Integrative Medicine Approaches for Chronic Pain

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Disclosures

• I have nothing to disclose
Objectives

• Define Integrative Medicine and explain its relevance in an allopathic medical practice.

• Discuss the origins of chronic pain and the impact of trauma on perception of pain.

• Recognize the magnitude of the opioid epidemic.

• Review non-allopathic methods for the management of chronic pain with a focus on fibromyalgia, osteoarthritis, back pain and neuropathic pain.
Definitions

- **Allopathic medicine**: “western medicine”, “conventional medicine”
- **Alternative medicine**: any of various systems of healing or treating disease (as homeopathy, chiropractic, naturopathy, Ayurveda, or faith healing) that are not included in the traditional curricula taught in medical schools of the United States and Britain; used instead of conventional medicine
- **Complementary medicine**: generally refers to using a non-mainstream approach together with conventional medicine.
Definitions, cont

• **Integrative Medicine:**
  • Combines treatments from conventional medicine and complementary and alternative medicine (CAM) for which there is some high quality evidence of safety and effectiveness (NCCAM)
  • The practice of medicine that reaffirms the importance of the relationship between practitioner and patient, focuses on the whole person, is informed by evidence, and makes use of all appropriate therapeutic approaches, healthcare professionals, and disciplines to achieve optimal health and healing (Academic Consortium for Integrative Medicine and Health)
Who uses Integrative Medicine?
CAM Use by U.S. Adults and Children

- Adults (2002): 36.0%
- Adults (2007): 38.3%
- Children (2007): 11.8%

Why?

• In a survey of over 30,000 Americans it was revealed that people most often use CAM because:
  • They believed that it would help them when combined with conventional medical treatments.
  • They thought CAM would be interesting to try.
  • A conventional medical professional suggested they try CAM.
  • They felt that conventional medicine was too expensive.

• Patients who have chronic conditions that are difficult to treat effectively may be more likely to pursue CAM methods: irritable bowel syndrome (IBS), rheumatoid arthritis, autism spectrum disorder, attention deficit hyperactivity disorder (ADHD), fibromyalgia, chronic fatigue, and cancer. In one study, published in the *Journal of Alternative and Complementary Medicine*, cancer patients who received a poor prognosis reported using CAM more often than the better prognosis group. Other studies show that cancer patients experience positive changes and increased spiritual importance as a result of CAM.
Integrative Medicine Modalities

- Natural products: herbal, vitamins, minerals and other natural products
- Mind body medicine: deep breathing, meditation, yoga, acupuncture, guided imagery, tai chi, hypnotism, progressive relaxation, qi gong
- Manipulative and body based practices: massage, manipulation
- Energy medicine: Reiki, healing touch, qi gong
- Chinese medicine
- Ayurvedic medicine
- Functional medicine
- Homeopathy
- Naturopathy
- Traditional healers
- Environmental medicine
- Group Visits
Why practice Integrative Medicine?
Because it’s just good medicine.
WHAT ARE THE ORIGINS OF CHRONIC PAIN?
More definitions

- Chronic Pain: prolonged and persistent pain of at least 3 months in duration
- Chronic recurrent pain: recurrent episodes of pain interspersed with pain-free periods extending over months or years
- 2011 report showed > 1.5 billion people worldwide suffer from chronic pain,
- ~ 3-4.5% of the global population suffers from neuropathic pain.
- IOM Report 2011: Costs society at least $560-$635 billion annually, including lost productivity / wages
  - 2011, Institute of Medicine Report from the Committee on Advancing Pain Research, Care, and Education: *Relieving Pain in America, A Blueprint for Transforming Prevention, Care, Education and Research.*
• Multiple systems involved: nervous, musculoskeletal, immune, endocrine, inflammatory

• Many triggers: genetics, environmental, cancer, surgery, degenerative changes

• Trauma History- high ACE score is a risk factor for chronic pain such as back pain and even a risk factor for more pain in pregnancy

• Pain is a maladaptive response.
• While the original response to stimuli may have been protective, the prolonged response becomes harmful.
Symptoms of chronic pain

• Physical Stress
• Interrupted sleep
• Poor wound healing
• Decreased immunity
• Depression
• Isolation
• Self-medication
• Spiritual
• Reminder of mortality
• At times perceived as a punishment or evidence of moral wrongdoing
• Causes feelings of powerlessness, hopelessness
Incidence of Chronic Illness

- Chronic Pain
- Cancer
- Diabetes
- Stroke
- Cardiovascular Disease

Allostatic Load = Wear and Tear on the Body

Figure 1. The Stress Response and Development of Allostatic Load.
The perception of stress is influenced by one's experiences, genetics, and behavior. When the brain perceives an experience as stressful, physiologic and behavioral responses are initiated, leading to allostatics and adaptation. Over time, allostatic load can accumulate, and the overexposure to mediators of neural, endocrine, and immune stress can have adverse effects on various organ systems, leading to disease.
Lorimer Moseley- Why Things Hurt

https://www.youtube.com/watch?v=gwd-wLdlHjs
What about that abnormal MRI?

