

Myofascial Pain Syndromes— Trigger Points

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INTRODUCTION

The awareness of myofascial pain syndrome and trigger points [TrPs] continues to spread around the world. This literature review includes articles from the Netherlands, Turkey, Italy, Japan, the United States, etc. The appearance of three papers on dry needling may indicate a growing recognition of its value as a useful treatment for TrPs. The paper by Smania et al. suggests that pulsed magnetic fields may be a promising, unexplored, effective, and non-invasive treatment of TrPs. The broad spectrum and specificity of effective treatments, the large number of histochemicals present in active TrPs, and the remarkable variety of pathological changes related to TrPs attest to the challengingly complex nature of the pathophysiology of TrPs (1-3). The publication of several papers in surgical journals is a welcome step forward in a new direction for the recognition of TrPs. Each article review indicates whether it is prepared by Simons [DGS] or Dommerholt [JD].

CLINICAL STUDIES

Trigger point acupuncture treatment of chronic low back pain in elderly patients—a blinded RCT. K. Itoh, Y. Katsumi, H. Kitakoji. *Acupunct Med* 22(4): p. 170-7, 2004

Summary

This randomized controlled clinical study compared the efficacy of standard acupuncture, superficial, and deep dry needling in the treatment of elderly patients with chronic low back pain. Thirty-five consecutive patients were randomly assigned to one of three intervention groups. After eight subjects dropped out, nine subjects participated in each group. All subjects were over 65 years of age, had a history of lumbar or lumbosacral low back pain for at least six months without radiation of pain, a normal neurological examination, and no previous treatment with acupuncture for low back pain. Subjects with a history of major trauma, systemic disease, or with conflicting treatments were excluded. Subjects and an independent assessor were blinded to the kind of treatment that was offered. Each group received one weekly 30-minute treatment during two three-week periods with a three weeks in between the two periods.

The standard acupuncture group received treatment at traditional acupuncture points, including BL23, 25, 40, 60, GB30, 34, and up to four ah shi points of greatest tenderness. Disposable stainless needles [0.2 mm × 40 mm] were inserted into the muscle to a depth of 20mm and a standard “sparrow pecking” technique was applied. The sparrow pecking method involves alternate pushing and pulling

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of the needle. After the subject felt dull pain or *de de qi* acupuncture sensation, the needle was left in place for 10 minutes.

The dry needling groups received treatment at trigger points [TrPs] in taut bands of several low back muscles, including the quadratus lumborum, iliopsoas, piriformis, gluteus maximus, among others. Standard acupuncture [0.2 mm × 50 mm] needles were inserted into the skin over TrPs. In the superficial needling group the needle was advanced to a depth of approximately 3 mm. Once a subject would report dull pain or *de de qi* sensation, the needle was kept in place for 10 more minutes. In the deep dry needling group the needle was advanced an additional 20 mm. Using the described sparrow pecking technique, the needle was again kept in place for an additional 10 minutes, once a local twitch response was elicited.

Outcome measures included a Visual Analog Scale [VAS] for pain intensity and the Roland Morris Questionnaire. The VAS was assessed immediately before the first treatment and one, two, three, six, seven, eight, nine, and twelve weeks after the first treatment. The Roland Morris Questionnaire was assessed before the first treatment and three, six, nine, and twelve weeks after the first treatment.

The group that received deep dry needling reported less pain intensity and improved quality of life after the first treatment series compared to the other two groups, although statistical significance was not reached. There was a significant reduction in pain intensity between the first treatment series and the start of the second treatment series for the deep dry needling group, but not for the standard acupuncture and superficial dry needling groups. The authors concluded that deep dry needling may be more effective in the treatment of low back pain in elderly patients than either standard acupuncture or superficial trigger point dry needling.

Comment

Dry needling is slowly becoming a common technique in the treatment of TrPs. For example, in the United States, state boards of physical therapy in seven states have determined that dry needling falls within the scope of physical therapy practice (4). In the Netherlands, two

medical courts have ruled that physical therapists can perform dry needling techniques (5). In Ireland, the National Training Centre has initiated a National Qualification Examination in Trigger Point Dry Needling. Therefore, this study is a welcome comparison of different needling approaches. While the authors concluded that deep dry needling may be the most effective treatment option, it is important to realize that the protocols used for both superficial and dry needling do not necessarily reflect common clinical practice.

