

Effect of ESWL on Osteochondritis Dissecans of the Knee in a Rabbit Model

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Device and producing company:

OssaTron (Sanuwave, GA)

Introduction:

Treatment of severe osteochondritis dissecans (OCD) often includes surgical interventions (i.e. a multiple drilling, excision, or debridement). Still, only 35% of them had a good to excellent result in a 4 to 15-year follow up¹. The goal of this study was to determine the effects of ESWL on OCD lesions in the medial femoral epicondylar cartilage of New Zealand White (NZW) rabbits.

Methods:

Twenty skeletally immature (8 week old) female NZW rabbits had a 4 mm plug of the osteochondral surface harvested on the medial femoral epicondylar of each knee.

A piece of Surgerosis™ was placed into the cavity then the plug was replaced. Two weeks post OCD model, each rabbit was sedated and their right knee was treated with OssaTron (4,000 impulses at a setting of 4 Hz and 18kV - SANUWAVE, GA). The left knee was sham control. Histological and radiographic evaluation was done up until 10 weeks post treatment.

Results:

Histologically, there is significantly more mature bone formation and a healing particular cartilage of the plug margin on the treated side, resulting in pronounced differences of the healing scale (0.71 vs. 3.24) and density of the cartilage (60.2 vs. 48.8) ($p < 0.05$).

Radiographically, a better bony union on the plug margin was noticed before 5 weeks post ESWL, showing a significant increase of bony density (153.4 vs. 138.2) ($p = 0.002$).

Discussion:

ESWL accelerated the healing rate and improved the quality of cartilage and subchondral bone in the OCD rabbit model.

Conclusion: ESWL shows promise in accelerating osteochondral defect healing in this rabbit OCD model.