Non-Medication Treatment and Management of Pain

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LECOM Lifestyle and Integrative Medicine
LECOM CME
Toronto 2016
LECOM Integrative Medicine
LECOM Lifestyle and Integrative Medicine

- Osteopathic Manual Medicine
- Cupping/ Gua Sha
- Medical Acupuncture
- Aqua Healing
- Prolotherapy
- Regenerative Injection Therapies
- Yoga for Chronic Pain
- Physician Guided Meditation Programs
- Nutrition/Dietary Supplements
Integrative Medicine

• Integrative medicine (IM) as healing-oriented medicine that takes account of the whole person, including all aspects of lifestyle. It emphasizes the therapeutic relationship between practitioner and patient, is informed by evidence, and makes use of all appropriate therapies. (University of Arizona)

Integrative Medicine

• A non-pharmacologic and non-surgical focus for patients who are motivated to help themselves with an emphasis on empowering the patients with therapeutic choices.
• Which therapeutic option(s) resonates most with the patient’s belief system?
The principles of integrative medicine:

- A partnership between patient and practitioner in the healing process.
- Appropriate use of conventional and alternative methods to facilitate the body's innate healing response.
- Consideration of all factors that influence health, wellness and disease, including mind, spirit and community as well as body.
- A philosophy that neither rejects conventional medicine nor accepts alternative therapies uncritically.

The principles of integrative medicine:

- Recognition that good medicine should be based in good science, be inquiry driven, and be open to new paradigms.
- Use of natural, effective, less-invasive interventions whenever possible.
- Use of the broader concepts of promotion of health and the prevention of illness as well as the treatment of disease.
- Training of practitioners to be models of health and healing, committed to the process of self-exploration and self-development.
### Integrative Medicine Fellowships

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<th>University</th>
<th>Program</th>
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<td>University of North Carolina</td>
<td>Fellowship in Research in Integrative Medicine</td>
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<td>Ohio State University</td>
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<tr>
<td>Duke University</td>
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<tr>
<td>Lake Erie College of Osteopathic Medicine</td>
<td>Graduate Training Program in Integrative Medicine</td>
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<tr>
<td>German Cherry Hill</td>
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<td>University of Wisconsin, Department of Family Medicine</td>
<td>Academic Integrative Medicine Fellowship</td>
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<tr>
<td>The George Washington University</td>
<td>Integrative Geriatric Fellowship</td>
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<td>Maine Medical Center Family Medicine Residency Program</td>
<td>Integrative Family Medicine (IFM) Program and Fellowship</td>
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<td>Greater Lawrence Family Health Center</td>
<td>HIP Fellowship</td>
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<tr>
<td>University of Michigan</td>
<td>Integrative Medicine Fellowship</td>
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<tr>
<td>Mayo Clinic (Minnesota)</td>
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<tr>
<td>Albert Einstein College of Medicine/Beth Israel Medical Center</td>
<td>Academic Integrative Medicine Fellowship</td>
</tr>
<tr>
<td>Weill Cornell Medical College</td>
<td>Fellowship Program in Complementary and Integrative Medicine</td>
</tr>
</tbody>
</table>
Integrative Medicine Fellowships

| University of Arizona/Arizona Center for Integrative Medicine | Fellowship in Integrative Medicine; Bravewell Fellowship Program |
| University of California Los Angeles Center for East-West Medicine | Fellowship in Integrative Medicine |
| Santa Rosa Family Medicine Residency | Integrative Family Medicine Fellowship |
| UCSF Osher Center for Integrative Medicine | Training in Research for Integrative Medicine (TRIM) |
| Scripps Center for Integrative Medicine | Integrative Cardiology |
| Middlesex Hospital Cancer Center | Integrative Medicine Fellowship Program |
| Stamford Hospital, an affiliate of Columbia University | Integrative Medicine Fellowship |
| George Washington University and the Jesse Brown VA Medical Center | Integrative Medicine Employee Education/Fellowship Pilot |

Future Fellowship Design

- Meeting the needs of physicians who want to “reinvent” themselves within medicine instead of leaving medicine.
- The ACGME reality will mean more MD’s want to learn about and practice Osteopathy. Also more DO’s who want to “relearn” their OMM techniques and practice differently.
- Expanding the physician’s skill sets may decrease the need for prescribing medications and increase overall job satisfaction (and their telomere length!)
Objectives:

• Review the CDC’s 2016 guidelines on narcotic use.
• Provide a background understanding about lifestyle and integrative medicine.
• Create a framework of understanding about chronic pain.
• Describe common clinical pain scenarios and some of the integrative strategies utilized to reduce pain.

