Socioeconomic position and initiation of SGLT-2 inhibitors or GLP-1 receptor agonists in patients with type 2 diabetes – a Danish nationwide observational study

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Background: Between 2015 and 2017, Sodium-glucose cotransporter-2 (SGLT-2) inhibitors and glucacon-like-peptide-1 receptor agonists (GLP-1 RA) were shown to reduce cardiovascular events in patients with type 2 diabetes and cardiovascular disease. Thus, in 2018, guidelines were updated to favor these drugs in patients with cardiovascular disease and type 2 diabetes. Lower socioeconomic position may adversely affect use of SGLT-2 inhibitors and GLP-1 RA.

Purpose: We aimed to examine socioeconomic differences in initiation of SGLT-2 inhibitors and GLP-1 RA in a contemporary population of patients with type 2 diabetes.

Methods: Through the Danish nationwide registers, we identified all patients with type 2 diabetes who initiated second-line add-on therapy after metformin monotherapy between December 10, 2012, and December 31, 2018. Patients aged 40–79 years and without a history of end-stage renal disease were included. We measured socioeconomic position according to level of income: Low = 1st quartile; Middle = 2nd and 3rd quartile; High = 4th quartile. Based on multivariable logistic regression models adjusted for age, sex, cohabitation status, duration of type 2 diabetes, comorbidities, and cardiovascular medications, we reported the standardised probabilities of initiating each drug class at time of first intensification according to income group and time period: 2012–2014, 2015–2017, and 2018.

Results: The 33,201 patients had a median age of 63 years (interquartile range 53–69). The probability of initiating a SGLT-2 inhibitor or a GLP-1 RA increased over time in all income-groups. In each time period, the standardised probability of initiating a SGLT-2 inhibitor or a GLP-1 RA at time of first intensification increased with increasing income (Figure): in 2012–2014, from 9.6% (95% confidence interval (CI) 8.4–10.9) in the lowest income group to 14.4% (CI 12.9–15.9) in the highest income group; in 2015–2017, from 19.5% (CI 18.3–20.7) to 24.6% (CI 23.3–25.9); in 2018, from 39.9% (CI 37.5–42.3) to 50.7% (CI 48.2–53.1). The absolute difference between high and low income groups increased over time, reaching 10.8% (CI 7.3–14.3) in 2018. A similar trend was observed in both subgroups of patients with and without established cardiovascular disease (data not shown). Initiation of a dipeptidyl peptidase-4 (DPP-4) inhibitor increased with income in the early time periods, but this trend reversed in 2018 (Figure). Initiation of sulfonylureas (SU) showed a consistent inverse association with income in each time period.

Conclusions: Low socioeconomic position was consistently associated with a lower probability of initiation of a GLP-1 RA or a SLGT-2 inhibitor at time of first intensification of antidiabetic treatment, even after guidelines recommended these drugs to patients with established cardiovascular disease. These disparities may adversely affect cardiovascular outcomes in patients with low socioeconomic position.

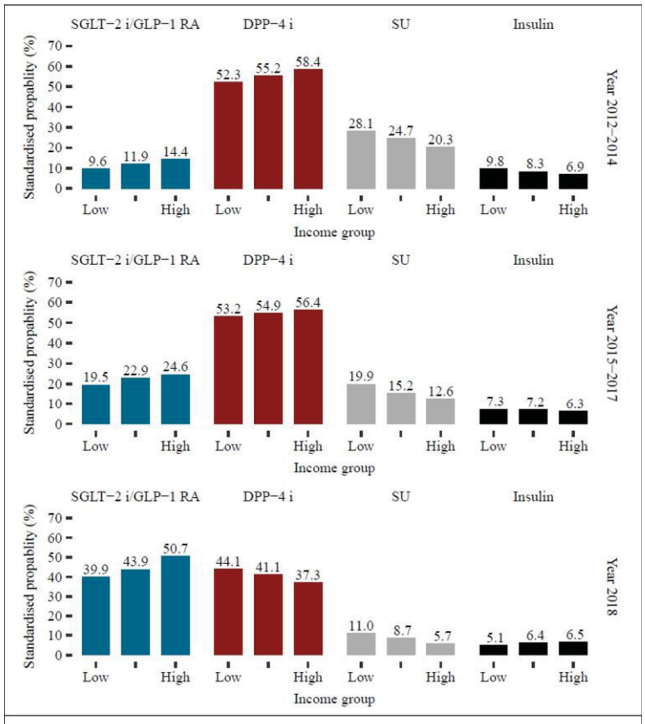

Figure. Standardised probability of initiating different classes of glucose-lowering drugs as second-line add-on therapy, at time of first intensification, according to income group and calendar year.
Standardised to the distribution of age, sex, cohabitation status, duration of type 2 diabetes, region of residence, comorbidities, and cardiovascular medication according to income group.