

Cacchio A, Paoloni M, et al. Effectiveness of Radial Shock-Wave Therapy for Calcific Tendinitis of the Shoulder: Single-Blind, Randomized Clinical Study. Phys Ther 2006;86:672-682.

Design: Randomized Clinical Trial

Study question: Does radial shock wave therapy reduce pain and improve function in patients with calcific tendinitis of the shoulder

Population/sample size/setting:

- 90 patients (55 men, 35 women, mean age 56) treated for symptomatic calcific shoulder tendinitis in university PM&R department in Rome
- Eligible if they had radiographically defined (well-defined borders) calcium deposits in shoulder, pain VAS score 4 or greater, 6 months of symptoms with failure of conservative treatments
- Excluded if they had rotator cuff tear, arthritis, acromioclavicular spur, pregnancy, radiographically poorly-defined (cloudy/transparent) calcium deposits, pacemakers, coagulation disorder, conservative rx in last 4 weeks

Main outcome measures:

- Randomized to radial shock-wave therapy (RSWT, 2500 pulses per session, n=45) or control (RSWT, 25 pulses per session, n=45), 4 weekly sessions
- UCLA shoulder score at baseline, after treatment (4 weeks from baseline), and 6 months after 6 month follow-up (not clear if from baseline or from end of rx), assessed by physician unaware of treatment group
- VAS at same intervals, and repeat x-ray at 4 week mark read by radiologist unaware of treatment group
- All patients completed treatment, with 100% follow-up at 6 months
- UCLA score analyzed 2 ways: as change in mean score on 35-point scale (35 is best score) and as success/failure (34 or 35 points was a positive outcome; 33 or less was negative outcomes)
- Control group improved from baseline only on pain subscale of UCLA and pain VAS; greater pain improvements were seen on same scales for RSWT group
- RSWT group, but not control group, improved from baseline to end of study in other UCLA subscales and total UCLA scores (both had baseline UCLA of approximately 10; RSWT group had mean UCLA of 32 at end of study; control group had final UCLA of 10.5)
- UCLA score had 39/45 successes in RSWT but 0/45 in control group
- 6 patients in control group had steroid injections during course of study; no patients in RSWT group had steroid injections
- Calcium deposits were eliminated in RSWT group, but showed almost no change in control group

Authors' conclusions:

- RSWT effectively reduces pain and improves function when used to treat calcific tendinitis of the shoulder
- This may be due to advantages of mode of delivery of radial energy wave, which is certain to reach the calcific deposit, over extracorporeal shock wave treatment, which requires periodic adjustment of beam to continue to reach calcific deposit

Comments:

- Randomization, allocation concealment, blinding, and follow-up all appear to be done adequately; if executed as reported, few sources of bias are apparent
- Treatment effect appears to be very large, with near-universal success in RSWT group and universal failure in control group
- Table 2 shows balance of reported baseline measurements, but there is no information on balance of amount of conservative treatment prior to randomization (defined as NSAID, ultrasound & exercise, laser & exercise, acupuncture, and steroid injection); it is unlikely that all patients received all of these interventions, and a comparison of baseline conservative treatments would be of interest

Assessment: Adequate for evidence that radial ESWT may be beneficial in the setting of calcific tendinitis