New treatments aim to halt or delay osteoarthritis

Osteoarthritis affects an estimated 10% of men and 18% of women over 60 with age the strongest risk factor. Traditional treatment consists of pain management with joint replacement for end-stage disease.

Joint replacement is an effective treatment but functional outcomes can be poor and the lifespan of the prosthesis is limited. Because of this, the focus is shifting to detecting early disease and finding new treatments.

Osteoarthritis was once regarded as a disease of purely mechanical damage to cartilage but it is now known to be a complex condition affecting the whole joint and having genetic, biological and mechanical components.

Cartilage is regulated by chondrocytes, which produce inflammatory proteins in response to either chemical or mechanical changes. This results in damage to the joint including changes in the underlying trabecular bone and the formation of osteophytes and subchondral cysts. Synovitis is also a feature for some patients; cells in the synovial fluid proliferate but their lubricating capacity is reduced.

Microfractures stimulate generation of new cartilage so one surgical strategy is to traumatise subchondral bone with a pick so stimulating cells to produce cartilage. Another approach is arthroscopic harvest of chondrocytes, which are cultured before being replaced several weeks later.

There have also been trials using embryonic stem cells, growth factor and implantation of cells into three-dimensional scaffolds but there is little evidence that these techniques modify the disease.

Pharmaceutical treatments are being investigated but none are yet available. Studies on glucosamine and chondroitin, which have anti-inflammatory properties, have not clearly demonstrated ability to relieve symptoms or delay the disease process so their use has not been included in national guidelines.

The main preventative strategy remains exercise and weight loss. Obesity increases the risk of knee arthritis by more than three times and increases inflammatory damage as well as causing mechanical stress.

Improving understanding of different types of osteoarthritis and finding ways to identify it earlier might enable personalised care so that the disease process can be halted or delayed. Glyn-Jones S, Palmer A, Agricola R et al (2015) Osteoarthritis. The Lancet. 386, 9991, 376-387.

Increasing calcium in diet unlikely to reduce fractures

Calcium supplements have long been recommended for older people to prevent and treat osteoporosis. Concerns have emerged about the small reduction in fractures when taking calcium supplements versus the moderate risk of minor side effects such as constipation and the small increase in severe side effects such as cardiovascular events and kidney stones.

As a result, some experts are now recommending increasing calcium through dietary changes rather than taking supplements. This meta-analysis aimed to see whether increasing dietary calcium affects bone mineral density. Findings showed a small initial increase but there were no further improvements after the first year.

The authors conclude that increasing calcium in the diet of older people is unlikely to significantly reduce fractures.


Extreme temperatures attract attention, but cold causes most excess deaths

This large observational study found that cold causes more excess deaths than very high temperatures. Problems caused by heat occur within a few days while the effect of cold lasts three or four weeks.

Although extreme temperatures receive the most attention the greatest mortality is from exposure to moderate cold. This has been associated with cardiovascular stress factors such as blood pressure changes, vasoconstriction and changes in plasma fibrinogen and blood viscosity as well as inflammatory responses.

Cold also induces bronchoconstriction and suppresses mucociliary defences and other immunological reactions resulting in increased risk of respiratory infections.