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Deficiency of IL-1 Receptor Antagonist (DIRA)

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2. DIAGNOSIS AND THERAPY

2.1 How is it diagnosed?

First there must be a suspicion of DIRA based on the disease features of the child. DIRA can only be proven by genetic analysis. The diagnosis of DIRA is confirmed if the patient carries 2 mutations, one from each parent. Genetic analysis may not be available in every tertiary care centre.

2.2 What is the importance of tests?

Blood tests such as erythrocyte sedimentation rate (ESR), CRP, whole blood count and fibrinogen are important during disease activity to assess the extent of inflammation.
These tests are repeated after the child becomes symptom-free, to observe if the results are back to or near normal.
A small amount of blood is also needed for the genetic analysis.
Children who are on life-long anakinra treatment must provide blood and urine samples regularly for monitoring purposes.

2.3 Can it be treated or cured?

The disease cannot be cured but it can be controlled with life-long use of anakinra.

2.4 What are the treatments?

DIRA cannot be adequately controlled with anti-inflammatory drugs.

High doses of corticosteroids can partially control disease symptoms, but usually at the expense of unwanted side effects. Painkillers are usually needed to control bone pain until treatment with anakinra has taken effect. Anakinra is the artificially produced form of IL-1RA, the protein that DIRA patients lack. Daily injection with anakinra is the only therapy that has been effective in the treatment of DIRA. In this way, the shortage of natural IL-1RA is corrected and the disease can be brought under control. Disease recurrence can be prevented. With this therapy, after the diagnosis is made, the child will need to inject this drug for the rest of his/her life. If administered daily, symptoms disappear in most patients. However, some patients have shown partial response. Parents should not modify the dose without consulting the physician.
If the patient stops injecting the drug, the disease will return. Since this is a potentially deadly disease, this must be avoided.

2.5 What are the side effects of drug therapy?

The most troublesome side effects of anakinra are the painful reactions at the site of injection, comparable to an insect sting. Especially in the first weeks of treatment, these can be quite painful. Infections have been observed in patients treated with anakinra for diseases other than DIRA. It is unknown whether this effect applies equally to DIRA patients. Some children treated with anakinra for other disorders appear to gain more weight than desired. Again, we do not know whether this is applicable to DIRA. Anakinra has been used in children since the beginning of the 21st century. Therefore, it remains unknown if there are side effects in the very long term.

2.6 How long should treatment last for?

Treatment is life-long.

2.7 What about unconventional or complementary therapies?

There is no therapy of this kind available for this disease.

2.8 What kind of periodic check-ups are necessary?

Children being treated should have blood and urine tests at least twice yearly.

2.9 How long will the disease last?

The disease is life-long.

2.10 What is the long term prognosis (predicted outcome and course) of the disease?

If treatment with anakinra is started early and continued indefinitely, children with DIRA will probably live a normal life. If there is a delay in diagnosis or lack of compliance with treatment, the patient risks progressive disease activity. This may lead to growth disturbances, severe bone deformities, crippling, skin scarring and eventually death.

2.11 Is it possible to recover completely?

No, because it is a genetic disease. However, life-long therapy gives the patient the opportunity to live a normal life, without restrictions.