

Joint Preservation Procedures in Knee

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Traditionally total knee replacement was considered as the only option for osteoarthritis of knee. But with the prevalence of primary osteoarthritis in young and secondary arthritis becoming common, and longevity of implants not exceeding 20 years we are now facing a tough scenario to treat these patients. Even patients in their late 50s and early 60s are physiologically young and want to continue their active lifestyle. So they are not very happy with the choice of joint replacement.

Routinely all osteoarthritis are treated by medical management at early stage. They predominantly involve steroids and NSAIDs. On further review the role of intraarticular steroid injections were tried. The first major revolution in the field of joint preservation came in the form of viscosupplements. "It provides benefits regarding pain and function, and also favorably alters the course of the disease, through quantitatively and qualitatively improving the joint cartilage" says Márcia Uchôa de Rezende. According to Neyret, injections are useful in halting progression of degenerative joint disease but patients react to them differently, so it is not an effective means of managing symptoms long-term. "This is a temporary technique to allow the patient to briefly stay at his full function for a short time" he said.

On pharma front many revolutionising drugs are available ranging from undenatured type II collagen, univestin, glucosaminoglycans, curcumin and ginger extracts all claiming advantage over other but not solidly backed up by literature.

"Joint preserving means to understand better, at least, the reason why a joint is going to deteriorate" Marcacci said. Any malalignment needs to be addressed to avoid any further damage to the joint.

High tibial osteotomy used to correct the angular deformity of the knee. It is an extra articular procedure initially popularised by Jackson in 1958. Initially closed wedge osteotomy was popular but currently open wedge osteotomy is done very common.

Any intraarticular or extraarticular ligament injury needs to be addressed. Ligament reconstruction in sports medicine and for traditional joint pathology is essential to combat joint degeneration. "To perform an ACL reconstruction is a kind of preservation of the joint because you preserve the meniscus" Neyret, of Lyon, France, said. The general rule is to recreate the anatomy to the normal, but which may not always be possible. Though ACL is accepted to play a major role in joint preservation by preserving the meniscus, but still there is no consensus on the role of PCL.

With the evolution of non invasive imaging modalities, MRI with cartilage mapping have improved our understanding on cartilage repair, but such progress still has not resulted in a much-needed breakthrough in cartilage preservation, Neyret said. Autologous chondrocyte implantation (ACI) for early OA is one of the more promising procedures available, he said. Arthroscopic techniques have also made our understanding of the disease and treatment better. ACI and OATS are more done procedures, followed by mosaicplasty.

Orthobiologics are the latest to join the band wagon with Platelet rich plasma, Bone marrow aspirate, Autologous conditioned serum and autologous conditioned plasma all claiming to delay the further joint damage. But yet a large scale randomised study and international consensus is yet to be reached in this field.

Although joint preservation teaching program are being held more regularly, Leunig cautions that the surgeon's eager to use these newer techniques need proper instruction in joint mechanics and how to execute such complicated procedures. "We deal with a very young, highly active population who still have many years to go so when you do something in this group you have to be really sure you did the right thing," says Jeff Craven. "That is a big challenge"- he concluded.

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