

Influence of Energy and Local Anesthesia on the outcome of Low Energy Extracorporeal Shockwave Therapy (ESWT) on Plantar Heel Spur.

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The question of doing low energy ESWT with or without local anaesthesia is still in discussion and hasn't been validated in a randomised comparing trial yet. In the large multicenter-trials of the German orthopaedic society (DGOOC) local anaesthesia has been used for blinding. The results of the study concerning tennis elbow have been controversially to the average outcome results in literature. Aim of this pilot study has been to evaluate the influence of local anaesthesia on the clinical outcome of ESWT.

We have started a prospective, randomised trial on plantar heel spur including patients, who have been unsuccessfully treated conservatively but sufficiently according to the guidelines of the International Society of Musculoskeletal Shockwave Therapy (ISMST). Severe low back pain, segmental pain in L5/S1 level or no clearly definable pain by local pressure has been excluded. Treatment has been done with a Sonocur Plus (Siemens) device. Follow-up-time have been minimum 6 weeks.

Three groups have been randomised:

Group A (20 patients, 24 heels): No local anaesthesia, energy flux density (EFD) 0,04 mJ/mm².

Group B (20 patients, 22 heels): With local anaesthesia by 4 ml 2% Scandicain, EFD 0,09 mJ/mm².

Group C (20 patients, 24 heels): With local anaesthesia by 4 ml 2% Scandicain, EFD 0,04 mJ/mm².

For evaluation parameters we have chosen VAS (visual analogue scale) in weight bearing and non weight bearing situations as well as pain under pressure, additionally the need of further therapy at the moment of follow up.

We have registered a significant better result in VAS ($p < 0,016$ to $p < 0,009$ in different situations of weight bearing) and need of further therapy ($p < 0,01$) in group A (no local anaesthesia) in comparison to group C (local anaesthesia, same EFD) in a 6-weeks follow up. Similar results we found between groups A and B (VAS $p < 0,026$ to $p < 0,003$). There has been no significant difference between groups B and C. Successful therapy (painless or low pain and no further therapy needed) in Group A has been reported in 65,3%, in groups B and C with local anaesthesia only in 36,3% ($p < 0,01$) and 29,2% ($p < 0,001$). The results have been stable in a long term follow up too.

In our pilot study the results of ESWT on plantar heel spur without local anaesthesia have been significantly better than with local anaesthesia even in higher energy-treatment of group B. We have found strong clues, that blinding by local infiltration is influencing the results in a negative way and has to be assessed as a systematic error in study design. Even some articles were published supporting our results further investigations concerning the influence of local anaesthesia on the results of ESWT are recommended.