Chronic Kidney Disease
in Type 2 Diabetes

Chronic kidney disease (CKD) is a frequent complication arising from diabetes.[1] It is also an independent risk factor for cardiovascular disease (CV).[2] Despite well-controlled blood glucose levels and blood pressure, many patients with CKD and diabetes are still experiencing CKD progression.[2,3]

Prevalence

Around 40 percent of people with T2D will develop CKD.[4,5]

Morbidity

CKD in T2D is the most common cause of end-stage kidney disease (ESKD), and at advanced stages patients may need dialysis or a kidney transplant to stay alive.[5,6,7]

Mortality

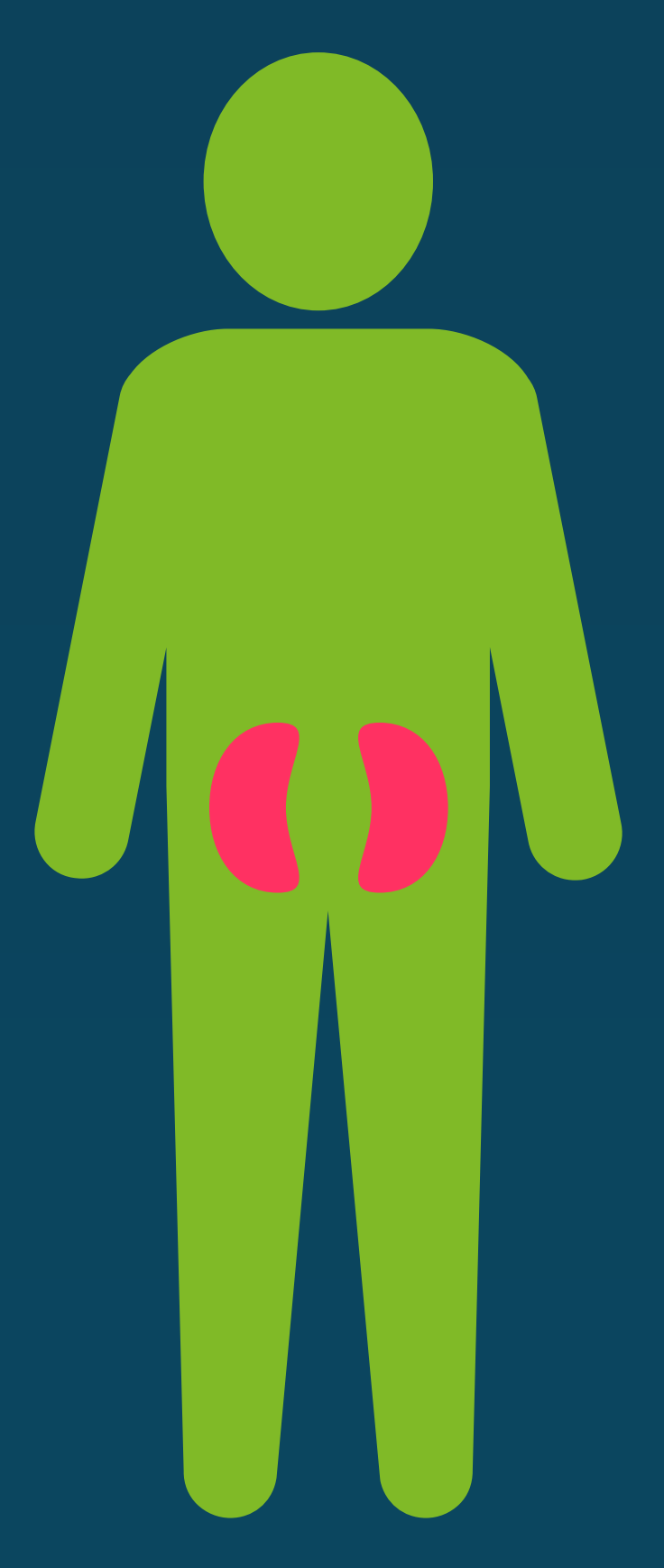
3x

Patients with CKD and T2D are three times more likely to die from a CV-related cause than those with T2D alone.[7]

16yr

CKD can shorten life expectancy of T2D patients by up to 16 years, relative to the general population.[8*]

CKD progresses **slowly and silently**.[9] Most symptoms do not appear until the disease is well-advanced.[9]



Early CKD detection and monitoring

Protecting patients from kidney damage starts with the early detection of CKD.[10,11]

Early detection of CKD in T2D is the first step towards preventing harmful renal and cardiovascular outcomes.[10,11] There are two main tests that should both be used to determine how well the kidneys are functioning and the level of damage.[4] Together they can determine the risk of ESKD.[3]

UACR Urine test

Urine albumin-to-creatinine ratio (UACR)[10,12]

Tracking how much albumin (a protein) is leaking into the urine and its ratio can indicate kidney damage early in the disease course and as it progresses.

