OMT in the Hospitalized Patient

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Lecture Topics

• The ABC’s: Autonomics, Breathing, & Circulation
• Adjunct treatment
• Common G.I. complaint
• Cautions
• Documentation
  – Osteopathic Musculoskeletal Examination of the Hospitalized Patient
  – Consent
  – Procedure Note
• Coding
• Consulting an OMM service
Review Of Terms

• Myofascial Release (MFR)
  – System of diagnosis and treatment that engages continual palpatory feedback to achieve release of myofascial tissues

• Balanced Ligamentous Tension (BLT)
  – A variant of myofascial release in which the ligaments are poised between physiologic neutral and the tension created by the strain. This pathologic neutral point is held while the body resolves the strain and a release is felt.
Think ABC's

- Patient is hospitalized for acute problems
- Focus exam & treatment on the acute needs
- Autonomics
  - Sympathetics
  - Parasympathetics
- Breathing
  - Ribcage
  - Associated respiratory structures
- Circulation
  - Lymphatics
  - Vascular
- Not exclusive from each other or the rest of the body
Autonomics

- Acute insult increases sympathetic activity
- Imbalance between the sympathetics & parasympathetics interferes with healing process
- Mechanisms:
  - Viscerosomatic reflexes:
    - Facilitation
    - Chapman’s reflexes
  - Psychosomastics
  - Somatosomastics
Facilitation

- Facilitation is the maintenance of a pool of neurons in a state of partial or subthreshold excitation needing less additional stimulation to discharge impulse.
- Heightened nervous system arousal can cause non-harmful stimuli to be perceived as a threat.
- Acute on chronic facilitation can cause chronic problems to flare.
Finding Facilitation

Levels of Facilitation

- **HEENT**
  - T1-4; CNs III, VII, IX
- **Heart**
  - T1-5; CN X
- **Lungs**
  - T2-7; CN X
- **Foregut**
  - T5-9; CN X
- **Midgut**
  - T10-11; CN X
- **Hindgut**
  - T12-L2; S2-S4
- **Adrenals**
  - T10
- **Kidneys**
  - T10-11; CN X
- **Bladder**
  - T11-L2; S2-S4
- **Gonads**
  - T10-11; CN X
- **Uterus & cervix**
  - T10-L2
- **Prostate**
  - T12-L2
- **Upper Extremity**
  - T2-T8
- **Lower Extremity**
  - T11-L2

Gently drag fingers along the paravertebral area looking for TART

**Acute facilitation:**
- boggy, warm, moist

**Chronic facilitation:**
- condensed, cool, dry

Treat with MFR or rib raising
Chapman’s Reflexes

- Visceral, afferent-induced reflexes that can be specifically mapped out
- Anterior & posterior points
- Gangliform contractions
  - Deep to the skin & subcutaneous alveolar tissue
  - On the deep fascia or periostium
  - 2-3mm smooth, firm cyst-like structure
  - Can be grouped in to patches
- Tender to palpation
- Most often treated with gentle rotary MFR

FOM, 2nd ed.
Collateral Sympathetic Ganglia & Adrenal Points

• Ganglia points:
  – Contraction overlying the linea alba
  – Celiac ganglion
    • Foregut
    • Spinal level= T5-T9
  – Superior Mesenteric Ganglion
    • Midgut
    • Spinal level= T10-T11
  – Inferior Mesenteric Ganglion
    • Hindgut
    • Spinal level= T12-L2

• Adrenal points:
  – Lateral to linea alba & 2-2.5 inches above umbilicus
  – Spinal level= T10
Parasympathetics

- Cranial:
  - Vagus (CN X) exits the skull at the jugular foramen between the occiput & temporal
  - Eliminate restrictions at the occipital-mastoid sutures & OA
  - Suboccipital release

- Sacral:
  - Eliminate sacral restrictions
  - Lumbosacral decompression

- Treat the sympathetics before the parasympathetics
The Importance of Optimizing Breathing Mechanics

- Acquisition of Oxygen
- Release of CO2
- Discourage atelectasis & pulmonary infections
- Alternating intrathoracic pressures assist venous return & lymphatic flow
- Sympathetic chain ganglia “massage”
- Important structures either pass through or reside within the thorax
Optimize Breathing Mechanics

