Myofascial Pain Syndrome and Trigger Points

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Objectives

- Discuss why this topic is pertinent to our practices
- Review diagnostic criteria for MPS and MTrP
- Give a historical perspective on MPS and MTrP
- Discuss pharmacologic and non-pharmacologic treatment options
- Case discussions

Introduction

- Myofascial pain syndrome (MPS)is largely under diagnosed and under treated.
  - MPS is a distinct from Fibromyalgia and other musculoskeletal pain.
- Prevalence varies from 30-93% among persons with musculoskeletal pain.
  - Large variation is likely due to lack of consensus of diagnostic criteria of MPS.

Introduction

- Clinical picture of MPS includes musculoskeletal pain, limited mobility, weakness, and referred pain.
  - Occasional clumsiness and incoordination
  - Occasional autonomic symptoms
- Myofascial trigger point (MTrP)is the cardinal feature of MPS.

Diagnostic Criteria

- Big problem has been the lack of uniform diagnostic criteria.
- MPS diagnostic criteria
    - Point tenderness
    - Pain reproduction
    - Restricted range of motion
    - Referred pain
    - Local twitch response
    - Weakness without atrophy

Diagnostic Criteria

- MTrP diagnostic criteria
  - Taut band
  - Hypersensitive spot
  - Referred pain
- Latent versus Active MTrP's
- Other diagnostics
  - EMG guided, IR Thermography, Ultrasound

Historical Perspective

- Guillaume de Baillaus of France (16th century)
  - First to write in detail about muscle pain disorders
- Dr. Balfour - Brittish MD (1816)
  - Spoke about thickening in muscles with local and regional pain
- Froriep (1843)
  - Coined the term "muscle callouses" in patients with Rheumatological disorders
- Adler (1900)
  - Described muscular rheumatism
- Gowers (1904)
  - Inflammation of fibrous tissue caused hard nodules (Fibrositis)

Historical Perspective

- Three pivotal studies were key in developing our understanding of MPS and MTrP's.
  - Kelly (1941), Good (1942), Travell et all (1942)
- All of these authors paid tribute to the influential work of Kellgran (1938)
- Kellgran injected normal saline into muscles of asymptomatic patients
  - Tendons and fascia gave sharp, localized pain
  - Muscles gave diffuse pain that was often referred
  - Provided the foundation for understanding of the existence of MTrP's

Historical Perspective

- Kelly (1941) studied 200 cases of somatic pain (fibrositis)
  - Described muscular lesion or nodules that were painful
  - Mapped out a distribution of the nodules that were similar to the Travell and Simons map of MTrP's.

Historical Perspective

- Good (1942) identified myalgic spots and pain referral patterns in 500 patients in the British Army with myalgia
  - Concluded the referral pain was in a dermatomal distribution

Historical Perspective

- Travell et all (1942) used the term trigger point
  - Looked at 58 people with shoulder and arm pain
    - Concluded that the referral pattern was not always c/w somatic reference zones or dermatomal patterns
      - Described this myalgia as a syndrome of restriction of motion primarily as a reaction to pain
- Janet Travell was a cardiologist studying patients with severe pulmonary disease
  - Her patients complained more about the pain in their shoulders and arms than their medical diseases

Historical Perspective

- Travell and Rinser (1952) published a study on "The Myofascial Genesis of Pain".
  - Reported pain patterns in 32 skeletal muscles from 1,000 patients with MPS
- Later published a two volume book entitled "Myofascial pain and dysfunction, The Trigger Point Manuel."
  - Travell and Simons (83, 92)
  - This work by Simons and Travell has remained the foundation of the MTrP theory

Pharmacologic Treatment

- NSAIDS are the most commonly prescribed medications
  - No RCT's
- COX 2 inhibitors, Tramadol
  - No RCT's
- Diclofenac patch
  - 1 RCT that studied patients with myofascial pain in Trapezius muscle
  - Revealed clinically significant benefit for pain and cervical ROM by the end of the study.
- Lidocaine patch
  - Few RCT's, case reports, and observational studies specifically for MPS.
  - Revealed statistically significant increased pain thresholds and increase in general activity.
  - An appealing medication given it is a topical patch versus an oral medication.

Pharmacologic Treatment

- Muscle Relaxers
  - Tizanadine is a centrally active alpha 2 adrenergic agonist.
    - Open label, dose titration study that revealed significant decrease in pain intensity and disability from baseline with improved sleep.
- Clonazepam
  - No RCT
  - 1 open label study that revealed decrease in pain.

