Take CaRe of Me Programme:

Gaps in Early Diagnosis of Cardiorenal Complications Among Individuals With Type 2 Diabetes


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Nearly half of people with T2D have cardio-renal-metabolic complications (CAD: 32% and CKD: 20%) — which are associated with increased risk of mortality. However, there are gaps in early identification and prevention of cardiorenal complications in T2D.

Major guidelines including the ADA, ESC and KDIGO emphasise the need for early screening of cardiorenal complications, followed by timely initiation of SGLT2i or GLP-1RA in patients with high-risk factors or established ASCVD, CKD, or HF, independent of baseline HbA1c.

'Take CaRe of Me', a subset of DISCOVER CaReMe Registry, evaluated the real-world burden, screening implementation and treatment patterns of cardiorenal complications among individuals with T2D in primary care settings in emerging countries.

ADA, American Diabetes Association; ASCVD, atherosclerotic cardiovascular disease; CAD, coronary artery disease; CKD, chronic kidney disease; EASD, European Association for the Study of Diabetes; EML, List of Essential Medicines; ESC, European Society of Cardiology; GLP-1-RA, glucagon-like peptide-1 receptor agonist; HbA1c, glycated haemoglobin; HF, heart failure; KDIGO, Kidney Disease: Improving Global Outcomes; SGLT2i, sodium-glucose cotransporter 2 inhibitor; T2D, Type 2 diabetes

Study Design

**Take CaRe of Me program:** An ongoing, international, prospective study for diagnosis and management of early cardiorenal complications in T2D

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### Identification of high/very high-risk individuals

**European Society of Cardiology (ESC) 2019 Cardiovascular risk categories**

<table>
<thead>
<tr>
<th>Classification</th>
<th>Criteria</th>
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<tbody>
<tr>
<td><strong>Very-high-risk</strong></td>
<td>People with any of the following: Documented ASCVD, either clinical or unequivocal on imaging. Documented ASCVD includes previous ACS (MI or unstable angina), stable angina, coronary revascularization (PCI, CABG, and other arterial revascularization procedures), stroke and TIA, and peripheral arterial disease. Unequivocally documented ASCVD on imaging includes those findings that are known to be predictive of clinical events, such as significant plaque on coronary angiography or CT scan (multivessel coronary disease with two major epicardial arteries having &gt;50% stenosis), or on carotid ultrasound. DM with target organ damage, or at least three major risk factors, or early onset of T1DM of long duration (&gt;20 years). Severe CKD (eGFR &lt;30 mL/min/1.73 m²). A calculated SCORE ≥10% for 10-year risk of fatal CVD. FH with ASCVD or with another major risk factor.</td>
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<td><strong>High-risk</strong></td>
<td>People with: Markedly elevated single risk factors, in particular TC &gt;8 mmol/L (&gt;310 mg/dL), LDL-C &gt;4.9 mmol/L (&gt;190 mg/dL), or BP &gt;180/110 mmHg. Patients with FH without other major risk factors. Patients with DM without target organ damage, with DM duration ≥10 years or another additional risk factor. Moderate CKD (eGFR 30-59 mL/min/1.73 m²). A calculated SCORE ≥5% and &lt;10% for 10-year risk of fatal CVD.</td>
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<td><strong>Moderate</strong></td>
<td>People with: Documented ASCVD, either clinical or unequivocal on imaging. Documented ASCVD includes previous ACS (MI or unstable angina), stable angina, coronary revascularization (PCI, CABG, and other arterial revascularization procedures), stroke and TIA, and peripheral arterial disease. Unequivocally documented ASCVD on imaging includes those findings that are known to be predictive of clinical events, such as significant plaque on coronary angiography or CT scan (multivessel coronary disease with two major epicardial arteries having &gt;50% stenosis), or on carotid ultrasound. DM with target organ damage, or at least three major risk factors, or early onset of T1DM of long duration (&gt;20 years). Severe CKD (eGFR &lt;30 mL/min/1.73 m²). A calculated SCORE ≥10% for 10-year risk of fatal CVD. FH with ASCVD or with another major risk factor.</td>
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**ASCVD,** atherosclerotic cardiovascular disease; **CABG,** coronary artery bypass graft; **CKD,** Chronic kidney disease; **CT,** Computed tomography; eGFR, estimated glomerular filtration rate; **FH,** Familial hypercholesterolaemia; **HCP,** Health care professional; **LDL-C,** low density lipoprotein-cholesterol; **PCI,** Percutaneous coronary intervention; **T2D,** Type 2 diabetes; **T1DM,** Type 1 diabetes; **TC,** Total Cholesterol; TIA, transient ischemic attack

Results

We present preliminary results of 4686 patients enrolled from Dec 2020 to May 2021 from six emerging countries

<table>
<thead>
<tr>
<th>Country</th>
<th>Demographic profile</th>
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<tbody>
<tr>
<td>Argentina</td>
<td>Mean age (±SD) 55.7±11.3 years</td>
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<tr>
<td>Egypt</td>
<td>Male gender 46.2%</td>
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<tr>
<td>India</td>
<td></td>
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<tr>
<td>Malaysia</td>
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<td>Mexico</td>
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<td>Philippines</td>
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Target for final analysis: 12000
Results: Baseline Clinical Characteristics

**Diabetes related**
- Mean (±SD) T2D duration: 8.4±7.2 years
- Patients with T2D duration <5 years: 40.1%
- Mean (±SD) HbA1c: 8.3±3.0%
- Patients having HbA1c >7%: 66.3%

