ACRM
AMERICAN CONGRESS OF REHABILITATION MEDICINE

Archives of Physical Medicine and Rehabilitation

journal homepage: www.archives-pmr.org

Archives of Physical Medicine and Rehabilitation 2013;94:930-6

ORIGINAL ARTICLE

Usefulness of a Myofascial Trigger Point Injection for Groin Pain in Patients With Chronic Prostatitis/Chronic Pelvic Pain Syndrome: A Pilot Study

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Abstract

Objective: To investigate the therapeutic effectiveness of trigger point injection into the muscles around the groin in patients with clinically diagnosed chronic prostatitis/chronic pelvic pain syndrome (CP/CPPS).

Design: Prospective, unicenter trial.

Setting: University rehabilitation hospital.

Participants: Patients (N=21) with clinically diagnosed CP/CPPS who are suspected of having myofascial pain syndrome.

Intervention: Ultrasound-guided trigger point injection.

Main Outcome Measures: Visual analog scale (VAS), National Institutes of Health Chronic Prostatitis Symptom Index (NIH-CPSI) score, and injection-associated complications.

Results: Ultrasound (US)-guided trigger point injection of the iliopsoas, hip adductor, and lower abdominal muscles resulted in excellent outcomes. The mean values of the NIH-CPSI score decreased significantly from 20.2 pretreatment to 12.5 after the first treatment ($P<.05$). The mean values of VAS decreased significantly from 6.3 pretreatment to 2.9 after the first treatment ($P<.05$).

Conclusions: In patients with CP/CPPS, US-guided trigger point injections of the iliopsoas, hip adductor, and abdominal muscles are safe and effective for both diagnosis and treatment when the cause of groin pain is suspected to originate from muscles. In particular, the iliopsoas muscle was affected in all patients in this study.

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Nonspecific complaints of groin pain can present a difficult therapeutic and diagnostic dilemma. Factors that complicate the diagnosis include the complex anatomy of the region and the frequent coexistence of 2 or more disorders.[1] The source of pain in this region can range from urologic problems (ie, prostatitis) to musculoskeletal abnormalities. In cases with groin pain, most patients think urologic problems are the cause of pain.

Chronic prostatitis/chronic pelvic pain syndrome (CP/CPPS) or National Institutes of Health (NIH) category III prostatitis ("nonbacterial prostatitis") is a common clinical syndrome with multiple potential etiologies, including infection, autoimmunity, and neuromuscular spasm.[2] However, a population of men with diagnosed CP/CPPS comprises a heterogeneous mix of patients with diverse etiologies and different responses to therapies. Currently, no biomarkers are validated to help guide classification and treatment for CP/CPPS.[3] For most men with CP/CPPS referred to urologists, traditional therapeutic modalities such as antibiotics, analgesics, and alpha-blockers fail to relieve symptoms.[4] In the Chronic Prostatitis Collaborative Research Network study of 488 men with CP/CPPS, symptoms were reported as

Supported by the Basic Science Research Program through the National Research Foundation of Korea, funded by the Ministry of Education, Science and Technology (grant no. 2011-0005611).

No commercial party having a direct financial interest in the results of the research supporting this article has or will confer a benefit on the authors or on any organization with which the authors are associated.

0003-9993/13/$36 - see front matter © 2013 by the American Congress of Rehabilitation Medicine
http://dx.doi.org/10.1016/j.apmr.2012.12.011

significantly improved at 1 year (with best local therapy) in only 17%.[5]

Although muscle tenderness can be secondary to local infection or inflammation, some investigators have evaluated and attempted to treat the associated muscular tenderness of CP/CPPS, particularly painful myofascial trigger points (MTrPs).[6-8] In patients with myofascial pain syndrome (MPS), palpation of the affected muscles elicits pain, typically the pain that patients attribute to their "prostatitis." Shoskes et al[9] suggested that a management strategy for CP/CPPSs may depend on classifying cases into clinical domain phenotypes, of which 1 proposed domain type (skeletal muscle tenderness) is the focus of a growing number of clinical research trials and publications. Zermann et al[10] found that 88% of men with CP/CPPS had tenderness in the myofascial area on palpation.

While MPS has been considered as one of the possible etiologies for CP/CPPS, most previous studies[4,6,11,12] focused on the pelvic floor muscle. Anderson et al[7] reported that the most prevalent pain sites were the penis (91.7% of men with CP/CPPS) and groin (47.2% of men with CP/CPPS); the pain originated in the external oblique and hip adductor magnus muscles. However, based on anatomic proximity and our clinical experience, we thought that the cause of muscular-originated groin pain, in some cases of CP/CPPS, was likely the iliopsoas, hip adductors, and lower abdominal muscles. We assumed that groin pain or tenderness originated from these muscles in patients with CP/CPPS who had no identified pathologic condition to explain symptoms, and that trigger point injection was useful for groin pain in these cases.