The Pain Epidemic

• According to the World Health Organization (WHO) over one-fifth of the world population has experienced some type of chronic pain.
• The National Center for Health Statistics estimates that nearly 35 percent of the U.S. general population has persistent or chronic pain symptoms.
• Of patients diagnosed with chronic pain and treated by a family physician, 64 percent report persistent pain two years after treatment initiation.
• More than 40 Americans die daily from pain killer overdoses.
• 50% of patients who took pain killers for 3 months still took them 5 years later.
• Studies reveal that most primary care providers are not comfortable with chronic pain management.
Pain Categories

- Two major categories of pain are nociceptive and neuropathic (a third is psychogenic).
- Nociception is a normal physiologic response to stimuli initiated by nociceptors, which detect mechanical, thermal, or chemical changes.
- Nociceptive pain may be divided into three subtypes: superficial somatic pain from cutaneous nociceptors on the skin or superficial tissues; deep somatic pain from somatic nociceptors on ligaments, bones, blood vessels, and muscles; and visceral pain from visceral nociceptors within body organs.
- Somatic pain is typically localized and is described as throbbing, aching, or sharp/gnawing; visceral pain is generally difficult to localize and is described as cramping, achy, squeezing, or dragging.

Realities of Pain Management

An estimated 1 out of 5 patients with non-cancer pain or pain-related diagnoses are prescribed opioids.

Centers for Disease Control and Prevention National Center for Injury Prevention and Control Division of Unintentional Injury Prevention March 2016
Painful Realities

Since 1999, sales of prescription opioids in the U.S. have quadrupled.

- Centers for Disease Control and Prevention National Center for Injury Prevention and Control Division of Unintentional Injury Prevention March 2016

Realities of Pain Medicine

Nearly 2 million Americans abused or were dependent on prescription opioids in 2014.
Realities of Pain

What is the CDC Guideline’s Focus?

- The guideline helps providers make informed decisions about pain treatment for patients 18 and older in primary care settings. The recommendations focus on the use of opioids in treating chronic pain—pain lasting longer than three months or past the time of normal tissue healing. The guideline is not intended for patients who are in active cancer treatment, palliative care, or end-of-life care.
- Opioids pose a risk to all patients. The guideline encourages providers to implement best practices for responsible prescribing.
- Use nonopioid therapies
What is the CDC Guideline’s Aim?

• Start low and go slow
• When opioids are used, prescribe the lowest possible effective dosage and start with immediate-release opioids instead of extended-release/long-acting opioids. Only provide the quantity needed for the expected duration of pain.
• Follow-up
• Regularly monitor patients to make sure opioids are improving pain and function without causing harm. If benefits do not outweigh harms, optimize other therapies and work with patients to taper or discontinue opioids, if needed.

What is the CDC Guideline’s Aim?

• Use nonpharmacologic therapies (such as exercise and cognitive behavioral therapy) and nonopioid pharmacologic therapies (such as anti-inflammatories) for chronic pain.
• Don’t use opioids routinely for chronic pain. When opioids are used, combine them with nonpharmacologic or nonopioid pharmacologic therapy, as appropriate, to provide greater benefits.
Tiers of Non-Surgical Treatment

1. Conservative management
   - Lifestyle Modifications
   - Osteopathic Manual Medicine/Physical Therapy/Home Exercises
   - Nutrition/Supplements (Vitamin D3/Omega-3 fatty acids/Anti-inflammatory foods&spices)
   - Acupuncture & Dry needling
   - Injection Therapies
   - Psychological Counseling
2. Viscosupplementation (Hyaluronic Acid)
3. Prolotherapy
4. Peri-neural Subcutaneous Injections (PSI)
4. Alkalinizing solutions
5. Autologous blood injection (ABI)
5. Platelet rich plasma (PRP)
6. Bone marrow aspirate concentrate (BMAC)
7. Adipocytes
8. Amnion

Osteopathic Medicine

- The body is a unit.
- The body possesses self regulatory mechanisms.
- Structure and function are reciprocally interrelated.
- Rational therapy is based upon an understanding of body unity, self regulatory mechanisms, and the inter-relationship of structure and function.
Autonomic Nervous System

Impact of Concussions:

SCHOOL OF HARD KNOCKS
Famous athletes suffer a hard knock in the dunk area of the brain, 10% of the are affected.
Significance of the Jugular Foramen

Why Acupuncture?

