

the immune system and have a range of other side effects, but are generally effective. A drug called levamisole is occasionally used, especially in children if it makes it possible to avoid more powerful drugs. The options for treatment vary with each case and should be discussed with the specialist.

In some cases, if fluid retention is severe, it may be necessary to stay in hospital. Blood clots can be a complication of severe nephrotic syndrome, and blood thinning treatment may be given with injections, or in the longer term with warfarin tablets. If the blood cholesterol level is high, a low fat diet and cholesterol lowering drugs may be advised. However, the high cholesterol level may only be temporary and if the condition responds quickly to steroids, so some kidney specialists will wait to see how quick the response is to treatment before advising cholesterol lowering drugs.

### **Can I lead a normal life with Minimal Change Nephropathy?**

It may be necessary to rest and have time off work when the condition is leading to symptoms. However, in the long term you should be able to lead a normal life when the condition is under control.

There may be some queries if you apply for mortgages or life insurance, so plan ahead and be prepared to have your doctors asked to supply a medical report.

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## **MINIMAL CHANGE NEPHROPATHY**

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## What is Minimal Change Nephropathy?

The combination of the kidneys leaking a lot of protein and the body retaining so much salt and water that it leads to swelling of hands, face or ankles is called nephrotic syndrome. In adults, a biopsy test of the kidney is normally performed to see what the kidney looks like under a microscope, and minimal change is one of the commonest causes of nephrotic syndrome. In children, nephrotic syndrome is nearly always caused by minimal change, and a biopsy may not be performed unless drug treatment fails to work.

## What are the symptoms of Minimal Change Nephropathy?

The usual symptom is ankle swelling, or swelling of the face and hands. This may come on quite suddenly, and may vary with the time of day. Problems such as heart disease can also cause salt and water retention, and a urine test for protein is required to confirm whether the kidneys are causing this. Normally minimal change nephropathy is quite painless, although swelling in the legs and around the abdomen can be uncomfortable. Sometimes fluid collects in the lungs and this leads to breathlessness, this needs to be treated urgently.

## What causes Minimal Change Nephropathy?

Basically no-one knows fully. It is called minimal change because the kidney looks pretty well normal under the normal microscope. When blood passes through the kidneys, it is filtered to produce the urine. The membrane that performs the filtration process is a very delicate structure. A slight abnormality in the structure can cause protein molecules to appear in the urine, though they are normally too small to get through. Although the membrane looks normal under the microscope, there may be a slight change in the electrical charge which causes this protein leakage.

## What will happen if I have Minimal Change Nephropathy?

Minimal change causes fluid retention in various parts of the body, often with high blood pressure. Normally doctors can treat minimal change with drugs and get a cure, or at least control of the condition. The main function of the kidneys is to remove waste products from the blood. This is not usually affected. Therefore minimal change does not usually cause kidney failure.

## What are the complications of Minimal Change Nephropathy?

1. Blood pressure can be increased leading to high blood pressure. This may need treating with drugs.
2. A feature of this condition is that the cholesterol level becomes raised. In the short term this does little harm, but in the longer term could cause disease in blood vessels. Your doctors will monitor the cholesterol level and advise you

on how to deal with it. It may need treating with drugs, for example statins.

3. The fluid retention can lead to breathlessness or abdominal swelling. If these develop, you should tell your doctor so that treatment can be altered.
4. Blood clots can be a complication of this condition. If you are in hospital, doctors will generally give heparin injections to prevent this, and some patients require a course of warfarin tablets as well. If you get painful swelling in one leg more than the other, or sharp pains in the chest when you breathe, or cough up blood, you should seek medical advice immediately.

## Is there any Treatment?

This condition is normally treatable with drugs. There will be two focuses for the treatment of the symptoms of fluid and the disease itself.

To treat the symptoms of salt and water retention, the amount of water and other liquids consumed each day should be reduced, and the medical team will advise on the best level for each person. Salt should be reduced as much as possible, not adding it to cooking, and avoiding any pre-prepared food containing salt. Try using the foodswitch app which is available for both iPhones and Androids for free. To treat swelling, doctors may prescribe diuretic tablets. These are drugs which force the kidneys to produce more urine, and are also called 'water tablets'.

The best drug to use in treatment of the disease is prednisolone (a steroid). A course of high dosage for 2-4 weeks generally results in disappearance of the protein in the urine and leads to an improvement in the swelling. The prednisolone dosage is then gradually reduced and eventually stopped in many cases. Unfortunately some patients get side effects from the steroids. These include appetite increase and weight gain, change in the shape of the face and a tendency to be more prone to diabetes and infection.

When the steroid dosage is reduced, the condition sometimes relapses (comes back). This may be obvious with more swelling. Alternatively, many people test their own urine for protein and so can tell if there is a relapse. A relapse may mean that another course of steroid may be needed. Advice should be obtained urgently from a kidney specialist.

If steroids do not work, or only prevent relapses at high dosage, more powerful drugs are available. The specialist may suggest tacrolimus, cyclosporine, cyclophosphamide, or mycophenolate. These are powerful drugs that suppress