+

Blood test (EGFR)

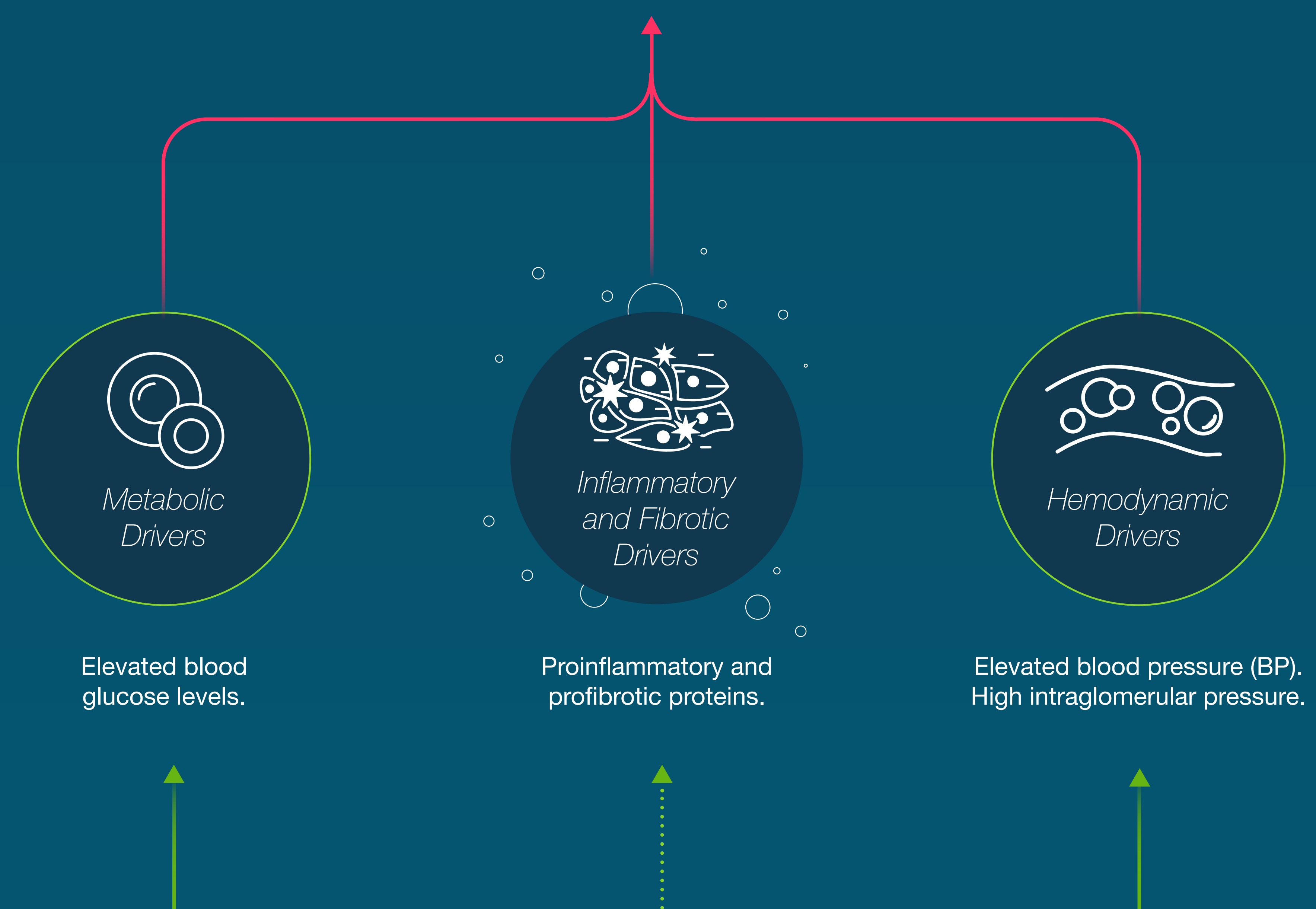
Estimated glomerular filtration rate[10]

Estimates the kidney filtration rate and how well the kidneys are functioning by measuring creatinine (a waste product eliminated via the kidneys) in the blood.

