

통증 및 근골격재활

발표일시 및 장소 : 10 월 26 일(금) 15:15-15:27 Room E(5F)

## OP- Scientific 2-6

### **Stem cell injection for supraspinatus partial thickness tear: randomized controlled study**

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#### **Background**

The supraspinatus is prone to wear and tear injury and the degenerative process of this tendon is a well-noticed cause of chronic shoulder pain. However, there is no unquestionable treatment for this condition. Recently, attempts to promote tissue regeneration have proved some efficacy in various tendinopathies. The aim of this study is to investigate the effect of mesenchymal stem cell injection in treating partial tear of the supraspinatus.

#### **Methods**

We enrolled 24 patients with shoulder pain lasting more than three months and partial tear of the supraspinatus tendon shown in the MRI. Participants were randomly assigned to three groups according to the injectate; stem cells suspended in fibrin glue, normal saline and fibrin glue mixture, and normal saline. Intra-lesional injection was performed under ultrasonographic guidance. Pain at activity and rest were assessed by visual analogue scale (VAS) and shoulder function was assessed by questionnaire and physical examination (ASES, UCLA, DASH score). Radiologic evaluation was done with MRI and ultrasonography. The follow up images were graded by 5-point Likert scale compared to the baseline image. All assessment was completed at baseline, 3 days, 2, 4, 6, 12 weeks, 6, 12 months and 2 years after injection except the MRI which was performed at baseline, 3 and 12 months after injection. Participants, the author who delivered the injection, those assessing the outcomes were all blinded to group assignment. Primary outcome measure was the improvement in pain at activity at 3months after injection. Additionally, we investigated whether there was difference in pain, shoulder function, and image by group and time. Kruskal-Wallis test was used to compare the primary outcome between groups and mixed effect model was adopted to test whether there was difference in the rate of change in each assessment tool.

## Results

One participant who was assigned to the stem cell group dropped out before the injection and total 23 patients were included in the analyses. There was no statistically significant difference in the baseline characteristics between groups. The improvement of pain at activity did not differ by group at 3 months after intervention ( $p = .352$ ). Mixed effect model with baseline values as covariate and time and group as factors revealed no statistically significant interaction. Only time significantly predicted the outcome measure when identical modeling without interactions were performed except for MRI gradings which showed no significant factor. All participants reported pain at the injection site most frequently lasting for 2 to 3 weeks. There was no significant difference in the post-injection pain duration between groups.

## Conclusions

Stem cell injection to supraspinatus partial tear in patients with shoulder pain lasting more than three months is not more effective than normal saline injection. Pain and shoulder function improves after injection by time regardless of the injectate.