When using the superficial dry needling technique, Baldry recommends that the amount of needle stimulation depends on an individual's responsiveness. In so-called average responders, Baldry recommends leaving the needle in situ for 30-60 seconds. In weak responders, the needle may be left for up to two or three minutes. The needle is inserted to a depth of 5-10 mm (6,7). In this study the needle was inserted only 3 mm and left for 10 minutes. With deep dry needling, it is common to continue the "sparrow pecking" or "fast in/out" technique until no further local twitch responses can be elicited (4,8). Commonly, this may involve as many as 10-15 or more attempts. In this study, only one local twitch response was elicited after which the needle was kept in place for an additional 10 minutes. To needle deeper TrPs in for example the gluteus maximus muscle, clinicians commonly use acupuncture needles with a 0.30 mm diameter instead of the 0.20 mm used in this study. Frequently the needle is inserted much deeper than the 20+ mm in this study. It is not clear whether all TrPs involved in low back pain were treated, which implies that for some subjects the VAS scores may not have changed much as other nontreated TrPs may have continued to contribute to complaints of pain.

The study has a relatively small sample size of only nine subjects per group. It seems a bit premature to conclude that only deep dry needling results in a reduction of pain. Other studies have demonstrated that acupuncture and superficial dry needling can also be effective in the treatment of individuals with low back pain (6,9-12) [JD].

Comparison of lidocaine injection, botulinum toxin injection, and dry needling to trigger points in myofascial pain syndrome. A. Kamanli, A. Kaya, O. Ardioglu, S. Ozgocmen, F. O. Zengin and Y. Bayik. *Rheumatol Int*, Sept. 15 (E-Publ), 2004

Summary

This prospective single-blind study compared the effects of botulinum toxin type A injections with 0.5 per cent lidocaine injections and with dry needling. Eighty-seven trigger points [TrP] in 23 female and six male subjects were randomly assigned to one of the intervention groups. Subjects with at least one TrP located in the upper, middle, or lower trapezius, levator scapula, teres minor, supraspinatus, or infraspinatus muscle were included in the study. The problem had to be present for at least six months and subjects were not allowed to have had any treatment during the preceding eight weeks. The contralateral muscles were used as control sites. Exclusion criteria were extensive and included a history of cardiovascular or respiratory disease, allergies, TrP injections within the last two months, cervical or shoulder surgery within the last year, fibromyalgia syndrome, cervical radiculopathy, myelopathy with severe disc or skeletal lesion, pregnancy, poor cooperation, medication regimen that included aminoglycosides or medications preventing neuromuscular transmission.

The authors used multiple outcome measurements including cervical range of motion, pressure pain threshold, pain score measurements, visual analog scales for pain, fatigue, and work, the Nottingham Health Profile, and the Hamilton Anxiety and Depression Inventory.

All interventions were performed with 1.25 in. long, 25-gauge needles. Active TrPs were diagnosed using the criteria of Simons, Travell, and Simons (13). The needle was advanced until the TrP was reached. In the lidocaine group, 1 ml of 0.5 per cent lidocaine was injected after which the needle was moved backward and forward to needle the same point 8-10 more times. The tip of the needle was withdrawn to the subcutaneous tissue and directed toward the upper and lower parts of the first injection site, reportedly to inactivate satellite TrPs. The dry needling

group received the same procedure but without the injection of lidocaine. The botulinum group underwent the same needle procedure followed by a single injection of 10-20 IU of botulinum toxin type A. For all groups, the intervention was followed by compression of the needle site for two minutes, passive stretching, and home exercise programs. A total of 32, 33, and 22 TrPs were treated in the lidocaine, dry needling, and botulinum toxin groups respectively.

All interventions had significant positive effects on cervical range of motion and pressure pain thresholds. Pressure pain threshold were significantly higher in the lidocaine group compared to the dry needling group. The pain scores were lower in the lidocaine group compared to both the dry needling and botulinum toxin groups. The visual analog scales and quality of life scales were significantly improved in the lidocaine and botulinum groups, but not in the dry needling group. Depression and anxiety improved only in the botulinum toxin group. The authors concluded that lidocaine injections are the preferred treatment of choice with botulinum toxin injections reserved for persistent myofascial pain problems.

Comment

It is of great interest that all three treatment groups experienced improvement in several pertinent areas. The authors preferred lidocaine injections realizing that botulinum toxin injections may provide a longer lasting therapeutic effect especially when combined with physical therapy.