- >100,000 Americans die each year from drug related issues.
- Most patients want non-medication and nonsurgical options.
- Influences the ANS
- Cost effective
- Minimal side effects
- Professionally rewarding
Battlefield Acupuncture

• Developed by Richard Niemtzow, MD in 2001
• Treatment for pain
• Acupoints:
  – Cingulate gyrus
  – Thalamus
  – Omega 2
  – Point Zero
  – Shenmen

Gua Sha & Cupping
Pain Generators

Gluteus Minimus Trigger Points
Sacroiliac Joint and Ligaments

Pain beyond the physical.......
LECOM Sports and Orthopedic Medicine

Realities of Exercise and Movement

[Image of a runner and images of muscles and bones]
Sagittal Plane

Frontal Plane
Transverse Plane

Meniscal Injuries
8/15/16

20 oz. = 16 teaspoons of sugar

Sodium

- 73 mg
- 131 mg
- 242 mg
- 100 mg
- 73 mg
- 131 mg
An inflammatory Food Pyramid

Healthy Herbs & Spices (such as garlic, ginger, turmeric, cinnamon) (limited amounts)

Whole Soy Foods (watermelon, soy nuts, soy sauce, lentils) 3-5 a week

Fish & Seafood (such as salmon, cod, sardines) 2-3 a week

Milk & A Lactose 1-2 a day

Pasta ( Whole grains) 2-3 a week

Whole & Cracked Grains 3 a day

Vegetables (fresh raw and cooked, from all parts of the rainbow: vegetables, organic wheat, quinoa) 5-6 a day

Fruits (fresh or frozen) (organic when possible) 3-4 a day

Other Sources of Protein (high-quality meat, fish, legumes, eggs, nuts, seeds, tofu, tempeh) 3-5 a day

Healthy Fats (extra virgin olive oil, organic pressed canola oil, nuts, especially walnuts, avocados, seeds - including hemp seeds) 1-2 a week

Whole Food Plant-based Diet

• Low protein-plant based diet
• Organic Tart Cherry Juice
• Unsweetened Cocoa Powder
• Healthy Spices: cinnamon, turmeric, garlic and ginger
• Vitamin D and Omega 3 fatty acids
• Ice

Anti-inflammatory Agents:

- Healthy Herbs & Spices: garlic, ginger, turmeric, cinnamon (limited amounts)
- Whole Soy Foods: watermelon, soy nuts, soy sauce, lentils (3-5 a week)
- Fish & Seafood: salmon, cod, sardines (2-3 a week)
- Milk & Lactose: 1-2 a day
- Pasta: whole grains (2-3 a week)
- Whole & Cracked Grains: 3 a day
- Vegetables: fresh raw and cooked, from all parts of the rainbow (3-5 a day)
- Fruits: fresh or frozen (organic when possible) (3-4 a day)

Figure 1 Normal Knee
Figure 2 Bone Spur
Autonomic Nervous System

Mind Full, or Mindful?
Joint Health Considerations:

- Osteopathic Structural Evaluation
- Optimization of Nutrition
- Weight Management
- Stretching and Strengthening exercises
- Aerobic exercise/Aquatic therapy
- Supportive Shoewear
- Consideration of supplements:
  - Glucosamine (1500mg/D) and Chondroitin (1200mg/D)
  - Omega-3 Fatty Acids (2-4 grams/D)
  - Vitamin D3 (2,000IU d3/D)
  - Zyflamend (Botanical COX-2 inhibitor)
  - SAMe (400mg/D)

Figure 1: Normal knee

Figure 2: Narrow joint space, knee pain

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See What's Really in Cocoa and Chocolate Powders, Foods, and Supplements

Fish Oil, Krill, Algal, Calamari, and Green-lipped Mussel Supplements Reviewed

Some Supplements Can Help Lower Cholesterol and Reduce the Risk of Heart Disease

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**Warnings**

- Ageless Supplements: Fact or Fiction? DNA Repair!
- PDA Visa: Puerto Rico Supplement Seller

**Prevention**

- The issue "Cocoa Products Found to Contain a Tack Metal in Prevention's National Consumer Labs Long-Term Health Studies"
- The Yahoo! Health issue "What's Really in Cocoa, Chocolate, and Supplements? The Truth Behind the Hype and Myths About Health Benefits"

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**Clinical Updates:**

Up To A Point, Alzheimer's Risk Falls with Vitamin D

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**Dr. Will LaVant, ARNP, NMD:**

"ConsumerLab.com’s independent testing of natural medications (herbs, vitamins, and supplements) guides my teaching and my prescribing."

