3%, 95% confidence interval 5.8–6.8%; lower quintile 4.5%; 95% confidence interval 4.1–5.0%).

Conclusions: GLP-1 agonists are used in practice in a population with a higher BMI than in trials. Further RWE is needed to ensure clinical effectiveness in this high BMI population.

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Real-world evidence on prescribing trends in sodium glucose cotransporter 2 inhibitors in UK primary care

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Aims: The sodium glucose cotransporter 2 (SGLT2) inhibitors are a new class of oral diabetes medication. Prescribing of these agents was initially limited to secondary care but is now moving into primary care. We analyse the current use of this drug class in primary care.

Methods: A 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 were extracted 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 all identified 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. The mean age and body mass index (BMI) of people prescribed SGLT2 inhibitors were 57.2 (SD 9.9) years and 34.7 (SD 6.4)kg/m^2 respectively. This is comparable to aggregate SGLT2 trial means of 56.4 (SD 9.9) years and 30.6 (SD 5.2)kg/m^2. A lower proportion of SGLT2 inhibitors were prescribed to women (39.9%) than in trials (46.2%).

Conclusions: 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.

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SGLT2 inhibitor and GLP-1 analogue combination therapy in Type 2 diabetes

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Aims: Limited clinical experience is available relating to the efficacy of adding an SGLT2 inhibitor to GLP-1 analogue therapy. Both agents have independent modes of action and are associated with improvements in glycaemic control and weight. Our aim was to determine the effect of combination therapy of dapagliflozin and GLP-1 analogues in relation to glycaemic control and weight in Type 2 diabetes.