Are the new drugs better? Changing UK prescribing of Type 2 diabetes medications and effects on HbA1c and weight, 2010-2016

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Aim

The availability of new glucose-lowering drugs has changed UK NICE Type 2 diabetes guidelines, but there has been little evaluation of real-world use of these drugs, or of the population-level impact of their use. We examined changes in UK prescribing for patients starting second and third-line ($2^{nd}/3^{rd}$-line) medications, and population-level trends in glycaemic response and weight change.

Methods

We extracted incident $2^{nd}/3^{rd}$-line oral prescription records for patients with Type 2 diabetes in the UK-representative Clinical Practice Research Datalink(CPRD), 2010-2016 (n=68,902). Each year we calculated the proportion of each drug prescribed as the percentage of the total prescribed. We estimated annual mean 6 month HbA1c response and weight change using linear regression, standardised for clinical characteristics.

Results

Use of DPP4-inhibitors has increased markedly to overtake sulfonylureas as the most commonly prescribed second-line drug (43% vs 34% of total prescriptions in 2016 compared with 18% v 59% in 2010). Use of SGLT2-inhibitors has increased rapidly to 14% of second-line and 27% of third-line prescriptions in 2016. Mean HbA1c response at 6 months was stable over time (2016: 13.5(95%CI 12.8;14.1)mmol/mol vs 2010: 13.9(13.6;14.2)mmol/mol, p=0.21). We found mean weight loss at 6 months in 2016, in contrast to 2010 where there was mean weight gain (2016: -1.2(-0.9;-1.5)kg vs 2010: +0.4(+0.3;+0.5)kg, p<0.001).

Conclusion

The pattern of drug prescribing to manage patients with Type 2 diabetes has changed rapidly in the UK. Increasing use of DPP4 inhibitors and SGLT2 inhibitors has not resulted in improved glycaemic control but has improved the body weight of patients starting $2^{nd}/3^{rd}$-line therapy.