

# A Report on Kidney Function and Chronic Kidney Disease

Cristian Lee

Department of Biomedical Informatics, Harvard Medical School, Boston, Massachusetts, USA

## Brief Report

The kidneys are a pair of bean-shaped organs located on either side of your spine, beneath your ribs and behind your stomach. Each kidney is about 4 to 5 inches long, the size of a large fist.

It is the kidneys' job to filter the blood. They eliminate waste, regulate fluid balance, and maintain proper electrolyte levels in the body. Every drop of blood in the body passes through them approximately 40 times per day.

Blood enters the kidney, waste is excreted, and salt, water, and minerals are adjusted as needed. The filtered blood is reintroduced into the body. Waste is converted into urine, which collects in the kidney's pelvis – a funnel-shaped structure that drains to the bladder via a tube called the ureter. Each kidney contains millions of tiny filters known as nephrons. If blood flow to a kidney is interrupted, a portion or all of it may perish. This can result in kidney failure.

## Chronic kidney disease

Chronic kidney disease, also known as chronic kidney failure, is characterised by a progressive loss of kidney function. Wastes and excess fluids in the blood are filtered by the kidneys and excreted in urine. Advanced chronic kidney disease can result in dangerously high levels of fluid, electrolytes, and wastes in the body.

You may have few signs or symptoms in the early stages of chronic kidney disease. You might not realise you have kidney disease until it is too late.

Chronic kidney disease treatment focuses on slowing the progression of kidney damage, usually by addressing the underlying cause. However, even if the cause is controlled, kidney damage may progress. Chronic kidney disease can lead to end-stage kidney failure, which is fatal in the absence of artificial filtering (dialysis) or a kidney transplant.

## Symptoms

If kidney damage progresses slowly, signs and symptoms of chronic kidney disease develop over time. A loss of kidney function can result in a build-up of fluid or body waste, as well as electrolyte imbalances. Depending on the severity, kidney function loss can result in:

- Nausea
- Vomiting
- Appetite loss
- Weakness and fatigue
- Sleep issues
- Decreased mental sharpness due to increased or decreased urination
- Cramps in the muscles

- Foot and ankle swelling
- Itchy, dry skin
- Hypertension (high blood pressure) that is difficult to control
- Shortness of breath if fluid accumulates in the lungs
- If fluid accumulates around the heart's lining, it can cause chest pain.

The signs and symptoms of kidney disease are frequently vague. As a result, they can be caused by other illnesses as well. Because your kidneys can compensate for lost function, you may not notice any symptoms until irreversible damage has occurred.

## Diagnosis

A doctor will examine the patient for signs of chronic kidney disease and ask about their symptoms. In addition, they may request the following tests:

**Urine test:** A urine test can be used to determine whether albumin is present. When the kidneys are damaged, albumin is found in the urine.

**Kidney scans:** Ultrasound scans of the kidney are commonly used by doctors to determine the size and shape of the kidney. In rare cases, an MRI or CT scan may be used. CT scans use dyes that are toxic to the kidneys and are not a popular option.

**Kidney biopsy:** A small sample of kidney tissue is extracted and examined for cell damage by the doctor. The analysis of kidney tissue aids in the precise diagnosis of kidney disease.

**Chest X-ray:** The purpose of this test is to look for pulmonary edoema, or fluid retention in the lungs.

**Glomerular Filtration Rate (GFR):** GFR is a test that determines the amount of waste in a person's blood as well as how many millilitres of waste the kidneys can filter per minute (ml/min). Healthy people's kidneys can typically filter more than 60 ml/min.

## Treatment

There is no cure for CKD, but treatment can help relieve symptoms and prevent the disease from worsening. Treatment will be determined by the severity of the condition.

The primary treatments are as follows:

- Changes in your lifestyle to help you stay as healthy as possible
- Medication to treat related issues such as high blood pressure and high cholesterol
- **Dialysis** – treatment to replicate some of the kidney's functions; may be required in advanced CKD kidney transplant may also be required in advanced CKD

**\*Address for Correspondence:** Cristian Lee, Department of Biomedical Informatics, Harvard Medical School, Boston, Massachusetts, USA, Email: Cristianlee395@gmail.com

**Copyright:** © 2021 Lee C. This is an open-access article distributed under the terms of the Creative Commons Attribution License, which permits unrestricted use, distribution, and reproduction in any medium, provided the original author and source are credited.

**Received** 04 November, 2021; **Accepted** 18 November, 2021; **Published** 22 November, 2021

**How to cite this article:** Lee, Cristian. "A Report on Kidney Function and Chronic Kidney Disease." J Health Med Informat 12(2021): 395.