

AUTOLOGOUS CHONDROCYTE TRANSPLANTATION IN TREATMENT OF CARTILAGE INJURIES OF PROFESSIONAL ATHLETES



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Fifteen years have been passed since Brittberg and Peterson have described on the New England Journal of Medicine in 1994 their own original procedure on Autologous Chondrocytes Transplantation (ACI).

ACI was considered a promising procedure which can repair cartilage damages differently from previous techniques as microfracture , obtaining not fibrous but hyaline cartilage.

Other procedures have been developed after, using bioengineered tissues for chondrocytes seeding, which allow to implant those tissues by arthroscopic technique.

Many papers have been published about all these techniques and 15 years later it is possible to have some conclusions about the usefulness of these procedures in treatment of cartilage injuries of the knee with particular focus on professional athletes.

1. Mid-term overall clinical results are good in the higher percentage of scientific papers.
2. Mid-term subjective results are very good and better than clinical and objective outcomes
3. From EBM point of view ACI not always are better if compared with other procedure's outcomes (OATS).
4. Remains extremely difficult to design a prospectively randomized studies because of the wide differences in terms kind of lesions, number and type of patients, activity level.
5. We are still debating if in results evaluation it's better to emphasize results in term of knee score or of quality of life.
6. Follow-up are not too long to demonstrate if these procedure can objectively prevent arthritic evolution of these injuries.
7. With Peterson procedure (chondrocytes in fluid suspension) results are good for Femoral Condyle lesion and OCD and fair for patello-femoral joint.
8. With bioengineered tissues results are good for patello-femoral joint injuries too.
9. Not different outcomes were demonstrated between Peterson's procedure and bioengineered tissues (lack of long-term follow-up studies).
10. Second-look arthroscopies outcomes are poor because of few number of cases and because the macroscopical aspects of regenerate cartilage seems to be different from the original.
11. Hystological studies demonstrated that in most of the cases the new cartilage never become a hyaline cartilage but still maintain an hyaline-like cartilage hystological characteristics.
12. None of the studies still published have demonstrated different results in the treatment of professional athletes cartilage injuries between ACI and other procedures (OATS, microfracture).