Clinical Effectiveness and Cost-Analysis of New Oral Antidiabetics in a Cohort of Type 2 Diabetic Patients from a Cardiovascular Risk Program in Colombia

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Eduar Echeverri [1], Álvaro J Ruiz [2], Martín Rondón [2], Santiago Echeverri [3], Diego Rosselli [2]

[1] Pontificia Universidad Javeriana, Cali, Colombia, [2] Pontificia Universidad Javeriana, Bogota, Colombia, [3] Science Po, Paris, France.

Objectives

Between 2015 and 2019, a private health insurer in Colombia started using two new groups of oral antidiabetics: iDPP4 (sitagliptin, vildagliptin, saxagliptin, linagliptin) or iSGLT2 (dapagliflozin, canagliflozin and empagliflozin). The objective was to analyze clinical outcomes and costs of patients in the year before and after the new medication was introduced.

Methods

All adult patients (18 years of age or older) who were prescribed any of the drugs of interest, had information of the year prior to initiation and had a follow-up of at least a year after prescription were included. Clinical variables (glycated hemoglobin, severe side effects, hospitalizations) were obtained from electronic medical records. Direct medical costs from a third-party payer perspective (the health insurer) were converted from Colombian pesos (COP) to US dollars (USD) at official exchange rate for 2018 (1 USD = 2,957 COP).

Results

Of a total of 46,618 type 2 adult diabetic patients, 18,323 fulfilled inclusion criteria. All antidiabetics were effective: the median decrease in glycated hemoglobin was 1.05 for iSGLT2, and 0.81 for iDPP4. The proportion of patients that accomplished ≤7.0 HbA1c also improved, from 14.0% to 36.2% for iSGLT2, and from 17.0% to 38.5% for iDPP4. There was no difference in mortality rate between both groups. The annual weighted cost to decrease glycated hemoglobin by 1% was USD 422 for iSGLT2, and USD 330 for iDPP4. In the iSGLT2 group there was a reduction in hospitalization rates (number needed to treat - NNT: 44) and in the incidence of coronary heart disease (NNT: 46). In the iDPP4 group NNTs were larger for hospitalization (NNT: 178) but showed a decreased incidence of acute renal failure (NNT: 631).

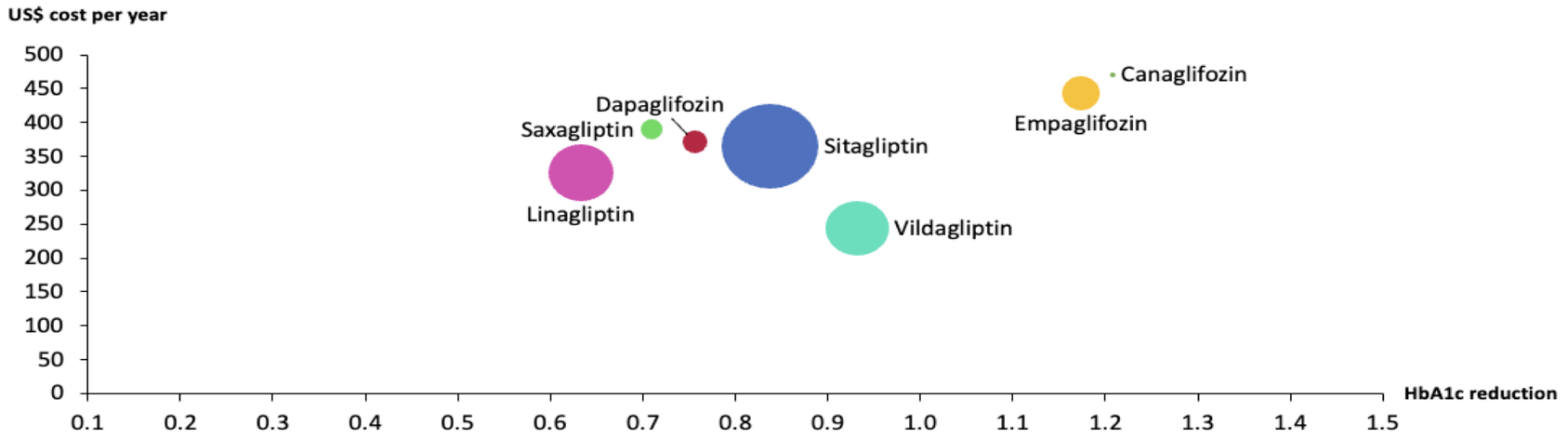

Figure 1. Average clinical effectiveness and cost weighted by antidiabetic

Antidiabetic	n	Age mean (sd)	Glycosylated hemoglobin (%)	Basal Glycemia (mg/dl)	Body mass index (Kg/m2)	Systolic blood pressure (mmhg)	Diastolic blood pressure (mmhg)	Total cholesterol (mg/dl)	HDL cholesterol (mg/dl)	Triglycerides (mg/dl)	Creatinine (mg/dl)
Linagliptin	3808	66.4 (13.1)	8.3 (1.8)	165.5 (73.6)	28.1 (4.8)	123.8 (15.7)	74.3 (9.2)	178.3 (52.8)	43.1 (12)	202.6 (145)	1.3 (1.0)
Sitagliptin	8555	60.4 (12.0)	8.7 (2.0)	179.3 (73.2	28.6 (4.8)	123 (14.5)	76.1 (8.6)	186.1 (53.7)	43.5 (11.7)	206.8 (155.2)	0.9 (0.3
Vildagliptin	3577	60 (12.2)	8.9 (1.9)	185.9 (77.7)	28.6 (4.9)	123.2 (13.4)	76 (8.7)	186.7 (55.0)	42.9 (11.7)	213.3 (158)	0.9 (0.5)
Canaglifozin	473	60.7 (12.0)	8.6 (2.0)	174.5 (74.8)	28.3 (4.6)	125 (14.4)	75.4 (8.7)	187.1 (48.3)	41.5 (11.1)	235.7 (211.7)	1.0 (0.5)
Empaglifozin	1312	58.8 (11.0)	9.0 (2.0)	182.6 (79.4)	30.9 (5.6)	123.8 (14.0)	75.6 (8.9)	179 (54.2)	40.5 (10.3)	217.6 (141.5)	0.9 (0.3)
Dapaglifozin	572	55.4 (11.4)	8.8 (2.0)	176 (70.6)	31.1 (5.2)	123.7 /12.8)	75.6 (8.4)	188 (59.9)	41.6 (10.5)	230.4 (177.9)	0.9 (0.3)
Canaglifozin	26	56.2 (8.8)	9.9 (2.0)	183 (69.8)	31.1 (4.6)	124.9 (10.8)	76.5 (8.3)	204.5 (76.6)	41.1 (11.0)	297.6 (266)	0.9 (0.3)

mean (sd)

Table 1. Clinical baseline characteristics of the cohort

Conclusions

Both pharmacological groups were effective, with no significant increase in side effects. Clinical results in this cohort are consistent with those published in clinical trials and meta-analyses.

More information:

drosselli@javeriana.edu.co
diego.rosselli@gmail.com
echeverri.eduar@javeriana.edu.co

@darosselli