Pharmacologic Treatment

- Anticonvulsants
  - No RCT's for Gabapentin and Lyrica.
- Antidepressants
  - Amitriptyline has a few studies with MPS that revealed significant decrease in pain and tenderness.
  - Growing body of evidence for their efficacy in chronic pain syndromes suggesting an increased role for MPS.
  - Duloxetine has less evidence than amitriptyline for treatment with MPS.

Non-pharmacologic Treatment

- Injections into MTrP's are a common and effective treatment

- MTrP injections employ dry needling, short or long acting anesthetics, steroids, and even normal saline.

Non-pharmacologic Treatment

- Trigger point injection with local anesthesia was the initial treatment and has been the gold standard.
  - Effective in reducing pain and de-activating the trigger point in multiple studies.
  - There is no evidence to support the use of steroids over the use of local anesthetic.
  - However, Frost et al (1980) discovered that in a double blind comparison patients injected with normal saline had better results than those injected with mepivacaine (80% versus 52% effectiveness)

Non-pharmacologic Treatment

- This led to the question of whether saline was even necessary for deactivating MTrP's.
- In 1979, Lewit was one of the first to try needling without the use of anesthetic or even saline in a technique that became known as dry needling.
  - Lewit found that the dry needling caused immediate analgesia in nearly 87% of cases.
  - Several other studies have shown that dry needling is an effective treatment that is equal in efficacy to trigger point injections.
  - Biggest side effect is some post injection soreness.
- Acupuncture has also shown to be an effective treatment for MPS.

Non-pharmacologic Treatment

- Manual therapy is also a commonly used treatment for MPS and is considered one of the most effective techniques for the inactivation for MTrP's.
- Most effective modalities in the literature include:
  - Deep pressure massage
  - Spray and stretch therapy
  - Superficial heat
  - Myofascial release

Other Treatments

- Botulinum type A toxin injections
- Ultrasound
- Transcutaneous electric nerve stimulation (TENS)
- Magnetic stimulation
- Laser therapy

Case Report 1

- History of present illness
  - 27 yo female with chronic migraine headaches with right shoulder pain that extends down her back for the past 6 months. Attempted one session of physical therapy.
- Physical Exam
  - FROM right shoulder, neurologically intact, TTP right trapezius, posterior deltoid, and rhomboid muscles, positive trigger points in posterior deltoid and rhomboid.

Case Report 1

- Clinical Decision Making
  - Right shoulder girdle and posterior back myofascial pain syndrome with two associated trigger points. Patient also with chronic migraine headaches that is not adequately controlled.
- Trigger point injections x 2 with Lidocaine 1%.
- Physical Therapy referral
- Start Nortriptyline 25 mg at bedtime
- Follow up 6 weeks

Case Report 2

- History of presenting illness
  - 40 yo female who presents with subacute right shoulder pain that radiates down her arm for 3-4 weeks. No known trauma. Symptoms are worse at night and her symptoms are worse with typing. Ibuprofen is of limited help.
- Physical Exam
  - FROM right shoulder with negative Hawkins sign.
  - TTP right anterior deltoid with associated trigger point
  - Positive phalens and negative tinels sign
  - DTR equal and reactive in upper extremities bilaterally
  - Motor strength slightly diminished in right C6 distribution

Case Report 2

- Clinical Decision Making
  - Right Carpal Tunnel Syndrome with secondary right deltoid MPS, MTrP. Cervical radiculopathy is still in the differential diagnosis.
- Rx given for right wrist cock up splint
- EMG ordered
- Tizanadine 4 mg at bedtime
- Follow up one month

Review

- Pertinence to practice
  - Extremely prevalent and amenable to treatment
- Diagnostic criteria
  - Heterogeneous but some core components
- Historical perspective
  - Travell and Simons are the key researchers that have done the key studies on diagnosis and treatment of MPS

Review

- Treatment
  - Pharmacologic
    - NSAIDS, Tizanadine, Clonazepam, Amitriptyline, Diclofenac patch, Lidocaine patch
  - Non-pharmacologic
    - Trigger point injection, Dry needling, Acupuncture, Manual Therapies
  - Other
    - Botulinum type A Toxin, Ultrasound, TENS, Magnetic Stimulation
- Case discussions