

DIRECTOR'S REPORT

Autoimmune conditions can affect a range of bodily structures, and this month, we'll talk a little about the muscles.

Muscles are bundles of soft tissue containing muscle cells and supportive fibrous structures. Muscle cells contract when voluntary impulses are initiated by the brain, sending messages along motor nerves. The nerves then release chemicals (acetylcholine) into the neuromuscular junction, triggering specific receptors on muscle cells which cause contraction via cell signalling and changes in two key proteins, actin and myosin. Because this contraction can cause bulges which looked like little animals moving under the skin, the word "muscle" was coined, meaning "little mouse" in Latin. The body has different types of muscles, including skeletal (voluntary), smooth (involuntary, like the muscles of the gut, bladder and vessels), and cardiac.

More than half of people with lupus, scleroderma and other related autoimmune conditions experience muscle aches and pains (myalgias). Less commonly, muscular inflammation can be seen, especially in the autoimmune myositis conditions such as polymyositis and dermatomyositis. Muscle pain and stiffness are more likely to be aggravated by "flares" of autoimmune inflammation, and myalgia may be one of many features affecting the entire body, including joint pain and rash, as well as fevers and malaise.

Fibromyalgia affects around 1 in 5 people with autoimmune conditions. It features an "all over" sense of muscular pain, in the absence of inflammation. The diagnosis relies upon a characteristic story of diffuse aching with multiple characteristic tender points on examination, and exclusion of other conditions, including polymyalgia (usually causes stiffness and inflammation) and myositis.

Myositis is an inflammation of the muscles, due to infiltration of muscle tissue by lymphocytes and other immune cells. Dermatomyositis, polymyositis, and inclusion-body myositis are the major subtypes, defined by biopsy. In addition to muscular pain and tenderness, myositis can also cause weakness, which characteristically affects the proximal muscles of the upper arms and thighs, although it can theoretically affect any area.

When severe, or when important muscles are affected (e.g. heart, swallowing), then immune therapy with steroids and sometimes immunosuppressant's (e.g. azathioprine, methotrexate) may be required. Before embarking upon such therapy, however, it is important to rule out other potential causes, such as drugs (e.g. lipid-lowering agents and, rarely, hydroxychloroquine ("Plaquenil"), hormonal disturbance (e.g. thyroid disease, adrenal underactivity) and, less commonly, myasthenia (an autoimmune condition targeting the receptors for acetylcholine which mediate muscle contraction). Long-term moderate to high dose steroids (e.g. >15mg/day for prolonged courses) can also cause myopathy affecting proximal muscles. Low vitamin D levels can also cause muscular weakness, in addition to softening of the bones.

Polymyalgia rheumatica is an inflammatory condition that typically occurs over the age of fifty. It causes inflammation of the vessels, particularly those supplying the muscles of the shoulder and hip girdles, which are then affected by pain and stiffness, but not much in the way of weakness. The diagnosis is made by displaying these symptoms plus elevated inflammation markers in the blood (CRP, ESR), and steroids are often required to settle the condition. Sometimes a more serious association can be seen with polymyalgia rheumatica where inflammation of the vessels supplying the face, scalp and eyes can occur: this is called "giant cell arteritis" or "temporal arteritis", and urgent eye review is required to ensure there are no signs of

inflammation at the back of the eye (retina) which poses the risk of sudden blindness. A biopsy of the temporal artery, and early use of high dose steroids, are required if this condition is proved or strongly suspected.

Muscle cramps and spasms are common in autoimmune conditions, and represent a multitude of causes, including:

- Underlying nerve and muscle conditions
- Restless legs syndrome (often associated with sleep disorders, including sleep apnoea)
- Electrolyte disturbances, including low calcium and magnesium.

Whilst quinine was once a common treatment for painful muscle cramps, toxic side effects including reduced platelets (causing bleeding tendencies) have led to its avoidance. There is no uniformly successful approach to this distressing complaint, but if you are trying magnesium (which has been of help in some individuals, anecdotally), be aware that it can interfere with other therapies such as oral bone strengtheners (bisphosphonates like Actonel) and tetracycline antibiotics.

The best way to ensure optimal muscle health is to undertake regular exercise. This doesn't have to involve lifting weights - just regular brisk walks will do. The benefits of exercise also flow through to improved mood, energy and cardio metabolic health.

True strength is in the soul and spirit, but the muscles also deserve our attention.

Take care over the cooler months

Regards

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