Disparities in the prescribing of DPP-4 inhibitors, SGLT2 inhibitors, and GLP-1 analogues in UK primary care

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Aim

People with lower socioeconomic status (SES) and ethnic minority groups have worse glycaemic control and a higher incidence of diabetes complications. We evaluated the use of newer diabetes therapies (DPP-4 inhibitors, SGLT2 inhibitors, and GLP-1 analogues) across SES and ethnic groups to identify any disparities in use which may be contributing to ongoing outcome disparities.

Background

Racial and socioeconomic factors have a major influence on the development of diabetes, the progression of diabetes, and development of complications. It is currently unclear if disparities in healthcare provision are a contributing factor to these differences.

Healthcare provision disparities have been identified in other areas of chronic disease with ethnic minorities experiencing lower prescribing rates of analgaesia in chronic pain,[1] beta blockers after myocardial infarction,[2] and antipsychotic therapy for schizophrenia.[3]

As part of an ongoing project series[4] we have previously identified substantial ethnic disparities in medication persistence in type 2 diabetes; ethnic minorities have substantially shorter persistence with oral medications[5] and we coincidentally identified some prescribing disparities. We present early data from an extended analysis into potential prescribing disparities in type 2 diabetes. We analysed prescribing rates for the three newest classes of diabetes medications; DPP-4 inhibitors, SGLT2 inhibitors, and GLP-1 analogues.

Methods

A cohort of people with Type 2 diabetes (N=60,327) was identified from the University of Surrey-Lilly Real World Evidence database, using routinely collected primary care data. The number of people initiated on new therapies over a 12 month period (2015) was analysed. The impact of SES and ethnicity on propensity to prescribe was investigated using logistic regression adjusting for potential confounders (age, gender, glycaemic control, duration of diabetes, number of previous therapies, renal function, and body mass index).

Results

We identified 2,599 people initiated on DPP-4 inhibitors, 1,118 on SGLT2 inhibitors, and 556 on GLP-1 analogues. After adjusting for confounders there were no differences in prescribing by SES.

Crude prescribing rates for the three newest classes varied considerably by ethnicity (Figures 1-3). Compared to those of White ethnicity, there was reduced propensity to prescribe SGLT2 inhibitors to those of Black (OR 0.48; 95% CI 0.32-0.71; p<0.001) or Asian ethnicity (OR 0.61; 0.48-0.78; p<0.001), and there was reduced propensity to prescribe GLP-1 analogues to those of Asian ethnicity (OR 0.53; 0.35-0.81; p=0.003). No significant difference in prescribing propensity was found with DPP-4 inhibitors (Table 1).

Conclusion

There was no association between prescribing newer medications and SES. However, we found a strong interaction between ethnic group and propensity to prescribe newer therapies.

Key points

- SGLT2 inhibitor use is lower in Black and Asian people than White
- GLP-1 analogue use is lower in Asian people
- DPP-4 inhibitor use is not influenced by ethnicity
- Further work is needed to identify any social or cultural factors underlying these disparities

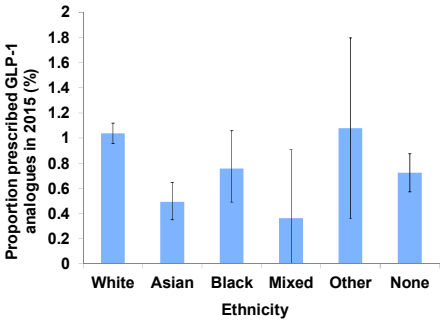

Figure 3. Crude proportion of people who were prescribed a GLP-1 analogue during 2015 by ethnicity.

	DPP-4 inhibitors		SGLT2 inhibitors		GLP-1 analogues	
Ethnicity	**OR (95% CI)**	**p value**	**OR (95% CI)**	**p value**	**OR (95% CI)**	**p value**
White	Reference	-	Reference	-	Reference	-
Asian	1.10 (0.96-1.27)	0.154	0.61 (0.48-0.78)	<0.001	0.53 (0.43-0.66)	0.003
Black	0.86 (0.69-1.07)	0.172	0.48 (0.32-0.71)	<0.001	0.86 (0.67-1.10)	0.533
Mixed	1.02 (0.65-1.59)	0.936	0.55 (0.22-1.36)	0.197	0.26 (0.09-0.70)	0.175
Other	1.55 (1.09-2.21)	0.015	0.84 (0.44-1.58)	0.586	1.10 (0.71-1.69)	0.830
Not recorded	1.18 (1.04-1.33)	0.008	1.24 (1.03-1.49)	0.025	0.84 (0.73-0.98)	0.246

Table 1. Odds ratios for medication prescription in 2015 by ethnicity. Adjusted for age, gender, glycaemic control, duration of diabetes, number of previous therapies, renal function, and body mass index.

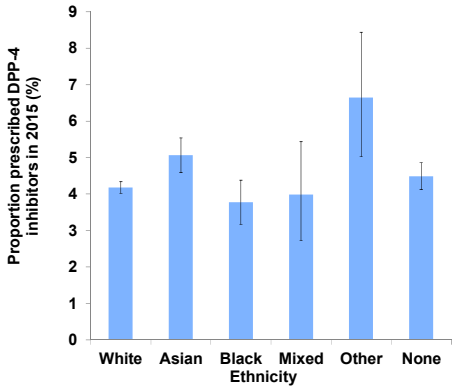

Figure 1. The crude proportion of people who were prescribed a DPP-4 inhibitor during 2015 by ethnicity. Ethnicity groups are based on UK census categories and are self-defined i.e. defined by the patient.

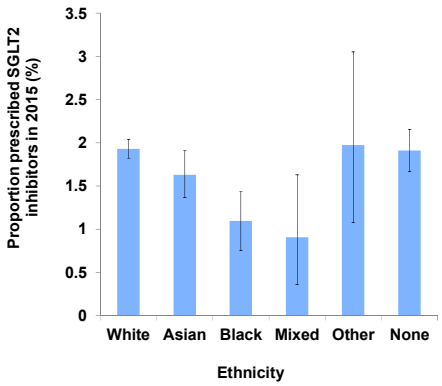

Figure 2. Crude proportion of people who were prescribed a SGLT2 inhibitor during 2015 by ethnicity.

References

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