

then returning the purified blood back to patient. HD requires frequent visits to the haemodialysis centre typically two or three times a week. Dialysis (PD as well as HD) is a temporary method of RRT. Dialysis helps to sustain life of these children with advanced CKD.

### Q8. WHAT IS KIDNEY TRANSPLANTATION?

A: Once the kidney function significantly worsens and the child reaches stage 5 CKD, fitting a new and healthy kidney in such a child from another person's body is possibly the best way of improving the quality of life of the child with CKD. This process is called kidney transplantation. It can be done in young children. It requires proper planning and preparation to ensure success of kidney transplantation and to avoid later complications such as infections and rejection. Many centres are now offering kidney transplantation to affected children in India. It is economically a better and also a safer option of RRT over long term dialysis in children in our country. The donor kidney can be taken from a healthy and living related family member (living related kidney transplantation) voluntarily or it can be taken from a person who has died (deceased donor kidney transplantation). Kidney transplantation has to be performed according to the medico legal laws of the country.



# CHRONIC KIDNEY DISEASE IN CHILDREN



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## Q1. WHAT DO WE MEAN BY CHRONIC KIDNEY DISEASE (CKD)?

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A: Chronic Kidney Disease (CKD) refers to an advanced stage of progressively worsening kidney disease. Any kidney disease with abnormal symptoms, signs or abnormal laboratory or imaging tests which lasts for more than three months of duration is labelled as CKD. It indicates that the child has sustained a kidney damage which is not totally reversible. With prompt treatment and regular check-up, we can control the kidney disease from worsening further. Without proper treatment, the kidney function will further decline and result in more complications arising from the malfunctioning kidneys.

There are five stages of CKD starting from mild category (Stage 1 CKD) to severe category - end stage kidney disease (stage 5 CKD). There are various symptoms seen in a patient with CKD as he/she progresses to higher stages of CKD. Once the patient has progressed to stage 5 CKD, there will be a need for considering renal replacement therapy (RRT) to sustain life. RRT includes any form of dialysis (peritoneal dialysis or haemodialysis) and kidney transplantation.

## Q2. WHAT ARE THE COMMON CAUSES OF CKD IN CHILDREN?

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A: Any disease which affects kidneys of a child has potential to leave behind long term damage which can result in CKD. Urinary tract infection and birth defects in the kidneys such as single kidney, reflux in the renal tract or obstruction in the path of flow of urine are the commonest causes which can cause CKD in children. Immune mediated diseases such as nephrotic syndrome and glomerulonephritis which result in loss of protein and blood in urine are also important causes of

CKD. Abuse of certain drugs such as painkillers, antibiotics and traditional medications may also result in long term kidney damage.

## Q3. WHAT ARE THE COMMON SYMPTOMS / SIGNS OF CKD IN CHILDREN?

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A: A child with CKD may present with signs and symptoms of the underlying kidney disease such as red urine, swelling over body, abnormal stream of urine, reduced production of urine, fever, rash or joint swelling. Additionally, the child may also present with symptoms resulting from advanced stage of CKD. The child may develop reduced appetite and may have poor growth. As the kidney function worsens, the child may appear pale secondary to reduced blood production (anaemia). There may be fast breathing secondary to water retention in lungs and excess acid accumulation in the body. There may be bone pains, fractures or bony deformities secondary to poor mineralisation of the bony skeleton resulting from kidney disease. The child may also develop irritability, poor interest in studies and play activities and convulsions secondary to elevated blood pressure.

## Q4. WHAT IS THE USUAL COURSE OF CKD IN CHILDREN?

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A: At stage 1 CKD, there may be minimal symptoms or signs and child may appear to be normal. The child may just have some abnormalities in lab tests or ultrasound report. However, as the kidney function declines there will be additional symptoms which will appear as mentioned earlier. Once the child reaches stage 5 CKD, there will be need for RRT to maintain life. Some diseases may rapidly progress to stage 5 CKD while some diseases may progress to stage 5 CKD over a long period of time.

## Q5. WHAT ARE THE COMMON HEALTH PROBLEMS ASSOCIATED WITH CKD IN CHILDREN?

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A: Poor growth, anaemia, bone disease, acid and water retention in the body, abnormal function of Vitamin D and other hormones, high blood pressure and cardiac failure are the main problems associated with CKD.

## Q6. WHAT ARE THE WAYS TO DELAY THE PROGRESSION OF CKD?

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A: To prevent CKD, prompt treatment of any kidney disease is important. Once CKD is diagnosed, additional measures such as proper attention to diet (avoid high intake of salt and fat in diet), adequate control of high blood pressure and avoiding unnecessary medications which can adversely affect kidneys is important. Regular check-up visits with your child specialist or child kidney doctor is very important. With proper treatment and monitoring, we can slow the progression of CKD.

## Q7. WHAT IS DIALYSIS?

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A: Dialysis is a type of RRT which is used to replace the functions of a failing kidney in stage 5 CKD. There are two types of dialysis:

Peritoneal Dialysis (PD) involves fluid exchange in the abdominal cavity where accumulated toxins are cleared from the body. PD can be managed at home and is especially ideal for young children. It helps them to attend the school and regular play activities at home.

Haemodialysis (HD) involves circulating the patients' blood through a purifying filter in the haemodialysis machine and