The goal of our study was to investigate the therapeutic effectiveness of trigger point injection into the muscles around the groin in patients with clinically diagnosed CP/CPPS. In addition, we attempted to determine which muscle was the cause of groin pain by using ultrasound (US) guidance during the injection.

Methods

Participants

The potential participants of this study were men older than 18 years with groin pain who visited the urology clinic of our institution from September 2010 through February 2012. Men with groin pain of 6 months' duration were first evaluated by a urologist (D.S.K.) and then underwent the urologic tests for diagnosis. Groin pain in this study was a criterion of the NIH Chronic Prostatitis Symptom Index (NIH-CPSI) classification, as well as a criterion of MPS of the iliopsoas, hip adductor, and abdominal muscles. Diagnosis of noninflammatory CP/CPPS (NIH category IIIb) was based on the NIH classification through review of the medical history, physical examination including diagnostic palpations of the pelvic muscle and prostate, cultures of urine, and expressed prostatic secretions or postmassage urine results. Through these procedures other pathologic conditions, such as active urinary tract infection, renal calculi, interstitial cystitis, inflammatory bowel disease, and benign prostatic hyperplasia, were excluded.[2] Under the assumption that groin pain in patients with diagnosed CP/CPPS IIIb could originate from the iliopsoas, hip adductor, or lower abdominal muscles, the urologist referred the patients to a physiatrist (S.C.L.).

After referral to a physiatrist, the participants with a diagnosis of active MPS in the iliopsoas, hip adductor, or lower abdominal muscles were finally included in this study. Diagnosis of an active MTrP was based on the modified criteria described by Simons et al[13]: (1) tender spots in the iliopsoas, hip adductor, or lower abdominal muscles; (2) a typical pattern of referred pain elicited when tender spots are compressed[14]; and (3) a restricted range of motion.[14] However, the criterion of a palpable or visible local twitch response on snapping palpation at the most sensitive spot in the taut band was excluded, because we assumed that the taut bands of the iliopsoas and hip adductor muscles were located too deeply to observe local twitch responses. In addition, we elicited and assessed local twitch responses during US-guided trigger point injections.

Patients were excluded from this study if they had (1) a history of therapeutic modalities such as antibiotics, analgesics, and alpha-blockers being used during the most recent 2 weeks; (2) a neurologic groin pain, if the patient had a history of lower back pain; (3) signs and symptoms of neuropathy in the lower limbs; (4) an NIH-CPSI score of less than 15; (5) a visual analog scale (VAS) score of less than 5; (6) absolute contraindications for the injection procedure, such as a local infection or dermatologic conditions; (7) a history of allergy to local anesthetic agents; (8) severe hypovolemia; (9) gross coagulation defects; (10) evidence of a cognitive deficit; and (11) showed inadequate cooperation.

This study was approved by the institutional review board and human subjects review committee before the study began. Written informed consent was obtained from all participants after they were briefed on the purpose and procedures of the study.

Injection procedure

All patients had a diagnosis of at least 1 active MTrP in the iliopsoas, hip adductor, or lower abdominal muscles based on the previously outlined criteria. Sites for trigger point injection were identified and gently marked on the skin with a plastic needle cap. All injections were performed using a freehand technique with the patient supine. US-guided trigger point injections have been previously reported for lower back muscles and were modified for muscles around the groin.[15]

We performed B-mode, real-time ultrasonography with sterile coupling gel and a latex-free transducer cover by using the ACCUVIX V10 system[a] interfaced with a 5- to 12-MHz linear array transducer around the targeted muscle. The region was scanned, and a transverse plane was obtained to visualize the target muscle with tender spots in the iliopsoas, hip adductor, or lower abdominal muscles. To avoid the neurovascular bundle, the artery was identified using a color Doppler (fig 1). The Doppler setting changed at the level where vascular structures were optimally visualized in each subject.

Under US guidance, a 25-gauge, 3.8-cm needle connected to a 5-mL syringe containing 0.5% lidocaine was inserted into the lower abdominal muscle at the presumed MTrP region, and a 23-gauge, 6.0-cm needle connected to a 5-mL syringe was used

List of abbreviations:

CP	**chronic prostatitis**
CPPS	**chronic pelvic pain syndrome**
MPS	**myofascial pain syndrome**
MTrP	**myofascial trigger point**
NIH	**National Institutes of Health**
NIH-CPSI	**NIH Chronic Prostatitis Symptom Index**
US	**ultrasound**
VAS	**visual analog scale**