In a personal communication, one of the study's authors [Dr. Ozgocmen] shared that in his medical practice he rarely uses acupuncture needles for dry needling procedures. Instead, he prefers to use empty syringes with 0.60 X 30 needles. Based on clinical experience and a desire to use the same syringes in all three intervention groups, dry needling with syringes was the preferred choice in this study. This allowed the researchers to determine whether the effects obtained by TrP injections were related to the pharmaceutical agent. The dry needling procedure in fact became a control group for the lidocaine and botulinum toxin injections. It comes as no surprise that the dry needling pro-

cedures using a syringe were found to be more painful. Eighty percent of the patients reported pain during the dry needling procedures compared to 20 per cent of the lidocaine group.

In the reviewer's clinical practice, dry needling procedures are always performed with acupuncture needles ranging in size from 0.16 mm x 13 mm for facial muscles to 0.30 mm x 75 mm for larger muscles and deeper TrPs. Based on empirical experience, it appears that dry needling procedures using thin acupuncture needles is experienced as less painful by most patients than injections with 0.25 per cent lidocaine. A previous study comparing lidocaine injections and dry needling also used syringes for dry needling (8). It would be interesting to compare 0.25 per cent lidocaine injections with dry needling using acupuncture needles. Using a 0.25 per cent dilution of lidocaine was found to be more effective with less pain from the injection than using a one per cent solution (14). A 0.5 per cent solution is also more painful [JD].

Repetitive magnetic stimulation; A novel therapeutic approach for myofascial pain syndrome. N. Smania, E. Corato, A. Fiaschi, P. Pietropoli, S.M. Aglioti, M. Tinazzi. J Neurol. 252(3): 307-14, 2005

Summary

As a follow-up to a previous study of the efficacy of repetitive magnetic stimulation [rMS] on myofascial pain (15), in this study the authors compared rMS to transcutaneous electrical nerve stimulation [TENS]. The authors indicated that the technique of rMS used in this study allows for much greater intensities than traditionally used in magnetic therapy. Magnetic stimulation has been used for at least 70 years to reduce musculoskeletal pain. In this study two different rMS coils were used. A figure-eight-shaped coil induces a more intense and focal stimulation compared to a circular coil, which delivers a less intense and more diffuse effect. Fifty-three subjects with trigger points [TrP] in the upper trapezius muscle were randomly assigned to an rMS group, a TENS group, or a placebo group. All subjects were

treated daily for 20 minutes, five days a week for two consecutive weeks.

Inclusion criteria included the presence of myofascial pain syndrome based on the criteria suggested by Esenyel et al.: 1. presence of a tender spot characterized by spontaneous pain or associated with movement of the right or left superior trapezius muscle; 2. reproduction or enhancement of clinical symptoms by compression of the active TrP; and 3. presence of a palpable taut band peripheral to the TrP (16).

Exclusion criteria included 1. clinical symptoms of fibromyalgia; 2. age below 18 or above 80; 3. mental retardation; 4. neurological deficits involving the upper limbs; 5. advanced osteopathic or arthropathic disorders of the cervical spine; 6. presence of contraindications for the administered therapies [including subjects with cardiovascular disease, hypertension, coagulopathy, ulcer, recent severe hemorrhage, renal insufficiency, severe hepatic disease, neoplasia, epilepsy, cutaneous pathology, or pain of central origin]; 7. metallic implants; 8. pregnancy.

The subjects in the rMS group were initially treated with the figure-eight-shaped coil, until the coil reached a temperature of 40°C, after which the circular coil was used. The coils were placed over the most painful TrP. A total of 4000 pulsed magnetic stimuli were administered in five-second trains at 20 Hz with a 25-second intermission. The stimulation intensity was based on the subjects' pain thresholds. Transcutaneous electrical nerve stimulation was applied with the negative electrode placed over the most painful TrP and the positive electrode on the acromial tendon insertional site of the trapezius muscle. Transcutaneous electrical nerve stimulation treatment parameters included a current frequency of 100 Hz, pulse width of 250 μ s, an asymmetrical rectangular biphasic wave form, zero net DC current, and the intensity based on the subjects' comfort levels. The intensity was adjusted when subjects no longer perceived a local sensation. The placebo group received sham ultrasound. Ultrasound gel was placed over the zone of the TrP. However, the ultrasound device was never turned on. Outcome measures included a 20-item neck pain and disability visual analog scale, algometry, manual assessment of the treated TrP, and cervical spine flexion and rota-

tion. Assessments were determined before and immediately after the treatment, and at one and three months post therapy.