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<table>
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Knee Pain

Normal joint space

Loss of joint space
What is the main pain generator?

Fundamentals of Ligaments

- All are richly innervated (Pacinian corpuscles, muscle spindle apparatus, Golgi tendon organs.)
- Form connections between vertebral bodies, facets, multifidi, sacrum to pelvis-sacroiliac joints, sacrum to posterior pelvis and coccyx to pelvis and sacrum.
- Proprioceptive input from ligaments, followed by CNS processing, regulates tone, posture, firing patterns of axial and appendicular musculature.
Important Growth Factors in PRP

<table>
<thead>
<tr>
<th>Growth Factor</th>
<th>Phase in Which Most Active</th>
<th>Functions</th>
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<tbody>
<tr>
<td>IGF-1</td>
<td>Inflammation, proliferation</td>
<td>Promotes proliferation and migration of cells, stimulates matrix production</td>
</tr>
<tr>
<td>TGF-β</td>
<td>Inflammation</td>
<td>Regulates cell migration, protease expression, fibronectin binding interactions, termination of cell proliferation, stimulation of collagen production</td>
</tr>
<tr>
<td>VEGF</td>
<td>Proliferation, remodeling</td>
<td>Promotes angiogenesis</td>
</tr>
<tr>
<td>PDGF</td>
<td>Proliferation, remodeling</td>
<td>Regulates protein and DNA synthesis at injury site, regulates expression of other growth factors</td>
</tr>
<tr>
<td>bFGF</td>
<td>Proliferation, remodeling</td>
<td>Promotes cellular migration, angiogenesis</td>
</tr>
<tr>
<td>EGF</td>
<td>Proliferation, remodeling</td>
<td>Stimulates proliferation and differentiation of epithelial cells, stimulates angiogenesis</td>
</tr>
</tbody>
</table>
Infrapatellar tendinosis

PRP-Before and After

Patellar Tendon

Jumper’s Knee

Pre-procedure

Healthier tendon after PRP

9 months post-procedure
Plantar Fasciitis

Running Shoes

![Image of bone structure with labeled Heel spurs]

**What Type of Runner Are You?**

1. **Your Foot Shape**
   - Find YOUR shape and follow the arrows down for the type shoe you need.
   - Flat foot: low arch
   - Medium arch
   - High arch

2. **Your Probable Running Mechanics**
   - Over-pronator
   - Neutral
   - Under-pronator

3. **Your Correct Shoe Category**
   - Motion Control: Usually built with a straight sole and either heel or dual-density midsole. These shoes are meant to control excessive motion of the foot.
   - Stability: Usually built with a semi-curved sole and a combination of heel and midsole construction, these shoes are meant to allow the foot to pronate naturally.
   - Cushion: Usually built with a semi-curved sole and midsole construction, these shoes are meant to promote normal pronation movement.
Lumbosacral Pain

Common Pain Patterns
Importance of Posture

SIT AND WORK. STAND AND WORK.
Change how you work forever. In seconds.

SHOP NOW

Basal Joint Arthritis

[Diagram of hand and x-ray image of wrist arthritis]
Expanding Therapeutic Options

Take Home Points

- Remember that enthesopathies do not respond well to chronic steroid injections or long term use of anti-inflammatories. Different type of regenerative injections may be helpful for arthritic, tendon and ligament pain.
- Consider some integrative therapies for yourself like meditation, OMT, or acupuncture to further your own understanding and help your own health.
- Explore different ways to broaden your own skill set as it relates to the treatment of pain-like taking an injection course or acupuncture training.
- Consider supplements (Vitamin D3 2,000IUs/D, Omega-3 fatty acids, healthy spices) which may provide healthier ways to reduce inflammation to wean patients off the use of long term anti-inflammatories.
Danger of OMT

References:

References:


When it comes to healing patients who are suffering, we dramatically underutilize our power if we only apply the genius of our technology. What modern medicine does best is treat acute disease and trauma; what it does least well is treat chronic diseases. To deal with chronic disease you have to touch patients with more than just instruments–you must touch them with your heart.”

--Carl Hammerschlag, MD