Therapeutic Management of Adhesive Capsulitis

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Financial Disclosures

None
Objectives

- Understand the role that rehabilitation plays in management of adhesive capsulitis
- Understand the current trends in the management of adhesive capsulitis in order to maximize function
- Understand why the referral to rehabilitation may be beneficial
The Good

- It is a predictable disease
- Has been shown to respond well to conservative management
- It has stages that it typically progresses though
The Bad

- A disease with varied levels of resultant disability
- The course of the disease can last 15-25 months or more
- Can be a challenging disease to manage
- It has 4 distinct stages that it has to progress through
The Ugly
Adhesive Capsulitis

- Adhesive capsulitis is a condition characterized by an insidious and progressive loss of active and passive mobility in the glenohumeral joint due to capsular contracture (Vermeulen et al. 2000).
- More common in the non-dominant extremity.
- Can have varying levels of disability.
- Most common in women 40-60 years of age and affects 2% to 5% of the population (Nevasier & Hannafin, 2007).
- Significantly higher incidence in people with DM.
Adhesive Capsulitis-Stages

- Described as having 4 distinct stages with different clinical presentations
Clinical presentation through the stages

- **Stage 1-Pre-adhesive**
  - Up to 3 months duration
  - Sharp pain
  - Sleep disturbances
  - Can present like impingement
  - Loss of ER- hallmark
  - Full ROM under anesthesia

- **Stage 2-Freezing**
  - 3-10 months
  - Loss of AROM
  - Some loss of ROM under anesthesia

Kelley et al. 2013
Clinical presentation through the stages

- **Stage 3-Frozen**
  - 9-15 months
  - Reduction in pain
  - Significant loss in active and passive ROM

- **Stage 4-Thawing**
  - May have persistent stiffness for 15-24 months
  - Resolution of pain
  - Continued loss of AROM/PROM

Kelley et al 2013
Evaluation of Adhesive Capsulitis

- Starts with a thorough history and evaluation
- Evaluation of past medical history to give clues to a prognosis and to initiate differential diagnosis
- Gathering of subjective information from the patient
  - Onset of symptoms
  - Current functional impairment
  - Pain levels
  - Previous experience with rehabilitation
Evaluation of Adhesive Capsulitis

- Measurement of AROM/PROM of involved/uninvolved shoulder
- Measurement of strength (MMT) of shoulder/scapula/elbow
- Posture
- Functional outcome measure such as DASH
- Functional impairments
- Sensory screen
Differential Diagnosis - Things to Rule Out

- Cervicalgia
- Fx
- OA/RA
- Joint sprain - AC, SC
- Radiculopathy
- Impingement
- Diseases of digestive system - referred pain
- Contusion
- Neuropathy

- Back pain
- Shoulder instability/hx of dislocation
Evaluation of AROM

- AROM is generally measured in standing with attention paid to pain compensatory patterns and posture.
- Planes to measure:
  - Flexion
  - Extension
  - Abduction
  - ER at side and at 90 degrees of abduction
  - IR at 90 degrees of abduction if movement permits
  - IR up back (functional measure of vertebral level)
  - Horizontal adduction/abduction
Evaluation of AROM

- Forward flexion
- Extension
- Abduction
- ER at 90
- IR at 90
- IR to vertebral level
- ER at side
Evaluation of PROM

- Generally performed in supine to stabilize scapula
- Planes to measure
  - Flexion
  - Abduction
  - ER at 0, 45, 90
  - IR at 45, 90
  - Horizontal adduction
  - Extension (standing or sidelying)
- Pay close attention to end feels and pattern of loss
Evaluation of Strength (MMT)

- 0-5 rating scale
- Measure planes of rotator cuff
- Measure planes of scapula
- Measure contralateral side for baseline
Clinical presentation

- A general loss of ROM greater than 25% in two planes and passive loss of ER greater than 50% of uninvolved shoulder (Kelley et al. 2013)
- Strength has previously been described as full but strength loss is often seen clinically
- Special testing such as Neer’s or Hawkins Kennedy may be inconclusive depending on level of irritability
- May present to clinic in different all stages of adhesive capsulitis
Irritability

- Capacity of tissues to receive stress
- Govern the type and intensity/duration/volume of intervention
High Irritability

Presentation
- High pain >7/10
- High reported disability
- Pain before end range of movement
- AROM less than PROM due to pain

Treatment
- Modalities such as heat/estim
- Activity modification
- Low intensity mobilization
- Pain free ROM/AAROM

Kelley et al. 2013
Moderate Irritability

- **Presentation**
  - Moderate pain 4-6/10
  - Moderate reported disability
  - Pain at end range of movement
  - AROM similar to PROM

- **Treatment**
  - Modalities PRN
  - Progression of Activities
  - Mod intensity mob with increasing amplitude and duration
  - Integration of moderate stretch
  - Correction of altered scapulohumeral rhythm