The rMS group showed significant improvements in all outcome measures, which remained stable three months after the treatments. The TENS group demonstrated significant improvements in all outcome measures, except for algometry and contralateral bending. All improvements were lost at the one and three month assessments except for the neck pain and disability visual analog scale, which was still improved at one month. The placebo group failed to show any progress. The authors concluded with an elegant discussion section in which they suggested that “rMS may be a novel, non-invasive and reliable therapeutic approach . . .”

Comment

Smania and colleagues have conducted an excellent clinical study of the effects of magnetic stimulation on TrPs. We agree that rMS appears to be a promising new treatment modality with long-lasting effects especially when compared to TENS or placebo. The authors warn that because of the small sample size definitive conclusions would be premature [JD].

Botulinum Toxin Type B in Piriformis Syndrome. A.M. Lang. Am J Phys Med Rehabil 83: 198-202, 2004.

Summary

This uncontrolled, unblinded report describes the use of botulinum toxin type B for treatment of piriformis syndrome that was identified in 20 patients by eliciting pain from palpation over the sciatic notch and by either stretching or contracting the piriformis muscle. The results of a single electromyographically guided injection of 5000 units of botulinum toxin type B into an involved muscle were followed at 2, 4, 8, 12, and 16 weeks post injection. A significant reduction of general patient pain scores and for the buttock-hip, low back, and lower limb regions usually occurred in from four to eight weeks, always by 12 weeks.

Comment

Although the cause of the piriformis syndrome was not explicitly identified as trigger points [TrP], the diagnostic criteria and the use of electromyographic guidance for treatment is consistent with that cause. The delayed response is the nature of botulinum toxin injection of TrPs and reduces the likelihood of a placebo effect. When piriformis TrPs are identified as such, and treated with specific TrP methods, they can usually be successfully managed with less expensive techniques that should include the patients' participation, which helps patients gain control of their pain problem. In addition to well-established methods including dry needling (13), frequency specific microcurrent application specifically for TrPs shows a lot of promise for deep muscles like the piriformis (17) [DGS].

Post-traumatic thoracic outlet syndrome (TOS). F.M. Crotti, A. Carai, M. Carai, N. Grimoldi, E. Sgaramella, W. Sias, F. Tiberio. Acta Neurochir (Suppl) 92:13-5, 2005.

Summary

The authors present the results of thoracic outlet surgery involving a large population of 280 patients [220 females, 60 males; age range: 27-78; 184 patients had right-sided surgery, 96 on the left]. Pain was the common factor in the clinical history. Sixty-four cases reported a sudden onset versus 216 with a more gradual onset. In all patients, neurological, vascular, and myofascial pain symptoms were observed prior to surgery.

Neurogenic pain was found in all cases and was described as radiating pain in the C8-T1 dermatomes [252 cases] or C5-C6 dermatomes [28 cases]. The pain was described as a “shooting” pain. Vascular pain was found in 80 per cent [216] of all patients. It was characterized as “throbbing” pain, variable in intensity, duration and spread, with typical physical changes including rubor, tumor, calor, or pallor to the fingers, the whole hand, limb, neck, breast up to the contralateral hand. Myofascial pain was present in 90 per cent [252] of all cases. The distribution of myofascial pain was reported as be-

ing identical in all patients and involved the upper quarter of the body. The authors reported that the pain extended "along the fascias and was commonly perceived on the biceps, triceps, trapezius, scalenes, and pectoralis muscles." Manually tapping of certain tender areas or trigger points [TrPs] elicited the patients' typical referred pain patterns. Myofascial pain was described as "tension ache" or "burning"

The authors provided a meticulous description of other features. Paresthesia, avoidance of certain movements or postures, a postural lateral tilt of the head toward the injured side were seen in all patients. Ninety percent of patients presented with an ipsi-lateral tilt of the pelvis and 80 per cent had a scoliosis. In a small minority [20 patients] clear motor deficits [interosseus muscle atrophy] were observed. Twenty-eight patients were diagnosed with bilateral cervical ribs on X-ray. Only one patient out of 88 patients evaluated with Doppler sonography had an impairment of the digital arterial flow. Twenty-eight cases were evaluated with angiography and were found to have a slow-down of the flow of the subclavian vein. In none of the other cases was thoracic outlet syndrome confirmed by any of these more advanced technologies.

All patients underwent physical therapy intervention for at least three months. Criteria for surgery included persistent symptoms, brachial pain for more than six months, dermatomeric hypesthesia, a positive supraclavicular Tinel's sign, a positive brachial plexus tension test [Elvey's test], and subjective symptoms severe enough to disturb life style.