Disease Management in Patients with T2D

Despite all efforts using currently available treatment options, patients with CKD and T2D are often still progressing to kidney failure or premature death[2,3]

CKD Progression in T2D is influenced by **three major drivers**[1,13]

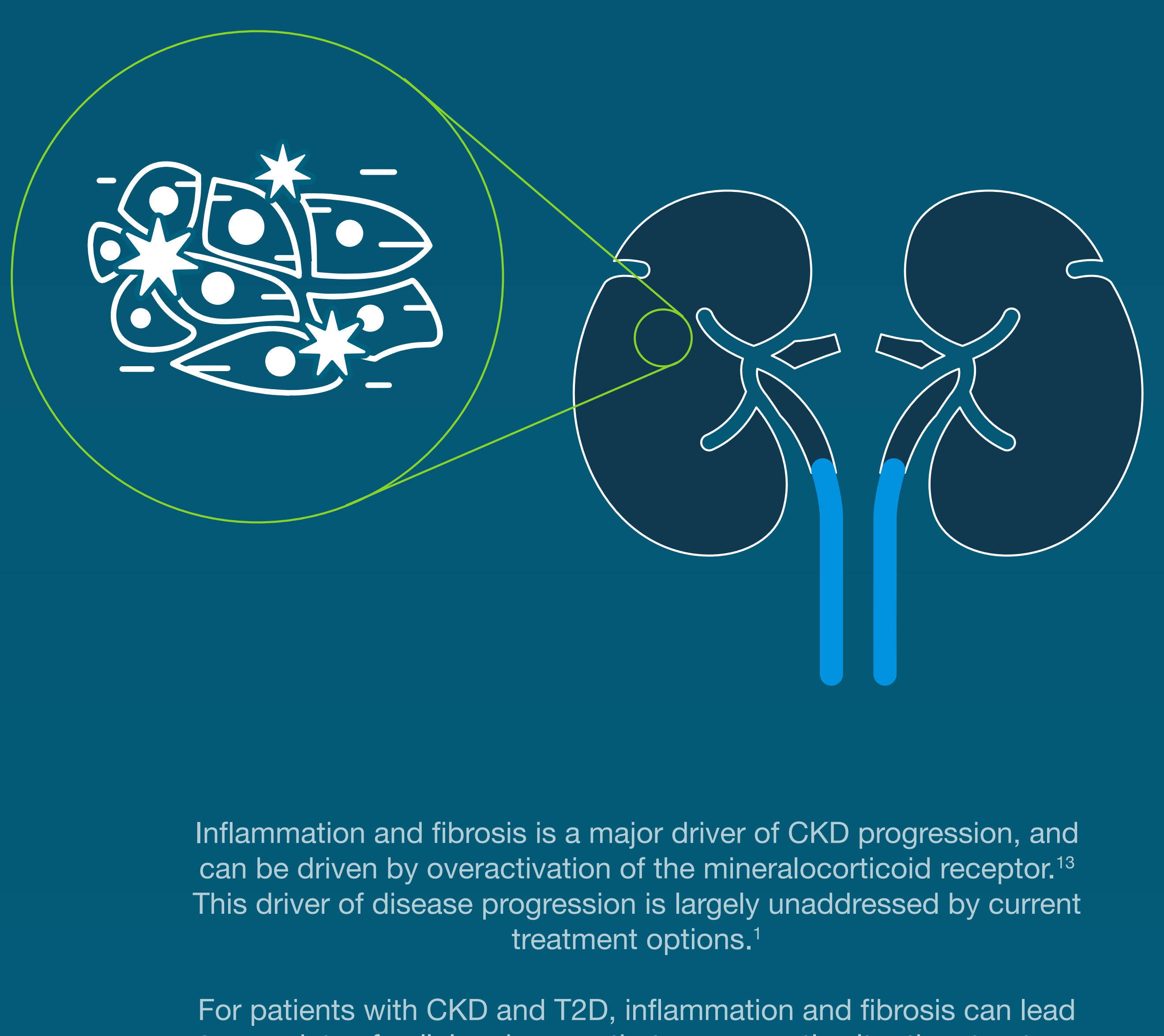


Elevated blood glucose levels.

Proinflammatory and profibrotic proteins.

Elevated blood pressure (BP). High intraglomerular pressure.

Current treatment of CKD in T2D is primarily focused on **metabolic and hemodynamic drivers**[1]



Inflammation and fibrosis is a major driver of CKD progression, and can be driven by overactivation of the mineralocorticoid receptor.[13] This driver of disease progression is largely unaddressed by current treatment options.[1]

For patients with CKD and T2D, inflammation and fibrosis can lead to a variety of cellular changes that permanently alter the structure of the kidney, and their function becomes impaired.[1]

To improve outcomes for patients with CKD and T2D, there is an urgent need for treatments targeting kidney-specific disease mechanisms

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*From a prospective cohort study of 543,412 adults in Taiwan between 1994 and 2008.

References:
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