Hyalofast® for chondral and osteochondral lesion repair

TECHNOLOGY

Hyalofast® is a biodegradable, three dimensional hyaluronic acid-based scaffold for hyaline-like cartilage regeneration developed by Anika Therapeutics. It has been designed to treat chondral and osteochondral lesions in the knee and ankle, as well as in other joints.

Hyalofast® is supplied as a sterile, biodegradable non-woven pad in 2x2cm or 5x5cm sizes. The pads can be cut and shaped, layered in any orientation and stacked. This allows the HyaloFast® pads to be adapted to fit into both regular and irregular lesions. Shaped HyaloFast® pads are applied to the cartilage lesion via arthroscopy or mini-arthrotomy. The naturally adherent property of HyaloFast® pads aids fixation without any additional materials in most cases. The HyaloFast® pad is used as a support for the attachment, proliferation and differentiation of mesenchymal stem cells either from the joint or via autologous transplant to regenerate the cartilage structure.

The product received CE marking in 2009.

POTENTIAL FOR IMPACT

Minor cartilage damage can be treated by rest, support or physiotherapy of the affected joint allowing natural repair, typically within a few weeks. More severe cartilage damage may require surgery, depending on the nature and extent of the damage. Options include lavage and debridement; microfracture to encourage the growth of new cartilage; replacement of the damaged cartilage with healthy cartilage; altering the alignment of the leg to reduce pressure on the damaged area; and if the damage is particularly severe, replacing the whole joint with an artificial one. Post-surgical repair of cartilage can take a long time due to its slow growing nature and careful rehabilitation is required to allow complete healing.

Hyalofast® is composed of a single 3D fibrous layer of HYAFF®, a benzyl ester of hyaluronic acid (HA), a natural component of the extracellular matrix. Hyalofast® can be
implanted directly into lesions after microfractures to provide a chondroprotective cover, or can be pre-loaded with autologous bone marrow aspirate concentrate (BMAC) where it acts as a biodegradable support for mesenchymal cells. When combined with HyaloFast®, mesenchymal stem cells differentiate into chondrocytes for hyaline-like cartilage regeneration and into osteocytes for subchondral bone formation. As the HYAFF® degrades over time, it releases HA into the lesion to form an embryonic-like microenvironment. Any excess HA released is safely resorbed into the body.

The company claims that HyaloFast® simplifies the surgical implantation process, can be shaped to fit irregular lesions and supports effective regeneration of hyaline cartilage. In addition, HYAFF® is derived from non-animal origin HA, which reduces the chances of adverse effects compared with HA derived from animal products. It has been used for more than 15 years in the tissue regeneration field. If effective, this technology is predicted to have an impact on the following domain of the NHS Outcomes Framework (www.england.nhs.uk/resources/resources-for-ccgs/out-frwrk):

Domain 3 Helping people to recover from episodes of ill health or following injury.

**EVIDENCE**

**PUBLISHED PAPERS AND ABSTRACTS**


**ONGOING STUDIES**

A prospective, randomized, active treatment-controlled, evaluator-blinded multicenter study to establish the superiority of Hyalofast® with BMAC in the treatment of articular knee cartilage defect lesions in comparison to control. 

**INFORMATION FROM**
Lay summary

*Hyalofast®* is a pad used to help repair damaged cartilage in knees, ankles and other joints. It is made from hyaluronic acid, a key component of cartilage. The pads can be shaped to fit any shape or size of lesion in the cartilage and are placed in the joint during surgery. They can be used with a type of bone marrow cell to repair the damaged cartilage.

This Alert is based on information from the company website and a time-limited internet search.