During surgery the authors found several anatomical or structural anomalies however, they concluded that only the presence of cervical ribs played a role in the pathogenesis of thoracic outlet syndrome. In 244 patients they did not find any immediate evidence of structural compression. In nearly half the patients of this group, the anterior scalene muscle was close to or had merged with the medial scalene muscle, thereby effectively reducing the size of the interscalene triangle. In 200 patients out of the 244, an elevated first rib further compressed the subclavian artery and the C8-T1 trunk. In 88 per cent of all patients there was evidence of neurovascular compression. In all patients they found a fibrillar net bridging the interscalene

triangle and compromising the neurovascular bundle. In addition, in all patients the trunks of the plexus were stretched by pulling the scalene muscles.

Within the context of this column, this study becomes very relevant when viewing the results of surgical intervention. All patients had immediate complete remission of neurogenic pain. Fifty-two patients had immediate relief of vascular pain. After three to four weeks all vascular pain had vanished. However, only 20 patients [10 per cent] experienced a complete remission of their myofascial pain immediately after surgery. Eighty-eight patients continued to have myofascial pain for several weeks, while 108 patients continued to have myofascial pain for at least one year.

The authors emphasized that in thoracic outlet syndrome is not sufficient to only look for sources of direct compression. In many patients the authors did not find any clear precipitating factors leading to thoracic outlet syndrome. Instead, they concluded that "trivial stretch or movement on overloaded muscles [e.g. scalene] could activate a latent trigger point and lock some fibres in taut bands." They further suggested that eventually these myofascial restrictions may lead to tethering of the brachial plexus and chronic nerve entrapment, especially when combined with structural [anatomic] abnormalities or longstanding postural deviations. Myofascial pain should therefore be considered a primary symptom of thoracic outlet syndrome.

Following this study, the authors informally sampled another 240 patients and reported that they again "easily found a large group of fibromyalgia syndrome or myofascial pain syndrome patients more or less bordering thoracic outlet syndrome."

Comment

Although this paper mentions TrPs only briefly, the findings have far-reaching consequences for clinical practice and the management of thoracic outlet syndrome. Basically, the authors, who are associated with a neurosurgery clinic, recognized two kinds of pain mechanisms evident in thoracic outlet syndrome. The neurogenic-vascular pain loop is treated successfully with surgery. However,

the myofascial pain loop continues after surgery and may be responsible for the poor outcomes frequently reported for thoracic outlet syndrome surgery. Myofascial pain is not necessarily altered by surgery. Ninety percent of patients continued to suffer from myofascial pain following surgery, which prompted the authors to recommend that patients must be informed that the same pain symptoms from before surgery may indeed persist after surgery. Myofascial pain may in fact be the primary problem leading eventually to signs and symptoms of thoracic outlet syndrome (13,18).

Prior to surgery all patients were seen for at least three months in physical therapy. Brachial plexus entrapments are common with TrPs in the pectoralis minor, and in the anterior and medial scalenes. It is not clear from this paper, to what extent physical therapy included any specific TrP work, such as manual TrP release, dry needling, injection therapy, or even postural corrections. The authors observed significant postural deviations, such as a lateral head tilt, an ipsi-lateral pelvic tilt, and scoliosis. These can all be associated with TrPs in the scalene muscles, paraspinal muscles, and quadratus lumborum for example. The paper does not include the number of patients who did not require surgery after successful physical therapy intervention, leaving the question whether physical therapy and TrP work can indeed prevent thoracic outlet surgery in a number of patients (18) [JD].

REVIEW ARTICLE

Myofasciaal pijn syndroom (in Dutch: Myofascial pain syndrome). F. Timmermans. Fysiopraxis February p. 36-45, 2005; Part 2. Fysiopraxis March: p. 36-43, 2005.

Summary

Timmermans prepared a two-part article about trigger points [TrPs] published in the Dutch physical therapy journal. Based on a review of the literature, Timmermans explores the history, causes, pathophysiology, clinical features, and treatment options for TrPs. He provides a brief review of various hypotheses, palpation skills, and several other features,

such as the local twitch response. In the second part of the article, Timmermans reviews various treatment options, including manual therapy, electrotherapy, acupuncture, and dry needling.

The articles are concluded with a comprehensive case report of a 45-year old long distance runner, who after having sprained his ankle, was unable to resume running. Medical and podiatric examinations were negative. The patient was eventually diagnosed by the physical therapist as having clinically relevant TrPs in the peroneus longus muscle. Treatment consisted of massage therapy combined with TrP dry needling. After just one session, the patient was able to resume running. He returned to physical therapy a week later and was treated once more with massage therapy and dry needling. The patient did not require any further treatment and was able to complete a marathon just a few months later.