Kelley et al. 2013
Low irritability

- **Presentation**
  - Low pain
  - No night pain
  - Pain with overpressure
  - AROM same as PROM

- **Treatment**
  - Progression to higher demand activities
  - End range mobilization with high amplitude and duration
  - Progression of duration of stretch
  - Continued correction of scapulohumeral rhythm

Kelley et al 2013
Interventions performed in therapy

- Education
- Stretch/mobilization
- Posture correction
- Modalities
- Instruction on HEP
Education

- Important to educate on the disease and its progression/stages
- Set realistic expectations/goals/timelines
- Activity modification to engage in ADL
- Appropriate stress level on tissues
- HEP
- Pain control methods
Mobilization

- Mobilization is a method of passively ranging a joint in order to increase ROM and reduce pain

- Grades of mobilization
  - I - Small amplitude at beginning of motion
  - II - Large amplitude within available ROM
  - III - Large amplitude that reaches end range (walk to the door)
  - IV - Small amplitude and very end of motion (knock on the door)
  - V - High velocity thrust at end of available range but inside anatomical range (bust through the door)

- Smaller grade mobilization tends to reduce pain/guarding
Direction of Mobilization in the Shoulder

- Different directions may tend to favor certain movements

<table>
<thead>
<tr>
<th>Plane of motion</th>
<th>Capsular Tension</th>
</tr>
</thead>
<tbody>
<tr>
<td>Forward flexion</td>
<td>Posterior Inferior</td>
</tr>
<tr>
<td>Abduction</td>
<td>Anterior Inferior</td>
</tr>
<tr>
<td>ER at 90</td>
<td>Anterior Inferior</td>
</tr>
<tr>
<td>ER at 0</td>
<td>Anterior Superior</td>
</tr>
<tr>
<td>Horizontal Abduction</td>
<td>Anterior</td>
</tr>
<tr>
<td>Horizontal Adduction</td>
<td>Superior</td>
</tr>
<tr>
<td>IR at 90</td>
<td>Posterior Inferior</td>
</tr>
<tr>
<td>IR at 0</td>
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</tbody>
</table>
OPINION ALERT!!

Mobilization in a certain direction does not favor one movement alone but may offer global benefit in terms of movement.

Mobilize into any plane that you feel restriction or that offers pain relief.

However, research has shown that posterior mobilization does tend to produce greater improvement in ER/IR when compared to anterior mobilization (Johnson et al. 2007)

Direction of Mobilization
Passive Stretch

- Generally follows joint mobilization
- Importance of low load prolonged stretch!!!
- Stretch into restricted planes
  - Flexion
  - Abduction
  - ER/IR at 0/45/90
  - Horizontal abduction/adduction
  - Extension
- Chest stretch if tolerated
- Thoracic mobilization
  - May improve pain but does not likely increase ROM
Passive Stretch and Joint Mobilization

- Thoracic spine mobilization over foam roller
- Posterior capsule stretch
- Inferior glide
- Anterior capsule stretch
- Manual posterior glide
- Sleeper stretch
Strengthening

Scapular/middle trap strengthening

RC/delt strengthening

PNF strengthening
Modalities

- Physical agent modalities such as ultrasound, short wave diathermy, and electrical stimulation may be beneficial.
- Ultrasound has been shown to produce significantly improved ER/IR as compared to a sham group.
  - Administered for 10 treatments at a 3MHz frequency for 10 minutes at 1.5 W/cm².
- Transcutaneous electrical nerve stimulation (TENS) (50-150 Hz for 10 minutes) has shown significant improvement when combined with concurrent stretch provided.

Kelley et al 2013
Diercks and Stevens (2004) performed a study in which they compared an “intense physical therapy group” and a “supervised neglect” group in the treatment of adhesive capsulitis. Patients were followed for 24 months after inclusion. Found that 89% percent of the supervised neglect group reported no pain or limitation at 2 year follow up compared to 63% for the physical therapy group.
Wait, What?!!

- Supervised neglect group was instructed to perform pendulum and active exercise within a pain threshold but instructed to not surpass.
- Educated on resuming ADL and activity within limits of pain.
  - This group was not truly neglected.
- Intensive physical therapy group had AROM, stretch, and mobilization up to and beyond the pain threshold.
- OPINION ALERT!!
  - This further drives home the point that patients/clinicians need to be educated on keeping activity within the pain threshold and that pain is not a goal of treatment.
  - Production of pain can prolong stages and facilitate a fear of movement/therapy.
In conclusion

- As a rule of thumb, therapy tends to offer benefit in the treatment of adhesive capsulitis.
- It is difficult to assess whether any one intervention in isolation is superior to another.
- Successful treatment includes education, careful exercise selection based on careful monitoring of patient status/response, and a good understanding of the progression of the disease.
- Good communication with the patient and medical team is vital.
Questions???
References