**Based on Echocardiography**
- Left ventricular hypertrophy: 20.6%
- Left atrial enlargement: 16.5%
- Diastolic dysfunction: 8.9%
- Valvular diseases: 8.6%

5% had HFP EF and none had HFrEF

T2D, Type 2 diabetes; HbA1c, glycated haemoglobin; SD, standard deviation; HFrEF, Heart Failure With Reduced Ejection Fraction; HFP EF, Heart failure with preserved ejection fraction
Baseline: Cardiorenal Complications

- Mean (±SD) eGFR of the cohort: 94.6±23.2 mL/min/1.73m² (N=479);
  Mean (±SD) UACR: 62.9±181.9 mg/g (N=3869)
- High/very high CV risk as per ESC 2019: 37.0%
- High renal risk (UACR >30mg/g): 32.7%

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<tr>
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<th>Overall</th>
<th>Argentina</th>
<th>Egypt</th>
<th>India</th>
<th>Malaysia</th>
<th>Mexico</th>
<th>Philippines</th>
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<tr>
<td><strong>UACR (mg/g)*, n (%)</strong></td>
<td>N=3869</td>
<td>N=339</td>
<td>N=157</td>
<td>N=1509</td>
<td>N=29</td>
<td>N=1561</td>
<td>N=274</td>
</tr>
<tr>
<td>A1 (&lt;30)</td>
<td>2605(67.3)</td>
<td>244(72)</td>
<td>100(63.7)</td>
<td>927(61.4)</td>
<td>17(58.6)</td>
<td>1171(75%)</td>
<td>146(53.3)</td>
</tr>
<tr>
<td>A2 (30-300)</td>
<td>1104(28.5)</td>
<td>89(26.3)</td>
<td>52(33.1)</td>
<td>508(33.7)</td>
<td>11(37.9)</td>
<td>332(21.3)</td>
<td>112(40.9)</td>
</tr>
<tr>
<td>A3 (&gt;300)</td>
<td>160(4.1)</td>
<td>6(1.8)</td>
<td>5(3.2)</td>
<td>74(4.9)</td>
<td>1(3.4)</td>
<td>58(3.7)</td>
<td>16(5.8)</td>
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<tr>
<td><em><em>CV risk</em>, n (%)</em>*</td>
<td>N=4686</td>
<td>N=399</td>
<td>N=196</td>
<td>N=1671</td>
<td>N=30</td>
<td>N=1618</td>
<td>N=772</td>
</tr>
<tr>
<td>Low</td>
<td>2592(55.3)</td>
<td>190(47.6)</td>
<td>87(44.4)</td>
<td>825(49.4)</td>
<td>15(50)</td>
<td>972(60.1)</td>
<td>503(65.2)</td>
</tr>
<tr>
<td>Moderate</td>
<td>362(7.7)</td>
<td>11(2.8)</td>
<td>14(7.1)</td>
<td>196(11.7)</td>
<td>2(6.7)</td>
<td>87(5.4)</td>
<td>52(6.7)</td>
</tr>
<tr>
<td>High/Very High</td>
<td>1732(37)</td>
<td>198(49.6)</td>
<td>95(48.5)</td>
<td>650(38.9)</td>
<td>13(43.3)</td>
<td>559(34.5)</td>
<td>217(28.1)</td>
</tr>
</tbody>
</table>

*Risk defined per UACR and ESC 2019

ESC, European Society of Cardiology; UACR, Urine albumin:creatinine ratio; CV, Cardiovascular; eGFR, Estimated Glomerular Filtration Rate
Data cutoff for >5% of patients receiving either therapy

CV, cardiovascular; DPP-4i, dipeptidyl peptidase-4 inhibitor; SGLT2i, sodium-glucose co-transporter-2 inhibitor

Despite having cardiorenal risk, only few patients received guideline recommended novel anti-diabetic therapies with pleiotropic effects
High-risk Patients Receiving Novel Cardioprotective Drugs as First-line Antidiabetic Therapy

Stark difference in real-world practice patterns and guideline recommendations warrant call for action for early initiation of SGLT2i and GLP1-RA

- 15 (2.2%) received DPP-4i
- 11 (1.6%) received SGLT2i
- 4 (0.6%) received DPP4i + SGLT2i
- 10 (1.9%) received DPP-4i
- 10 (1.9%) received SGLT2i
- 3 (0.6%) received DPP4i + SGLT2i
- 10 (1.9%) received DPP-4i
- 10 (1.9%) received SGLT2i
- 3 (0.6%) received DPP4i + SGLT2i

CV, Cardiovascular; DPP-4i, dipeptidyl peptidase-4 inhibitors; GLP1-RA, Glucagon-like peptide-1 receptor agonists; SGLT2i, sodium-glucose cotransporter-2 inhibitors
Concomitant Therapies in Overall Patient Cohort

1407 (32.3%) patients had high cholesterol (>180mg/dL) and 2048 (51.4%) patients had high LDL (>70mg/dL) levels.

- Majority patients received anti-lipid therapy
- 17.1-51.3% received anti-hypertensive therapy
- Less than 5% received anti-platelet therapy
In about one-third of patients with T2D, silent cardiorenal complications can be diagnosed when screened per the guideline recommendations.

Although 37% of patients had very high or high CV risk, just 1.8% of T2D patients were receiving an oral antidiabetic drug that can reduce CV risk.

Although 32.7% patients had high renal risk, just 1.9% of T2D patients were receiving an oral antidiabetic drug that can reduce renal risk.

Gaps in real-world treatment necessitate strategic approaches to enhance utilization of cardiorenal protective antidiabetic therapies in concordance with recent guidelines.
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Thank You!