Comment

Little or no attention has been paid to myofascial pain and TrPs in the Dutch medical literature. The most recent publication dates back to 1996, when Friction and Steenks published an excellent review article on myofascial pain in the Dutch dental journal (19). The articles by Timmermans are therefore an important initiative. With this two-part article, Timmermans reintroduced TrPs to the Dutch physical therapy community.

While the overall message of the articles is commendable-TrPs are undervalued in the Dutch physical therapy community and need to be considered-there are several unfortunate inaccuracies especially in the review of the pathophysiology. For example, under the heading of "muscle spindle hypothesis" attributed to Hubbard and Berkhoff, Timmermans reviewed the energy crisis hypothesis, initially described in 1983 by Travell and Simons (20).

Timmermans described active, latent, and satellite TrPs as three distinct classes of TrPs. However, satellite TrPs are not considered a separate class and can indeed be either active or latent. He mentioned that latent TrPs can be visualized with ultrasonography without providing a reference. We are not aware of any such study. Lewis and Tehan were not able to visualize TrPs with ultrasonography (21). Gerwin

and Duranleau could not identify TrPs either, but managed to visualize the local twitch response (22).

We applaud Timmermans with reintroducing TrPs to the Dutch physical therapy community in spite of the noted inaccuracies. Dutch physical therapists have a strong interest in manual therapies and incorporating the current knowledge of TrPs into their manual therapy practices will be beneficial to their patients and the profession as a whole. The case report provides an excellent illustration of a successful treatment of TrPs in a long distance runner [JD].

Acupuncture and Dry-Needling for Low Back Pain: An Updated Systematic Review Within the Framework of the Cochrane Collaboration. A.D. Furlan, M. van Tulder, D. Cherkin, H. Tsukayama, L. Lao, B. Koes, B. Berman. The Cochrane Database of Systematic Reviews 2005, Issue 1. Art. No.: CD 001351, pub2.

Summary

This updated Cochrane review aimed to “assess the effects of acupuncture for the treatment of nonspecific low back pain and dry needling for myofascial pain syndrome in the low back region.” The researchers reviewed the CENTRAL, MEDLINE, EMBASE databases, the Chinese Cochrane Centre database of clinical trials, and Japanese databases from 1996 to February 2003. Only randomized controlled trials [RCT] were included in this review using strict guidelines from the Cochrane Collaboration. Several reviewers judged the papers for adequacy of treatment, after which a six-panel blinded jury reviewed each study once more and classified them as either acupuncture or dry needling. Other reviewers determined the clinical relevance of each study. A total of 35 RCTs were included in this study with the majority covering acupuncture treatments.

The article provides a brief overview of the practice of acupuncture, myofascial pain syndrome and trigger points, and dry needling. The selection process, the methodological quality, and results are well defined. Each study is dis-

cussed in great detail with summaries, comparative charts, and figures. The paper includes an extensive list of references.

The authors were not able to make any recommendations for the use of acupuncture for acute low back pain. There were too few RTCs to draw any meaningful conclusions. There was “some evidence of the effects of acupuncture for chronic low back pain.” The data suggest that acupuncture and dry needling may be useful adjuncts to other therapies for chronic low back pain, although the authors warn that “no clear recommendations can be made because of small sample sizes and low methodological quality of the studies.”

Comment

According to their website, the “Cochrane Collaboration is an international nonprofit and independent organization, dedicated to making up-to-date, accurate information about the effects of healthcare readily available worldwide. It produces and disseminates systematic reviews of healthcare interventions and promotes the search for evidence in the form of clinical trials and other studies of interventions” [<http://www.cochrane.org>]. Cochrane reviews are highly regarded and rigorous reviews of the available evidence of clinical treatments. The reviews become part of the Cochrane Database of Systematic Reviews which is published quarterly as part of The Cochrane Library.

Although in the period from 1996 to February 2003, the authors did not find many high-quality studies, the conclusions are nevertheless very supportive of the use of dry needling for myofascial pain associated with chronic low back pain. This 143-page document called for more and better quality studies. It is a bit confusing that acupuncture studies and dry needling studies were grouped together in the paper, although they were clearly defined as different entities in the introductory sections of the report. This is a valuable paper with an extensive review of pertinent studies. This mega review underscores the need for credible RCT studies of the effects of dry needling [JD].

