CALCIUM DEPOSIT MANAGEMENT

Ultrasound has been used successfully for the treatment of calcium deposits or bone spurs (myositis ossificans, joint mice, bone spurs). This treatment generally reduces the patient's apparent pain immediately, producing improved ranges of motion in affected joints and increasing functional abilities.

It has not been firmly established how treatment with ultrasound creates these results. It has been surmised by many, however, that the molecular vibration produced by ultrasound weakens the molecular bonding responsible for ionic calcium deposit formation, essentially dissolving at least part of the formation, and softening rough edges and rounding off sharp points. However, controlled radiographic studies to confirm this premise have not been published. It has also been postulated that the effectiveness of ultrasound treatment lies in its ability to desensitize the tissues surrounding a calcium deposit, effectively accommodating the involved soft tissues to the deposit's presence and raising the pain threshold of these surrounding tissues. Another theory has it that ultrasound simply relieves the pain by reducing the inflammation and interstitial swelling associated with the deposit by increasing circulation in the surrounding tissues (especially if an anti-inflammatory is additionally phonophoresed into the tissues). The truth may be that a combination of these postulates provides the basis for effective ultrasound treatment. Only further study will produce a satisfactory explanation of why ultrasound may be effective.

Clinical experience has demonstrated that pulsed waveform ultrasound is the most effective form for reducing or managing calcium deposits. Pulsed wave ultrasound can be applied at intensity levels that would ordinarily be painful to the patient if the continuous waveform were used. Additionally, little or no movement of the sound head is necessary when using the pulsed waveform (impossible with the continuous waveform), allowing the sound to be concentrated over the deposit site. Clinical experience has shown that the best results (decreases in pain and restoration of function) are produced by relatively high intensity ultrasound, from 1.5 to 2.0 W/cm²(the intensity should be decreased as patient tolerance decreases).

Application:

- Preset the ultrasound unit to deliver a 1 MHz (or 3.3 MHz if the tissues are thin) 50% pulsed waveform at 2.0 W/cm².
- Coat the treatment site with an appropriate coupling agent (a gel containing ibuprofen or a salt colloidal suspension).
- Ultrasound the designated area for six minutes (treatment time based on a treatment area of 72 cm² or less). If the patient begins to complain of an “aching” pain, decrease the pulse rate to 20%. If the patient continues to complain, decrease the amplitude to 1.8 W/cm^2. It should be noted that the aching pain is good sign, indicated that the bone “buffering” calcium deposit is breaking down. The reductions suggested in amplitude and pulse frequency are simply made to keep the patient comfortable, and will not decrease the effectiveness of the treatment, at that point.
- After a 10-minute rest, apply the ultrasound again. Treatments should occur daily, or every other day until the symptoms disappear. If improvement is not apparent after the six sessions, treatment should be suspended.
- Hygienically cleanse the sound head and dry immediately following application and again before its next use.