

Therapy With ESWT Associated With Physiokinesitherapy in The Treatment of The Post-Surgical Stiff Knee

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Introduction

Various authors have described the possible onset of an articular stiffness associated with tendinosis and fibrotization of the ligamentous structures, in many cases accompanied by ossification processes of the synovial and of the tendinous capsular formations as well as of the periarticular soft tissues.

The treatment with ESWT allowed to obtain good results in different calcific and degenerative pathologies of the tendinous structures, also including the ossific myositis. Therefore, this method has been suggested to patients before a possible surgical treatment.

Materials and Methods

Five subjects have been treated (4 females – 1 male, aged on average $51,2 \pm 12,7$) suffering from knee stiffness after one or more surgical operations associated with a patellectomy. The time elapsing from the latest surgical operation varies from 4 to 9 months. The reduction of range of motion was sometimes accompanied by pain symptoms.

The subjects have been treated with SW (with a shock wave unit of the spark gap electro-hydraulic type: OSSATRON OSA 140, HMT) with 2000 SW at 16kV (equal to $0,154\text{mJ}/\text{mm}^2$); treatment was repeated after two weeks.

After each treatment, the patients received a physiokinesitherapeutic treatment with passive (also forced) and active mobilization; 3 cases were able to perform exercises in a swimming pool with water temperature at 38°C .

Results

The initial mobility evaluation of the knee flexion-extension movement showed a mean ROM of $38,0^\circ (\pm 13,5)$.

After the first SW administration a recovery of the mobility was reported already during the first 48 hours and went on in the following days; such response led to repeating the treatment two weeks after the first one.

Two weeks after the second treatment the patients' articular range of flexion-extension has been newly evaluated showing a mean ROM of $73,0^\circ (\pm 14,4)$ with an average increase of 92,1% ($p < 0,001$).

Three months after the second ESWT session a further evaluation of the articular function has been made showing a mean ROM of $79,0^\circ (\pm 16,4)$ with an average increase of 107,9%.

The pain symptom shows an improvement not to be related to the functional recovery.

Variation of the x-ray picture shows an unstable evolution and this proves to be related neither to the functional recovery nor to a reduction of the pain symptoms.

Conclusions

The clinical cases described are a very limited sample but the result obtained allows to view the suggested therapeutic protocol with great interest.

In the end, we can state that ESWT associated with adequate physiokinesitherapy has led to significant results.

The costs as well as the risks taken by the health care centre and by the patients proved to be substantially smaller than a possible surgical therapy.