DIABETES COLLABORATIVE REGISTRY®

Assessing the Personalization of Glycemic Management Strategies through the Diabetes Collaborative Registry (DCR)

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BACKGROUND

- The management of hyperglycemia in patients with type 2 diabetes mellitus (T2D) has become increasingly complicated with the introduction of several novel medications with different mechanisms of action and side effect profiles
- Practice guidelines stress individualization of glucose management in patients with type 2 diabetes (T2D)
- We used data from the Diabetes Collaborative Registry (DCR) to understand how often personalization occurs
- DCR is a US-based outpatient registry of patients with diabetes or prediabetes seen in cardiology, endocrinology, and primary care practices and currently encompasses 374 practices and 5114 providers

METHODS

- **Study Population:**
  157,551 patients with T2D who were prescribed at least 1 medication for glycemic control
- T2D medications were grouped as those which are suboptimal for patients with
  1. obesity: insulin, sulfonylurea, TZD
  2. elderly (i.e., high hypoglycemia risk): insulin, sulfonylurea
  3. advanced chronic kidney disease (CKD): metformin, sulfonylurea
  4. coronary artery disease: sulfonylurea
- We examined patient factors associated with use of these groups of meds using 4 hierarchical modified Poisson models, adjusting for HbA1c, number of T2D medications, and insurance
- The most recent visit for each patient was used for analysis

Figure: Use of T2D Medications in DCR

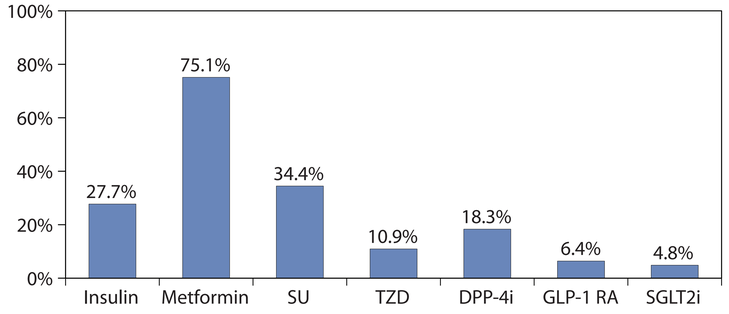

Table: Use of T2D Medications by Patient Characteristics

	Insulin	Metformin	SU	TZD	DPP-4i	GLP-1 RA	SGLT2i
Age (years)							
<65	28.8%	81.0%	27.9%	9.2%	18.2%	9.4%	8.3%
65 to <75	28.2%	77.1%	34.7%	11.6%	18.4%	6.7%	4.0%
≥75	25.8%	66.1%	41.6%	12.0%	18.2%	2.7%	1.6%
p-value	<0.001	<0.001	<0.001	<0.001	0.924	<0.001	<0.001
Body Mass Index (kg/m²)							
<30	23.7%	73.6%	34.9%	9.4%	19.4%	3.5%	3.8%
30 to <40	30.1%	75.4%	34.5%	10.6%	19.2%	7.8%	5.4%
≥40	37.3%	73.2%	32.3%	11.6%	17.0%	11.2%	5.6%
p-value	<0.001	0.095	<0.001	<0.001	<0.001	<0.001	<0.001
Estimated GFR (mL/min per 1.73 m²)							
<30	62.5%	26.8%	43.4%	12.5%	20.0%	5.2%	0.7%
30 to <60	36.5%	61.8%	42.8%	13.1%	21.8%	6.6%	3.2%
≥60	24.5%	82.3%	31.1%	10.3%	18.3%	6.8%	5.7%
p-value	<0.001	<0.001	<0.001	<0.001	<0.001	0.008	<0.001
Coronary Artery Disease							
Yes	32.2%	37.7%	71.6%	11.4%	18.6%	5.9%	4.0%
No	21.9%	30.1%	79.6%	10.3%	17.9%	7.2%	5.8%
p-value	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001

RESULTS

- Mean age 68, 57% men, 85% white, mean HbA1c 7.7%, mean # of T2D medications 1.9
- Multivariable models that accounted for glycemic control and other factors:
  - **Older Age:** ↑ prescription with a higher risk of hypoglycemia
    - RR per 5 years: 1.04, 95% CI 1.04-1.05
  - **Obesity:** ↑ prescription with a higher risk of weight gain
    - Obesity I/II: RR 1.02, 95% CI 1.00-1.03
    - Obesity III: RR 1.09, 95% CI 1.07-1.11
  - **Advanced CKD:** ↓ prescription with renal risk
    - CKD 4/5: RR 0.74, 95% CI 0.71-0.77
  - **CAD:** no association with prescription with risk of harm
    - RR 0.99, 95% CI 0.96-1.01

CONCLUSIONS

- In a large US-based outpatient registry, we found that providers appear to be considering some patient factors in their decisions choosing medications for hyperglycemia—mainly in their consideration of advanced renal disease
- However, other factors that should impact treatment decisions—age, obesity, and CAD—did not appear to influence these choices of medications
- In an era of increasing number and complexity of medication choices with varying risk/benefits, these decisions are clearly complicated, and decision-support tools may be useful for improvement in pharmacologic personalization in order to maximize patient outcomes

DISCLOSURES

- This research was supported by the American College of Cardiology Foundation. Additional organizations partner with ACCF on the DCR. The views expressed in this abstract represent those of the author(s), and do not necessarily represent the official views of the ACCF or its partnering organizations
- For more information go to www.thediabetesregistry.org
- The registry is sponsored by AstraZeneca (Founding Sponsor) and Boehringer Ingelheim Pharmaceuticals, Inc.