The Effectiveness of Multimodal Care for the Management of Soft Tissue Injuries of the Shoulder: A Systematic Review by the Ontario Protocol for Traffic Injury Management (OPTIMa) Collaboration

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Abstract

Objective: The purpose of this systematic review was to evaluate the effectiveness of multimodal care for the management of soft tissue injuries of the shoulder.

Methods: We conducted a systematic review and searched MEDLINE, EMBASE, CINAHL, PsycINFO, and the Cochrane Central Register of Controlled Trials from 1990 to 2015. Two independent reviewers critically appraised studies using the Scottish Intercollegiate Guidelines Network criteria. We used best evidence synthesis to synthesize evidence from studies with low risk of bias.

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Results: We screened 5885 articles, and 19 were eligible for critical appraisal. Ten randomized controlled trials had low risk of bias. For persistent subacromial impingement syndrome, multimodal care leads to similar outcomes as sham therapy, radial extracorporeal shock-wave therapy, or surgery. For subacromial impingement syndrome, multimodal care may be associated with small and nonclinically important improvement in pain and function compared with corticosteroid injections. For rotator cuff tendinitis, dietary-based multimodal care may be more effective than conventional multimodal care (exercise, soft tissue and manual therapy, and placebo tablets). For nonspecific shoulder pain, multimodal care may be more effective than wait list or usual care by a general practitioner, but it leads to similar outcomes as exercise or corticosteroid injections.
Conclusions: The current evidence suggests that combining multiple interventions into 1 program of care does not lead to superior outcomes for patients with subacromial impingement syndrome or nonspecific shoulder pain. One randomized controlled trial suggested that dietary-based multimodal care (dietary advice, acupuncture, and enzyme tablets) may provide better outcomes over conventional multimodal care. However, these results need to be replicated. (J Manipulative Physiol Ther 2016;39:121-139.e1)
Key Indexing Terms: *Combined Modality Therapy; Shoulder Pain; Shoulder Impingement Syndrome; Rotator Cuff; Tendinopathy; Soft Tissue Injuries; Review Literature as Topic*

Musculoskeletal shoulder pain is common in the general population; each year, 30.3% of adults in industrialized nations will experience shoulder pain.[1,2] According to the Department of Labor in the United States, shoulder injuries are the most burdensome musculoskeletal injury, with workers requiring a median of 24 days off.[3] Similarly, workers with shoulder injuries who make a claim to the Workers Compensation Board of Saskatchewan are, on average, absent for 39 days.[4] Although it is a common reason to consult a general practitioner (GP), it is estimated that only about half of patients with shoulder pain will seek help.[5,6] Furthermore, around 20% of patients will revisit their doctor after 3 months of the initial diagnosis.[7]

In primary care clinics, patients with shoulder pain are primarily managed with multimodal care (combination of multiple interventions).[8–11] However, randomized controlled trials (RCTs) commonly evaluate the effectiveness of single interventions, limiting their generalizability to clinical practice.[11] Thus, to guide clinical practice and provide the best available care to patients, it is fundamental to understand the effectiveness of multimodal care. Previous systematic reviews have concluded that limited evidence supports the effectiveness of combining treatments for shoulder injuries.[12,13] However, these systematic reviews are now out of date.

The objective of our systematic review was to determine the effectiveness of multimodal care compared with other interventions, placebo/sham interventions, or no intervention in improving self-rated recovery, functional recovery, clinical outcomes, and/or administrative outcomes for the management of adults and/or children with soft tissue injuries of the shoulder.

Methods

Registration

This review was registered with the International Prospective Register of Systematic Reviews on March 26, 2014 (registration number: CRD42014009115).

Eligibility Criteria

Population. The target population was adults and children with soft tissue injuries of the shoulder. We considered grade I-II sprains/strains, nonspecific musculoskeletal shoulder pain, bursitis, subacromial impingement syndrome, shoulder tendinitis, tendinosis, tendinopathy, and other soft tissue injuries of the shoulder as informed by available evidence.[14–16] We excluded studies on patients with major structural or pathological causes of shoulder pain (eg, fracture, dislocation, infection, frozen shoulder, systemic disease, or neoplasm).

Interventions. We included studies investigating the effectiveness of multimodal care. *Multimodal care* refers to a conservative program of care that involves at least 2 distinct therapeutic modalities provided by 1 or more health care disciplines.[8–11] A multimodal program of care can incorporate passive physical modalities, exercise, manual therapy, acupuncture, education, psychological interventions, soft tissue therapies, or other conservative interventions (ie, nonsteroidal anti-inflammatory drugs [NSAIDS]) as informed by available evidence. The interventions included in multimodal care are adjuncts to each other; therefore, the effect of 1 intervention cannot be isolated. For example, a study comparing multimodal care including range of motion exercises, ultrasound, and manual therapy to a single intervention (eg, oral analgesics) cannot be used to determine the effectiveness of any specific individual intervention included in the multimodal care. Instead, the effectiveness of the multimodal care can be evaluated as a whole.

Comparison Groups. We included studies that compared multimodal care with other interventions, placebo/sham interventions, no intervention, or invasive interventions.

Outcomes. Eligible studies had to include 1 of the following outcomes: self-rated recovery, functional recovery (eg, return to activities, work, or school), clinical outcomes (eg, pain, health-related quality of life, depression), administrative outcomes (eg, time on benefits), or adverse events.