



Rheumatoid arthritis and the immune system

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Rheumatoid arthritis is a chronic disease that causes great suffering, major financial outlays and loss of income due to functional impairment and the prospect of invalidity. Dietary adjustment offers a good opportunity to influence the disease.

One person out of every hundred suffers from chronic rheumatoid arthritis. It occurs when the body's immune defences attack the tissue in the joints, leading to pain and degeneration of the articular cartilage. The result is a reduced quality of life, loss of working capacity and subsequent invalidity (1). The disease or its treatment also increases mortality, and patients with rheumatoid arthritis have a shorter life expectancy than their healthy peers (2). Drugs used to limit the symptoms have a limited effect and do not improve the long-term prognosis (1). Our understanding of the way in which the immune system attacks the joints has increased, leading to the development of new drugs that can have a positive effect. However, these drugs are very expensive and have not been used long enough for us to be able to assess their side effects.

The treatment of arthritis is based on medical treatment and providing advice about how to facilitate daily activities. Health service personnel have received no schooling in ways in which the patients themselves may be able to influence their disease. Preventive treatment of persons who may be genetically exposed to the disease is currently not an issue. This is clearly at variance with other branches of medicine where the emphasis on preventive medicine is strong.

Persons with a family history of rheumatoid arthritis are four times more at risk of developing the disease than others. Is there anything they can do to prevent the disease from occurring? And what about patients who already have the disease? Is there anything they themselves can do to alleviate their symptoms and prevent permanent damage to the joints? Several studies show that a change in diet can have a positive effect on the disease (3). Fasting, which is surely the most extreme form of dietary change, has an overtly positive effect on rheumatic symptoms. There is not much that can be done about the "congenital wrong programming" of the immune system that has caused it to attack the articular tissue.

The immune system is continuously balancing between quiescence and preparedness for activation and attack. On the one hand we want our immune system to be activated and able to defend us against attacks from bacteria, viruses and cancer cells, but on the other hand we do not want an overstimulated immune system that attacks the tissue and produces so-called autoimmune diseases, of which rheumatoid arthritis is the most common. The immune system affects a great number of functions, using signal substances - chemical substances that trigger processes to neutralise anything they perceive as pathological or foreign. The original material for these signal substances is fatty acids, which we acquire through our food.

The polyunsaturated fatty acids from vegetable and fish fat is stored in the cell walls and released either for the direct formation of signal substances or for the long-term building up of signal substances and other structures used by the immune defence system to penetrate the tissues. Omega-6 fatty acids from plants and from pork and beef intensify the activity of the immune system, while omega-3 fatty acids from fatty fish lower the activity level. If the immune system is to perform the work for which it is designed, we must have a balanced intake of these two types of fatty acids (4). Our current diet contains too much red meat, too many vegetable oils and too little fatty fish. Sufferers of rheumatoid arthritis may be able to counteract their disease by replacing beef and pork with chicken and fish, and by a general reduction in their intake of vegetable oils.



Vegetable oils containing omega-6 fatty acids are used in almost all food products, including low-fat ones. It is best to use olive or rapeseed oil as these contain mainly omega-9 fatty acids, which do not activate the immune system.

A study from the Gråsten rheumatism hospital in Denmark showed that the patients generally eat too little fish, too much meat and too few antioxidant vitamins (C and E). An adjustment of the diet to include more fresh fish, combined with omega-3 capsules, vitamin and selenium supplements and an overall reduction in the intake of fat diminished the patients' symptoms substantially (5). This shows that dietary adjustments help, even in patients who are badly attacked by the disease. It would be purely speculative to assert that a diet rich in omega-3 fatty acids and antioxidants could prevent the development of the disease in individuals with a hereditary disposition for rheumatoid arthritis. It is nevertheless quite clear that the risk of developing rheumatoid arthritis in Japan, where they have this type of diet, is considerably lower than in the West, despite the fact that the immunological conditions are present to the same degree (6).

An increased intake of omega-3 fatty acids in the form of capsules has a well-documented effect on the symptoms of rheumatoid arthritis (7), and constitutes an important supplement to dietary adjustment. To have any effect, the capsules need to be taken in high doses for a long time. This type of self-treatment will enable the patient to take responsibility for his or her disease and help the doctor to find the lowest possible dosage of the best medication. It may also reduce side effects and the risk of death from the serious haemorrhagic complications caused by antirheumatic drugs.

Treating the symptoms is only part of the regime for the rheumatoid arthritis patient. "Maintenance" of articular function is equally important, but in this area there is a dearth of supporting research data on dietary adjustment and the increased intake of omega-3 fatty acids. The degeneration of articular cartilage is due to the effect of special enzymes that are activated by the immune system. Researchers in Cardiff in Wales have shown that cells from the cartilage of arthritic patients are not broken down by these enzymes if omega-3 fatty acids are added (8). Even if this is a laboratory trial, it nevertheless supports observations of arthritic patients in Greenland, where X-rays of their joints showed that changes happen much more slowly than is normal in Scandinavian patients (9). The diet of the Greenland Inuits contains large quantities of omega-3 fatty acids.

Rheumatoid arthritis is a chronic disease that causes great suffering, major financial outlays and loss of income due to functional impairment and the prospect of invalidity. Dietary adjustment offers a good opportunity to influence the disease. There is clear scientific evidence that it helps, but so far it is little used in therapy offered by the health service. This means that it is very much up to the individual to find out what can be done to improve the situation. Dietary awareness is a relatively simple method, but it requires the understanding and the will to change one's lifestyle.



References

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