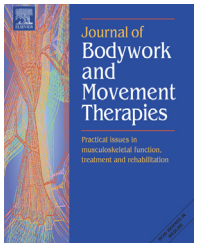
Journal of Bodywork & Movement Therapies (2015) 19, 91–101

Available online at www.sciencedirect.com

ScienceDirect

journal homepage: www.elsevier.com/jbmt



Myofascial origin of shoulder pain: A literature review

Stanislav Sergienko, BPT , Leonid Kalichman, PT, PhD*

Department of Physical Therapy, Recanati School for Community Health Professions, Faculty of Health Sciences, Ben-Gurion University of the Negev, Beer Sheva, Israel

Received 4 February 2014; received in revised form 4 April 2014; accepted 28 April 2014

KEYWORDS
Myofascial pain;
Myofascial trigger points;
Shoulder pain;
Treatment;
Review

Summary *Background:* Shoulder pain is a common problem imposing a considerable burden on the affected person and society. Since interventions targeting traditional musculoskeletal conditions are usually only moderately effective, myofascial origin can be suggested as an alternative possible source of shoulder pain.
Objectives: To examine current evidence associated with myofascial origin of shoulder pain, with emphasis on diagnosis, prevalence and treatment efficacy.
Methods: PubMed, Google Scholar and PEDro databases were searched from inception until December 2013 for terms relating to myofascial pain in the shoulder area.
Results: Two studies showed a high reliability of the following diagnostic characteristics during palpation: presence or absence of the taut band, spot tenderness, jump sign, pain recognition and referred pain sensation. Three prevalence studies showed a significant greater number of active myofascial trigger points (MTrPs) on the painful shoulder side. Reduced muscle strength, accelerated muscle fatigue, inconsistent muscle activation pattern under load and reduced antagonist reciprocal inhibition were found in subjects with latent MTrPs in four observational studies. Six interventional studies demonstrated the effectiveness of dry needling, myofascial manipulation, ischemic compression, laser therapy and multimodal treatment.
Conclusion: MTrPs in shoulder muscles is a common condition among patients with shoulder complaints and can be reliably diagnosed by palpation. The reviewed interventions seem to be effective in reducing pain, increasing range of motion and improving function of the painful shoulder.

* Corresponding author. Tel.: +972 52 2787050; fax: +972 8 6477683.
E-mail address: kalichman@hotmail.com (L. Kalichman).

http://dx.doi.org/10.1016/j.jbmt.2014.05.004
1360-8592/

Introduction

Shoulder pain is a common musculoskeletal problem. It is the third most common cause of musculoskeletal consultation in primary care. Approximately 1% of adults annually consult a general practitioner with complaints of new shoulder pain (Urwin and others 1998). There are substantial disparities in reported 1-year prevalence of shoulder pain in the general population (4.7—46.7%), strongly influenced by various factors such as definition of shoulder disorders, including or excluding limited motion, age, gender and anatomic area (Luime and others 2004; Pope and others 1997). There is no clinical gold standard for defining shoulder pain. Shoulder complaints are usually identified as signs and symptoms in the deltoid, upper arm and scapular region, shoulder stiffness and reduced range of motion, often leading to limitations in daily activities (Pope and others 1997). Shoulder pain is widespread and imposes a considerable burden on the affected person and society. Swedish insurance data revealed that 18% of disability payments for musculoskeletal disorders was spent on neck and shoulder problems (van der Windt and others 2000). One of the most common causes of shoulder pain is subacromial impingement syndrome, comprising rotator cuff tendinopathy or subacromial bursitis. Infections, tumors and neural tissue pathologies are another possibility, but less common causes of shoulder pain (Bigliani and Levine, 1997; Hawkins and Hobeika, 1983; Koester and others 2005; Loitz and others 1999; Mayerhofer and Breitenseher, 2004).