Myofascial pain mimicking radicular syndromes. E. Facco and F. Ceccherelli. Acta Neurochir (suppl) 92:147-150, 2005

Summary

This review starts with the statement that “myofascial pain is very often underscored and misunderstood in clinical practice.” The common medical approach to pain facilitates this. Often, pain is considered a sign of organic disease with a structural cause only. The implications for the suffering patient are poorly appreciated. The location of pain may introduce further bias. For example, muscle pain is often considered with complaints of neck pain however, with pain problems in the lower extremity, the sciatic nerve is usually implicated. Patients with abdominal pain without an obvious structural detectable basis are often considered neurotic.

Clinicians are inclined to select the most evident or preferred diagnosis, while skipping others. In patients with a herniated disk and myofascial pain, physicians may rely primarily on a computerized tomography or magnetic resonance imaging, without considering whether the structural abnormality is causal or merely coincidental. Notwithstanding that checking for structural lesions is an essential step in the diagnostic process, considering other causes of pain, such as trigger points [TrPs], is equally important.

The article concludes with a brief review of the most common myofascial pain syndromes mimicking radiculopathies caused by TrPs in the pectoralis minor, scalenes, serratus anterior, gluteus minimus, and piriformis muscles. The authors emphasize that failure to consider TrPs may lead to unnecessary reactive depression. A multidisciplinary approach is recommended to avoid “useless and disappointing surgical treatments.”

Comment

It is very encouraging to see this kind of article published in a well-known neurosurgery journal. The authors expressed the impressions of many clinicians working with post-surgical patients with myofascial pain. How many neurosurgeons do in fact consider TrPs in the etiol-

ogy and differential diagnostic process? How many patients with TrPs in for example the gluteus minimus muscle and a bulging disc at L5 undergo unnecessary corrective spinal surgery? The importance of bringing TrPs to the attention of surgeons as a likely source or contributing factor to various radicular pain patterns cannot be overemphasized. Patients should be encouraged to bring a copy of this paper to their surgeons prior to scheduling a date for surgery [JD].

Myofascial Pain, Fibromyalgia or Fibrositis? J.M.S. Pearce. Eur Neurol 52:67-72, 2004

Summary

The five headings of this review are Fibrositis, Fibromyalgia, Tender Trigger Points, Myofascial Pain Syndrome, and Possible Basis of Soft Tissue Pain. The author questions the utility of these diagnoses because of the striking dearth of physical signs or investigations to validate or provide a convincing objective basis for the symptoms of each. Fibrositis is a discarded diagnosis because of no biopsy findings of inflamed connective tissue in the tender sites. Fibromyalgia is dismissed by quoting one of the few outstanding antagonists to that diagnosis while overlooking the wealth of literature that substantiates it. Tender Trigger Points are confusingly described in terms of fibromyalgia. Myofascial Pain Syndrome caused by trigger points is dismissed as based purely on circular reasoning with no evidence of histological or biochemical abnormality from animal or human studies. The neurologist author proposes that the pain is of purely neurological origin with no identifiable etiology.

Comment

Fibrositis is properly a thoroughly discarded diagnosis. It was inappropriate for it to be included here. The author needs to become acquainted with the extensive credible literature now available that strongly contradicts his numerous erroneous negative statements concerning evidence for histological or biochemi-

cal abnormalities from human or animal studies (1,2,23-25) [DGS].

CASE REPORTS

Upper Crossed Syndrome and its Relationship to Cervicogenic Headache. M.K. Moore, J Manipulative Physiol Ther 27: 414-420, 2004.

Summary

The 56 year-old patient with recurrent disabling headaches had experienced an amnesic helmet-less motorcycle accident, use of crutches for several months, and a severe rear-end auto accident. For years he has been a writer spending six to 16 hours a day at the keyboard meeting high-stress multiple deadlines. All head and neck range of motion tests were restricted and painful. Trigger points [TrPs] were located in the pectoralis major, levator scapulae, upper trapezius, and supraspinatus muscles. Multiple malalignments and displacements were identified in the cervical spine by radiography. The TrPs were treated with interferential therapy and myofascial release massage. The cervical spine received chiropractic adjustments. The patient then started a series of muscle-specific stretches and McKenzie Retraction Exercises to correct the head-forward posture. A twice-monthly 30-minute maintenance program maintained him headache-free for seven months. The discussion described the upper crossed syndrome in detail.

