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The Effectiveness of Extracorporeal Shock Wave Therapy on Burns and Scars

Brandon Lubish, OTS & Patrick Yee, OTS

Case

In an outpatient clinic, an occupational therapist is treating a client who has recently suffered a thermal burn on his left forearm 2 weeks prior to the session. The therapist wants to know if Extracorporeal Shock Wave Therapy (ESWT) would be an appropriate treatment for their client to improve healing, appearance and mobility of the scar.



1 Ask: Research Question

Is Extracorporeal Shock Wave Therapy (ESWT) an effective treatment for scars and burns?

2a Acquire: Search Terms

Patient/Client Group: Burn patients, Scar patients

Intervention: Extracorporeal Shock Wave Therapy for scars, Extracorporeal Shock Wave Therapy for burns, Extracorporeal Shock Wave Therapy for pain

Comparison: N/A

Outcome: Decreased pain, Decrease scar size, Increased mobility, Successful healing, Improved scar appearance.

2b Acquire: Selected Articles

Arno et. al. (2010): A quasi-experiment that assessed the effectiveness of Extracorporeal Shock Wave Therapy as a non-surgical method for treating severe burns. Patients were administered treatment on the 3rd and 5th days post burn.

Saginni et. al. (2015): A Randomized Control Trial (RCT) that assessed the effectiveness of Extracorporeal Shock Wave Therapy on burns, by comparing its use alone as treatment versus pairing it with other therapeutic approaches. Subjects were treated at a reconstructive surgery unit. Patients qualified if they had a history of hand surgery resulting in pain and a retracting scar of at least a one month duration.

Fioramonti et. al. (2012): A quasi-experiment that assessed the effectiveness of using Extracorporeal Shock Wave Therapy on improving appearance of burn related scars. The visual analog scale was used to allow the patients to assess their satisfaction with the appearance of the scar post treatment. Factors included in scoring were scar thickness, pigmentation, observer comfort, movement impairment, and acceptance.

3a Appraise: Study Quality

Arno et. al. (2010): Very small sample size (N=15): Large exclusion criteria limiting its external validity. The small sample size limits internal validity as well. Results were gathered based on patient response leaving room for a bias to affect the results.

Saginni et. al. (2015): Preponderant: Large sample size. (N=70). Large exclusion criteria limiting external validity. Study provides strong evidence for ESWT in patients with a history of surgery results in painful scarring.

Fioramonti et. al. (2012): Very small sample size. (N=16) Limits internal validity. Majority of patients scars were in the facial region limiting external validity of scar location. Some results were gathered through patient response also leaving room for bias which may affect results.

3b Appraise: Study Results Findings from these studies support the use of ESWT for burn and scar treatment. The Arno and Fioramonti studies show ESWT to be an effective treatment for burns and scars throughout the body, These studies used the Visual Analogue Scale (VAS) to measure the effectiveness of treatment. The Saginni study measured the effectiveness of ESWT on retracting scars in the hand. The results of the Saginni study show that the use of ESWT either alone or paired with other therapy treatments will result in significant improvement in appearance, mobility, vascularization and pain at ($P \leq 0.05$). This study was conducted with the largest sample size of the three and has the most reliable and valid evidence. The other studies have smaller sample sizes, however have similar results. Overall the studies suggest that extracorporeal therapy can be a useful tool in treating burns and scars, and can continue to be effective when paired with other therapy treatments.

4 Apply: Conclusions for Practice An occupational therapist would find using extracorporeal shock therapy useful in treatment of burns and scars. The studies did show that ESWT treatment resulted in positive satisfaction of clients with the appearance, comfort and mobilization of their scars. Overall, ESWT alone can be an effective treatment for both burn and scar healing, mobilization, scar retraction, and appearance. Pairing ESWT with other treatment approaches can be effective as well. More research studies should be conducted to further support its use by Occupational therapists.

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