

Renal Disease in Type 2 Diabetes

Media Fact Sheet

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The role of healthy kidneys and renal complications in type 2 diabetes

Normal, functioning kidneys are essential to maintain good health. The most important functions of the kidneys are to remove toxins, excess salt and water from the body in the form of urine.¹ The kidneys also have an important role to play in the management of blood pressure² and maintaining the number of circulating red blood cells (erythrocytes) in a narrow range.¹

The majority of patients with diabetes are at risk of developing renal issues.³ More than 60 percent of all patients with type 2 diabetes manifest some form of clinical kidney damage which leaves them at risk of progressive chronic kidney disease.³

1. Renal impairment in type 2 diabetes

In diabetes, high levels of blood glucose can damage the kidneys' filters. This leaves people with type 2 diabetes at risk of developing renal impairment. When the kidneys are damaged, the protein albumin leaks out of the kidneys into the urine. This is one of the first signs of early stage renal disease.²

Diabetic nephropathy, a complication of diabetes, is a chronic and progressive disease of the kidneys which occurs in about one third of all people with diabetes.² Diabetic nephropathy is associated with an increased risk of other diabetic complications including a greater risk of cardiovascular disease² and is associated with a lower than average life expectancy.¹ Symptoms of diabetic nephropathy are often non-existent in the early stages of chronic kidney disease which means people may be unaware they have the condition until a later stage in the disease.¹ In addition, arterial hypertension, obesity, smoking and physical inactivity are all explicit risk factors for diabetic nephropathy.³

People with diabetes who develop nephropathy may not experience symptoms in the early stages of the disease. However, there may be implications for the treatment of type 2 diabetes at this early stage, because even when no symptoms are apparent, slowing the progression of renal disease significantly reduces morbidity and mortality. However, not all anti-diabetic treatments are appropriate for patients with or at risk of developing renal impairment.

2. Renal impairment and cardiovascular risk

There is a proven link between renal impairment and increased risk of cardiovascular disease.² The relationship between high blood pressure and renal impairment is complex and interrelated: renal impairment can cause high blood pressure and, in turn, high blood pressure is a risk factor for developing renal impairment.¹

High blood pressure is very common in people with type 2 diabetes at diagnosis, which means that even small increases in blood pressure can be significant.² All people with type 2 diabetes are at a greater risk of cardiovascular disease, but the risk is up to three times higher for those patients with renal impairment.²

3. Treatment implications

As kidney disease progresses, diabetes treatment choices become more and more limited.

Many current type 2 diabetes treatments are either contra-indicated in type 2 diabetes patients with renal impairment⁴ or not recommended in this patient population.

The investigational compound linagliptin, a DPP-4 inhibitor in late stage development for the treatment of type 2 diabetes, has a primarily non-renal route of excretion (only five percent is eliminated via the kidneys).⁵ Data to date suggest that for linagliptin no dose adjustment would be required regardless of the degree of renal impairment.⁶

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