- Bones
  - Ribcage
    - 1-5: Pump handle
    - 6-10: Bucket handle
    - 11-12: Pincer
  - Thoracics
  - Junctional Zones
    - OA
    - CT
    - TL
    - Sacrum
Optimize Breathing Mechanics

Nerves
- Phrenic
  - C3-5
- Autonomics
  - T2-7; CN X

Muscles
- Scalenes & Levator Scapula
- MFR, BLT, or Muscle Energy
Inferior Thoracic Outlet - Diaphragm

- Attachements:
  - Xiphoid process
  - Costal arch= Ribs 7-12
  - Transverse process of L1
  - Anterior bodies of:
    - Left= L1-L2/3
    - Right= L1-L3/4

- Treatment:
  - Doming the diaphragm
BLT of Right Hypochondrium
BLT of Left Hypochondrium
Thoracic Inlet

- **Bones**
  - T1
  - 1st ribs
  - manubrium

- **Angulus Venosus**

- **Treatment**
  - BLT using the UE
Lymphatics

**Lymphokinetics**

- **Pressure Gradients**
- **Active Pumps**
  - Heart
  - Lymphangions
    - 2-3 layers of spiral muscles
    - Contract at a rate of 5-8/min at rest
- **Passive Pumps**
  - Respiration
    - Negative intrathoracic pressure during inspiration
  - Skeletal muscle contractions affect the deep circulation, but not the superficial lymph just below the dermis
  - Active or passive limb motion
  - Peristaltic contractions of smooth muscles (viscera & adjacent arteries)
  - External compression

*Silent Waves - Theory and Practice of Lymphatic Drainage Therapy. Second Ed.*
Lymphatic Drainage

- **Thoracic Inlet**
  - Thoracic/Lymphatic Duct

- **Diaphragm**
  - Thoracic duct lies by the right crus & passes through the aortic hiatus
  - Peritoneal lymph can travel through the diaphragm itself

- **Femoral Triangle**
Traditional Lymphatic Techniques

- Thoracic Pump
- Pedal pump
  - Aka
  Dalrymple Maneuver
Adjunct Treatment

Keep vascular-lymphatic circulation moving

- Encourage ambulation
- Ankle pumps
- Elbow pumps
- Breathing devices: incentive spirometry & flutter valves
- Lower extremity compression devices

Supplementation
- Magnesium
- Vit. C & zinc
- Vit. D
- Probiotics
Aggressive Magnesium Sliding Scale

Normal magnesium blood level (at our lab)= 1.6-2.8
Only 1% of total body magnesium is in the plasma
Essential for proper nerve & muscle functioning

<table>
<thead>
<tr>
<th>Magnesium plasma level (mg/dL)</th>
<th>Magnesium sulfate / normal saline</th>
</tr>
</thead>
<tbody>
<tr>
<td>&lt;= 1.5</td>
<td>8 grams/500 mL</td>
</tr>
<tr>
<td>1.6-1.7</td>
<td>6 grams/250 mL</td>
</tr>
<tr>
<td>1.8-1.9</td>
<td>4 grams/250 mL</td>
</tr>
<tr>
<td>2.0-2.1</td>
<td>3 grams/150 mL</td>
</tr>
<tr>
<td>2.2-2.3</td>
<td>2 grams/100 mL</td>
</tr>
<tr>
<td>2.4-2.5</td>
<td>1 gram/50 mL</td>
</tr>
</tbody>
</table>

•Give IV at rate of 1 gram/hour

Do NOT use this scale in pregnant patients, children, or those with renal insufficiency
Constipation

- Can be contributing factor to back pain
- Many hospital patients are on narcotics
- May see evidence of it on imaging
- Feel along the length of the colon and find where it is full of stool
- Viscerosomatic reflexes:
  - Facilitation:
    - T12-L3 & S2-4
  - Chapman’s points:
    - Colon
    - G. I. peristalsis
    - Superior Mesenteric ganglion
    - Inferior Mesenteric ganglion
- Consider:
  - Lumbosacral decompression
  - MFR at bottleneck
  - Mesenteric release

FOM, 2nd ed.
Mesenteric Release

- Intestines are gently moved at right angles to the attachment of its mesentery
- Use ulnar aspect of hands
- Direct techniques:
  - Direct MFR with respiratory assist
  - Direct MFR with recoil

