Cureus

Open Access
Abstract
Published 09/16/2023

Copyright
© Copyright 2023
Lorusso et al. This is an open access abstract distributed under the terms of the Creative Commons Attribution License CC-BY 4.0., which permits unrestricted use, distribution, and reproduction in any medium, provided the original author and source are credited.

Distributed under
Creative Commons CC-BY 4.0

Effectiveness of extracorporeal shock wave therapy for the management of patients with painful rotator cuff calcific tendinopathy: a systematic review with meta-analysis

Domenico Lorusso [1] , Fabrizio Brindisino [2]

1. Operative Unit of Orthopaedic and Traumatology, Hospital "Mons. Dimiccoli", Barletta, ITA 2. Department of Medicine and Health Science “Vincenzo Tiberio”,, University of Molise c/o Cardarelli Hospital, C/da Tappino 86100 Campobasso, Italy, ITA

Corresponding author: Domenico Lorusso, domenicolorusso.0207@gmail.com

Categories: Pain Management, Physical Medicine & Rehabilitation, Orthopedics
Keywords: painful rotator cuff calcific tendinopathy, extracorporeal shock wave therapy

How to cite this abstract
Lorusso D, Brindisino F (September 16, 2023) Effectiveness of extracorporeal shock wave therapy for the management of patients with painful rotator cuff calcific tendinopathy: a systematic review with meta-analysis. Cureus 15(9): a1045

Abstract

Introduction

Rotator Cuff Calcific Tendinopathy (RCCT) is one of the main causes of non-traumatic shoulder complaints and is associated with pain, dysfunction, and decrease in range of motion, muscular strength resistance, disability and quality of life. RCCT manifests typically in the 4th, 5th and 6th decade of life and occurs more in women. Its clinical presentation is highly variable and depends on the stage of the disease, the anatomic location and the size of the calcification. The treatment of the patients with painful RCCT begins with a conservative intervention including non-steroidal anti-inflammatories drugs, physical therapy, electrophysical agents, and may progress to minimally invasive non-surgical interventions including corticosteroid injection, Extracorporeal Shock Wave Therapy (ESWT) and Ultrasound-Guided Needling Procedures (USGNP).

The 1st aim of the systematic review was to investigate if ESWT is effective in reducing pain and disability, in improving function, quality of life and rate of complete resorption of calcifications compared to other non-surgical or minimally invasive interventions or to sham in patients with RCCT. The 2nd aim was to investigate which modality of ESWT leads to greatest clinical improvements between High Energy (HE)-SWT and Low Energy (LE)-SWT and between Focal (F)-SWT and Radial (R)-SWT.

Methods

MEDLINE, EMBASE, Cochrane Library, and PEDro databases until 2nd March 2023 were searched without language or publication period restrictions. Study registers as Clinicaltrial.gov and other grey literature sources were investigated.

Two independent reviewers selected Randomized Controlled Trials (RCTs) investigated the effectiveness of ESWT against sham-ESWT or other non-surgical or minimally invasive non-surgical interventions in adult subjects aged ⩾18 years old with any type of RCCT confirmed by radiography or ultrasound. Two independent reviewers selected RCTs using EndNote20 and Rayyan QCRI online software, extracted data in a standardized Microsoft Excel Form and evaluated the risk of bias with the Revised Cochrane Risk of Bias Tool for RCTs. RoB 2.0 graph was created through the RobVis Visualization Tool. The third reviewer resolved any disagreements. The meta-analysis was performed using the latest version of the software for statistical analysis Cochrane RevMan 5.

Results

Comparing ESWT and USGNP, the pooled results showed a statistically but not clinically significant difference in favour of USGNP in pain intensity at <24 weeks (MD= 1.17, 95% CI 0.37, 1.98, p= 0.004, I^2= 59%) and at <48 weeks (MD= 1.31, 95% CI 0.42, 2.20, p= 0.004, I^2= 42%); Comparing HE-SWT and LE-SWT, the pooled results reported a statistically and clinically significant difference in favour of HE-SWT for pain at <24 weeks (MD= -1.83, 95% IC -3.52, -0.14, p= 0.03, I^2= 87%).

Conclusion

The present systematic review with meta-analysis suggested that a statistically but not clinically significant

difference was observed in pain intensity at <24 and <48 weeks in favour of USGNP when compared to ESWT. Moreover, HE-SWT was statistically and clinically better than LE-SWT in pain relief at <24 weeks. However, the true effectiveness of the different types and modalities of ESWT is still difficult to assess, due to the large variability in intervention protocol, the lack of consistent group comparisons and the presence of studies of questionable quality. Therefore, results should be interpreted with caution due to these limitations.