Osteonecrosis And ESWT

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Introdution:
Osteonecrosis is a pathology characterized by a bone circulatory disorder leading to its necrosis, it can affect various joints, but hip, knee, talus are mostly affected.
There are spontaneous and secondary types; the first ones usually take most advantages from the conservative treatment.
The circulatory disorder, being the underlying condition of this pathology, leads through oedema and intra-osseous pressure rise to ischemia and then to necrosis.
The ESWT, thanks to its pain-releasing, neo-angiogenesys effect, can be suggested as an effective conservative treatment of this pathology.

Material and Methods:
Seventeen subjects have been selected aged on average 51 years (range 36-66); the diagnosis was osteonecrosis of the femoral head (No. 13), of the femoral condyle (No. 2), of the talus (No. 2).
All of them reported pain since at least 6 months. Pain has been evaluated by means of the VAS scale in all patients and by means of the Fisher algometer in those patients suffering from osteonecrosis of the femoral condyle and of the talus. Restriction of the functional activities has been evaluated by means of the Algofunctional Index of Lequesne.
Patients had also undergone radiographic as well as MRI examination.
The treatment suggested is one ESWT session performed with an electro-hydraulic unit H.M.T. administering a number of SW with an output varying according to the joint type (femoral condyle 1600 SW – 0,15 mJ/mm2 ; talus 1500 SW – 0,13mJ/mm2; femoral head 4000 SW – 0,25mJ/mm2).
After treatment, according to injury type and degree, a period of 4 to 8 weeks of walking activity with no weight bearing on the treated side and a rehabilitation treatment to keep articular mobility and muscular tone-trophism were suggested to the patient.
One month after treatment a clinical examination was performed and in case of unsatisfactory response treatment was repeated in the same way.
Follow-up of the cases treated included an examination 1, 3, 6 months after the last ESWT session. The examination at 6 months also included a new MRI.

Results:
The evaluation of the VAS scale showed on average values equal to 6,8 before treatment and 4,5 after 1 month, 4,3 after 3 months, 4,2 after 6 months.
The evaluation with the Fisher algometer showed on average values of 1,5 before treatment and 3,7 after 1 month, 5,4 after 3 months, 4,1 after 6 months.
The functional activities evaluated with the Algofunctional Index of Lequesne showed on average values equal to 7,1 before treatment and 5,2 after 1 month, 4,2 after 3 months, 4,1 after 6 months.
The MRI showed a positive evolution of the picture in 6 cases and stability of the imaging picture in 7 cases, whereas the evolution was negative in the remaining cases.
In 35% of the cases the MRI showed a reduction of the edema coupled with partial recovery of the cartilage as well as of the subchondral bone previously depleted.
During the treatments performed, no case reported significant undesired effects.

Conclusions:
The data obtained in the population treated show a good clinical result in the follow-up at 3 and 6 months. The pain evaluation shows a substantial reduction; the Algofunctional Index of Lequesne shows a 45% increase.
The effectiveness of the treatment with ESWT proves to be interesting for this kind of pathology, especially due to the scanty possible alternative therapies, although a limited number of subjects does not apparently report a significant improvement. Patients suffering from osteonecrosis of the femoral condyle and of the talus reported the most satisfactory results.
The advantages of the SW Therapy prove to be especially interesting in the treatment of osteonecrosis with regard to the patient's compliance, to the reduced need of surgical treatment, to the absence of side effects, to the early outcome of positive response, to the reduced number of treatments necessary.