

Minimal change disease

What is minimal change disease?

Minimal change disease is one of the common causes of [nephrotic syndrome](#), which is the name given to the illness that follows on from heavy leakage of protein into the urine. Minimal change disease gets its name from the fact that the kidney looks almost completely normal under the microscope.

How is it diagnosed?

Minimal change disease is the usual cause of nephrotic syndrome in children, but other causes are more common in adults. In adults it is usually diagnosed after a kidney biopsy.

What causes it?

Usually the cause is unknown. Sometimes it occurs as an allergic reaction to something, for instance a medicine, and occasionally it occurs as part of other diseases. Sometimes medicines bought without a prescription can be responsible – for example the painkiller ibuprofen. Tell your doctor of any medicines that you may have had over the last few weeks or months. Can it cause kidney failure?

Minimal change disease does not permanently damage kidney function. Severe nephrotic syndrome occasionally causes temporary kidney failure, especially in older adults.

How is it treated?

Nephrotic syndrome is treated in the usual way to control fluid retention and prevent complications (see information on nephrotic syndrome, linked below)

Minimal change disease usually responds well to treatment with high doses of **prednisolone (steroids)**. This often stops the protein leak within days or weeks, although it may take longer in adults. The dose of steroids is then gradually reduced. Steroids have a number of side effects when used in high doses, including weight gain, thinning of the bones, a tendency to cause diabetes in some people, rounding of the face, and thinning of the skin in children, behaviour may be worse. It is therefore important to balance giving enough treatment with

preventing side effects. If steroids are reduced and stopped too quickly, the protein leak may return very quickly.

Sometimes patients do not respond to treatment with steroids as expected. In some cases they actually have a different disease, such as [FSGS](#), but in others, the disease is eventually controlled by a combination of treatments. Other patients need to stay on a small dose of steroids for a long time, sometimes with other drugs as well.

Relapses and resistant disease

Although many people have only one attack of minimal change disease, in some people nephrotic syndrome comes back after weeks or months. The first time this happens, steroids are usually used again. However if it keeps on happening, the risk of side-effects from the steroid treatment increases. Additional treatments may be used to prevent further relapses. Some of these treatments are described in more detail in our information on [Immunosuppressive drugs in renal disease](#).

Cyclosporin: A drug usually used to prevent rejection of a transplant. It can work very well to control nephrotic syndrome, but there is a high risk of the disease coming back as soon as it is stopped. It also has significant side effects.

Tacrolimus: may be an alternative.

Levamisole: an anti-parasite drug that has been shown to help to prevent relapses in children.

Cyclophosphamide: An 8-12 week course of this drug can prevent relapses for many months or years. It can have important side-effects though, and it is used less often than previously.

Mycophenolate mofetil (MMF, Cell Cept): Another drug that reduces the immune system. Seems to be useful but not yet proven.

Rituximab or other anti-B cell antibody: At present this is an experimental treatment. It also reduces resistance to infection.

What causes relapses?

Again, we usually don't know. Eventually, with time, they usually just stop. They sometimes occur with minor infections. If you have a lot of relapses, look out for

things that might be causing them yourself. Medicines bought over the counter, for example, may occasionally be responsible.

Further information

Our further information on the following may be relevant to you:

- [Nephrotic syndrome](#) (very relevant) ([more detailed info](#) also available)
- [Immunosuppressive drugs in renal disease](#)
- [FSGS](#)
- [Kidney biopsy](#)

Key points

- Minimal change disease is a common and treatable cause of nephrotic syndrome
- It is common in children but can occur at any age
- It does not damage kidney function
- Steroids are the usual treatment
- In some patients the disease comes back (relapses), and treatments are needed to prevent that.

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