Kidney complications

The functions of the kidneys are:

1. To filter blood to remove waste which are passed through the urine
2. To regulate production of red blood cells
3. To regulate the electrolyte balance of the blood
4. To regulate blood pressure

Stages of kidney damage

1. ***Very early stages:*** The blood vessels that are responsible for filtering the blood in the kidneys are packed tightly together to form a ball-like structure called the glomerulus. Raised blood sugar cause gradual damage to these blood vessels. This limits the ability of these specialized blood vessels to filter blood. This allows proteins to leak out of the glomerulus and are passed into urine. This is usually the first sign of a kidney complication. The amount and size of proteins that leak into urine may be so small that they are not detected using a normal urine dipsticks. They are detected using special urine dipsticks called microalbumin dip sticks. This test should be done every year to detect kidney complications early. This is because these very early stages can continue for up to 10 years or more before leading to further complications.
2. ***Early stage:*** if the proteins in urine are not detected and treated on time, damage to the kidneys will continue without control and this will lead to the pressure in the kidneys to rise and more proteins will pass into urine. This will usually manifest as high blood pressure
3. ***Late stage:*** if there is not intervention during the early stage, this can progress to kidney failure.

Urine microalbumin/creatinine ratios

The ratio of microalbumin to creatinine in urine is an indicator of how well the kidney is functioning and extent of damage if any has occurred.

- Normal kidney function is when urine microalbumin to creatinine ratio is less than 30 mg/g Cr
- Early Nephropathy is when urine microalbumin to creatinine ratio is between 30 to 300 mg/g Cr
- Late Nephropathy is when urine microalbumin to creatinine ratio is more than 300 mg/g Cr

Preventing kidney complications

Important steps to prevent kidney complications are

1. Monitor and control blood sugar very well
2. Monitor and control blood pressure very well
3. Monitor and control blood lipids very well
4. Conduct annual microalbumin urine tests
5. Conduct annual kidney function tests to check for serum creatine, urea and electrolytes

6. Discuss with your doctor to use angiotensin converting enzyme inhibitors or angiotensin receptor blockers as soon as microalbumin is detected in urine. These drugs help to control the pressure in the kidneys and blood pressure as well. They prevent or slow down further damage to kidneys
7. Eating foods that are friendly to the kidneys