**FIGURE 51.14.** Direction of hand movement for treatment of abdominal mesenteries.
Cautions

- HVLA & ME in sick patients
- Direct MFR near recent incisions
- Manipulation in area of known or suspected thrombus
- Cranial manipulation in a patient with stroke or head trauma
- Cancer (theoretical)
- Workplace ergonomics: Don’t hurt yourself
  - Adjust the bed
    - Vertical & horizontal
    - Bed rails & headboard
  - Reposition the patient
- Pay attention to what is under your hands
  - Lines
  - Tubes
  - Wounds
  - Anatomical parts

* This is not an inclusive list
Osteopathic Musculoskeletal Examination of the Hospitalized Patient

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### INSTRUCTIONS: Complete Boxes #1-3 (#4 Peds Only)

<table>
<thead>
<tr>
<th>Region Evaluated</th>
<th>Severity</th>
<th>Specifics of Major Somatic Dysfunctions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Head</td>
<td>0 1 2 3</td>
<td></td>
</tr>
<tr>
<td>Neck</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Thoracic T1-4</td>
<td></td>
<td></td>
</tr>
<tr>
<td>T5-9</td>
<td></td>
<td></td>
</tr>
<tr>
<td>T10-12</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Lumbar</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pelvis/Sacrum</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pelvis/Iliuminate</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

#### Somatic Dysfunctions Correlate with:

- Traumatic
- Orthopedic
- Neurological
- Viscerosomatic
- Primary Musculoskeletal
- Activities of daily living
- Other

#### Cranium:

- Fontanelles: Patent / close
- Overriding Sutures: Present / absent
- Posterior
- Anterior
- Ambulation:
  - walks
  - sits unassisted
  - crawls
  - rolls over

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Signature of the examiner: [Signature]

Date: [Date]

Time: [Time]
OMT is a Procedure

• Informed consent required
  – Does not need to be written consent
• Procedure note required
  – What was done and were there any complications
• Example Note:
  – OMT discussed with patient & verbal consent obtained prior to treatment. All questions addressed. Gentle osteopathic manipulation applied in the following manner: For X region(s), Y OMT type(s) were performed. OMT tolerated without complication.
ICD-9 Codes: Diagnosis

- ICD-9 Codes Body Regions
  - 739.0 Head region
  - 739.1 Cervical region
  - 739.2 Thoracic region
  - 739.3 Lumbar region
  - 739.4 Sacral region
  - 739.5 Pelvic region
  - 739.6 Lower extremities
  - 739.7 Upper extremities
  - 739.8 Rib cage
  - 739.9 Abdomen and other sites
CPT Codes- Evaluation & Management

• Code encounter & procedure separately based on their own merit

• CPT Codes for OMT
  – 98925: OMT; one to two body regions involved
  – 98926: OMT; three to four body regions involved
  – 98927: OMT; five to six body regions involved
  – 98928: OMT; seven to eight body regions involved
  – 98929: OMT; nine to ten body regions involved

• 25 modifier to bill for a procedure on the same day as an evaluation
Appropriate Hospital NMM/OMM Consult

• Who can be consulted?
  – Any licensed physician comfortable with OMM & OMT

• What is the consult for?
  – Specific problem or evaluate and treat
  – Any medical condition- not just pain!!
  – Chronic pain *may* be an appropriate reason for consultation

• If you are a D.O. consulting another physician for OMM/OMT:
  – What somatic dysfunction did you find?
  – What OMT was attempted?
References

• Chila, Anthony G., et. al. *Foundations For Osteopathic Medicine, 3rd Ed.* Baltimore: Lippincott Williams & Wilkins. 2011.
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• Multicenter Osteopathic Pneumonia Study in the Elderly (MOPSE)
• Marchand, P. *THE ANATOMY AND APPLIED ANATOMY OF THE MEDIASTINAL FASCIA.* Thorax 1951; 6: 359-368
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- Gray’s Anatomy, 40th ed.
- Dakwar, E., et. al. *The anatomical relationship of the diaphragm to the thoracolumbar junction during the minimally invasive lateral extracoelomic (retropleural/retroperitoneal) approach.* J Neurosurg Spine. 2012 Apr;16(4):359-64
Parting Thoughts

• “No man ever steps in the same river twice, for it's not the same river and he's not the same man.” - Heraclitus

• “It is good to have an end to journey toward; but it is the journey that matters, in the end.” – Ernest Hemingway

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