Since interventions targeting local subacromial conditions usually provide only moderately effective treatment of shoulder complaints (Buchbinder and others 2003; Cummins and others 2009; Desmeules and others 2003; Dorrestijn and others 2009; Ekeberg and others 2009; Green and others 2003), alternative possible sources of shoulder pain should be considered. Studies have found a high prevalence of muscles containing active and latent Myofascial Trigger Points (MTrPs) with high local mechanical pain sensitivity and referred pain in patients with chronic non-traumatic shoulder pain (Alburquerque-Sendin and others 2013; Bron et al., 2011b; Fernandez-de-las-Penas and others 2012; Ge and others 2006; Ge and others 2008). MTrPs are described as local points, highly sensitive to pressure causing characteristic referred sensations, pain, muscle dysfunction and in some cases even sympathetic hyperalgesia (Ge and others 2006; Simons and others 1999).

MTrPs may be classified as active or latent. Active MTrPs are characterized by the presence of clinical pain and constant tenderness, preventing full lengthening and leading to weakening of the muscle. Diagnostically, active MTrPs refer to patient-recognized pain upon compression and mediate a local twitch response in muscle fibers when adequately stimulated. When compressed, active MTrPs produce referred motor phenomena and often autonomic phenomena, generally in its pain reference zone. In contrast, latent MTrPs are clinically quiescent with respect to spontaneous pain, and are painful only when palpated. A latent MTrP may have all the clinical characteristics of active MTrP, always with a taut band that increases muscle tension and restricts range of motion (Simons and others 1999).

Another contribution of MTrPs to shoulder pain may be related to the weakening and accelerated fatigability of affected muscles thus altering their activation patterns during shoulder movements (Celik and Yeldan, 2011; Ge and others 2012; Ibarra and others 2011; Lucas and others 2010). Subacromial impingement syndrome can be associated with abnormal extrinsic mechanics including faulty posture, altered scapular or glenohumeral kinematics, increased anterior and superior humeral head translations, decreased scapular posterior tipping, external rotation and upward rotation. Hence, weakness or fatigue of the muscles controlling these articulations may play a critical role in the development of subacromial impingement syndrome and shoulder pain (Michener and others 2003).

Despite the possible importance of a myofascial component, reviews addressing the efficacy of interventions for disorders resulting in shoulder pain, stiffness and disability rarely mention myofascial pain or MTrP therapy (Green and others 2000; Green and others 2003; Green and others 2005).

The purpose of this review was to examine the current evidence associated with myofascial origin of shoulder pain, with emphasis on diagnosis, prevalence and treatment efficacy.

Methods

PubMed, Google Scholar and PEDro databases were searched from inception until December 2013, using a predefined search strategy. Databases were searched for the key words "shoulder", "pain", "myofascial", "trigger point" and various combinations. Titles and abstracts of all articles mentioning at least one of the key words were reviewed. Studies of any design or methodological quality, except case reports, dealing with MTrPs prevalence in the shoulder area, their effect on shoulder muscle function, clinical diagnosis and any kind of treatment were included. Articles were excluded if they were associated with myofascial pain after surgery, myofascial pain in cancer or fibromyalgia patients, myofascial trigger points not related to shoulder pain, injections or other pharmacological interventions for myofascial pain. Study protocol articles and articles without available full text were also excluded from the review. There were no search limitations or language restrictions. The reference lists of all articles retrieved in full were also searched.

The methodological quality of interventional studies was evaluated using the PEDro score checklist (http://www.pedro.org.au/). The PEDro scale considers two aspects of trial quality, the "internal validity" of the trial and whether the trial contains sufficient statistical information to make it interpretable. It does not rate the "external validity" of the trial, or the size of the treatment effect.

Results

The search strategy initially revealed 88 papers. Of them, 16 studies met the inclusion criteria and were included in this review.

Evaluation of MTrPs in shoulder muscles

Only two relevant studies dealing with the evaluation of MTrPs in shoulder muscles were found. One study investigated the