Comments

This successful treatment program for a complicated case included three essential ingredients: inactivation of pain-producing and posture-distorting TrPs, correction of articular dysfunctions, and a muscle-specific home stretch program. A simpler and fully effective patient instruction to correct head-forward posture is "lift your chest". This elevates the head, restores normal shoulder posture, corrects the excessive thoracic kyphosis, and it is readily maintained. The upper crossed syndrome clearly identifies which muscles exhibit increased tension and weakness. It does not ex-

plain why that occurs. All of the muscles identified as having TrPs except the supraspinatus were also listed as shortened muscles in the upper crossed syndrome. The taut bands of those TrPs would cause shortening of those muscles. The weak muscle could be inhibited by those TrPs. The fact that TrPs in one muscle are prone to cause inhibition of other functional muscles is not as well recognized, but commonly happens. Together, these two effects can cause serious muscle imbalance. These TrP effects could identify the cause of the syndrome. Published surface electromyographic studies of this common and powerful TrP inhibition phenomenon are sorely needed [DGS].

Myofascial pain syndrome in the differential diagnosis of chronic abdominal pain. A. Çimen, M. Çelik, S. Erdine. Adri 16(3):45-7, 2004.

Summary

After a succinct introduction to myofascial pain and specifically abdominal pain, the authors describe a case of a 65-year old female with complaints of pain in the left abdominal region for approximately 10 years. The pain was described as stabbing and burning with pain intensities ranging from moderate to severe. The pain increased with standing up, sitting down, walking, and cold weather, and decreased with lying down. The patient denied any changes with food. Non-steroidal anti-inflammatories would offer her several hours of relief. Her past medical history included a childhood appendectomy, two cesarean sections, and a minimal scoliosis. She had consulted many physicians, including urologists and gastroenterologists, but no specific etiologic factor was identified.

The physical examination revealed a clinically relevant trigger point [TrP] in the lower left thoracic paraspinal muscles. The patient recognized "her pain" when pressure was applied to this trigger point. She was treated with a TrP injection with 20 mg triamcinolone acetonide in 3ml one per cent lidocaine after which she experienced immediate pain relief. The patient was prescribed amitriptyline hydrochloride 10 mg per day for two months fol-

lowing the TrP injection and remained pain free for at least six months.

Comment

This brief case report from Turkey illustrates once more that TrPs should be considered in the differential diagnosis of abdominal pain. One TrP injection relieved the patient from a 10-year old pain problem. While treatment of a single muscle TrP in chronic pain conditions may not always have such dramatic results, TrPs are nevertheless frequently involved in persistent pain problems (26, 27). The patient was treated with a combination of corticosteroids and one per cent lidocaine. It should be noted that there is no evidence that adding steroids to a local anesthetic has any additional benefit (28). As mentioned before, using a 0.25 per cent dilution of lidocaine was found to be more effective with less pain from the injection (14) [JD].

Entrapment of crural branches of the common peroneal nerve. F.M. Crotti, A. Carai, M. Carai, E. Sgaramella, W. Sias. Acta Neurochir (Suppl) 92:69-70, 2005.

Summary

Three patients operated for lumbar disc herniations continued to present with vaguely described pain in the lateral aspect of the lower extremities. The authors found entrapments of the crural branches of the peroneal nerve, which they associated with myofascial pain syndrome. They suggested that patients with myofascial pain syndrome may be more prone to developing nerve entrapments partially due to the contractures, development of connective tissue hypertrophy, fascial adhesions, and nerve distraction.

Comment

In this brief paper as well as in the above-reviewed paper on thoracic outlet syndrome surgery, the authors presented a similar hypothesis for the development of nerve entrapments in patients with myofascial pain syndrome. The possible link between myofascial pain and

nerve entrapment has been suggested by others and deserves further study (29-32) [JD].

BRIEF REPORT

Complex regional pain syndrome–1: history, diagnostic criteria and etiology. J. Dommerholt. J Bodywork Movement Ther 8 (3): 167-177, 2004.

Complex regional pain syndrome–2: physical therapy management. Jan Dommerholt. J. of Bodywork and Movement Therapies. 8 (4): 241-248, 2004.

The two parts of this review lucidly present the treatment challenges faced by physical therapists when dealing with patients who have this complex regional pain syndrome. It is included here because the author cited five published papers on the subject that strongly recommended including trigger points in the examination and treatment of these patients since they were often an important factor. This fits well with the author's clinical experience and emphasizes the need for a well-designed study to assess the importance of treating trigger points in patients with this syndrome [DGS].

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