- Forty-six asymptomatic individuals who had a high rate of disc herniations (73%) were observed for an average of 5 years
  - Low back pain was predicted by (P < 0.001): listlessness, job satisfaction and working in shifts
  - NOT by abnormal discs

- MRI of the lumbar spine of 98 asymptomatic people
  - Only 36% had a normal MRI, 52% had a bulge at one level, 27% had protrusion, 1% had extrusion, 38% had an abnormality of more than one intervertebral disk
    - Jensen MC et al. NEJM Volume 331: 69-73, 1994
So what you’re telling me is that you think this is all in my head?
You think that I’m making this up?

• Why would I choose to:
  • Lose my job
  • Lose my friends
  • Be stuck in bed all day
  • Not be able to play with my grandkids
  • Undergo painful procedures
  • Not be able to do the things I love
  • Be judged
  • ???

If it was all in my head, don’t you think I would choose to be healthy, happy and rich instead of sick, sore, miserable and unable to work?
Survey:
- 50% of CNP patients had inadequate pain relief
- 50% “considered suicide due to feelings of hopelessness associated with their pain”
Severe pain increases risk of suicide in vets
  - April 2017 Volume 18, Issue 4, Supplement, Page S62

Individuals with physical pain were more likely to report:
- Lifetime death wish (p = 0.0005)
- Current and lifetime
  - Suicidal Ideation (both p < 0.00001)
  - Suicide Plan (current: p = 0.0008; lifetime: p < 0.00001)
  - Suicide Attempt (current: p < 0.0001; lifetime: p < 0.00001)
  - Suicide Deaths (p = 0.02).
Conventional Treatment of Chronic Pain

• Acetaminophen, ibuprofen, gabapentin, cymbalta...none of these medications are without side effects or 100% effective.

• Injections:
  • Cochrane Review from 2008: There is insufficient evidence to support the use of injection therapy in subacute and chronic low-back pain. However, it cannot be ruled out that specific subgroups of patients may respond to a specific type of injection therapy. Staal JB, de Bie R, de Vet HCW, Hildebrandt J, Nelemans P. Injection Therapy for subacute and chronic low back pain. Cochrane. 6 July 2008. http://www.cochrane.org/CD001824/BACK_injection-therapy-for-subacute-and-chronic-low-back-pain
  • Some evidence that they may be helpful for short term pain relief. PM R. 2009 Jul;1(7):657-68.
Opiate Epidemic
Risks of chronic opiate use

• Opioid-induced hyperalgesia documented in animals and humans
  • A number of case reports document decreases in pain with stopping opioids
  • Mechanism may be NMDA receptor-mediated central sensitization

• Opioid-related Endocrinopathy
  • Up to 90% of patients treated with opioids!
  • More pronounced in doses > 100 mg morphine per day
  • Symptoms: fatigue, irregular menses, hot flashes, reduced libido, night sweats

• Respiratory depression, constipation, sedation, nausea...
Other options, cont

• Failed back surgery syndrome

• Preoperative opioid use was determined to be a negative predictor of return to work rates after lumbar discectomy in worker’s comp patients.

• Long-term preoperative opioid use was associated with higher medical costs, psychiatric illness and postoperative opioid use. Even a short, or moderate course of preoperative opioids was associated with worse outcomes compared to no use.

SO, HOW CAN WE USE INTEGRATIVE MEDICINE FOR CHRONIC PAIN?
Tack rules

• If you are sitting on a tack it takes a lot of ______ to make the pain go away. (acetaminophen, ibuprofen, oxycodone, turmeric)
  • The proper treatment for tack-sitting is tack removal.

• If you are sitting on two tacks taking one away does not reduce the pain by 50%.

• If morphine makes the pain of the tack go away, you may stop trying to remove the tack
True Treatment of Chronic Pain

• Accurate diagnosis is important: Do not rush to control symptoms and ignore the message about an underlying health problem

• Remove tacks where possible, i.e. treat underlying causes
  • Surgical treatment
  • Physical therapies- chiropractic, osteopathic manipulation, massage, physical therapy
  • Specific medical treatment for neuropathy, systemic inflammation- dietary causes
  • Sleep, nutritional influences on tissue healing
  • Hypothyroidism
  • Counseling/Mindbody - History of trauma

• Utilize benefits of neuroplasticity in order to “rewire” pain channels
Manual therapy (MT)

• Combining different forms of MT with exercise is better than MT or exercise alone

• Mobilization does not need to be applied to the symptomatic level(s) for improvements of neck pain patients (helps with risk reduction of some higher risk manipulation techniques)

• A systematic review and meta-analysis concluded that early evidence shows that manual therapy might be effective for relieving pain, stiffness and dysfunction in osteoarthritis of the knees
Acupuncture

• Acupuncture is one of the most widely used IM modalities for pain management
• Growing fast - in 2002 the NIH showed that an estimated 8.2 million adults had used acupuncture from just 2.1 million the year before.
• Research is still somewhat limited but body of evidence is growing:
  • Moderate evidence that acupuncture was more effective than sham-acupuncture in reducing pain immediately post-treatment for CNP, CLB, ALBP
    • 2015: Yuan, QL et al. TCM for neck pain and LBP: a systematic review & meta-analysis. 75 RCTs, 11,077 patients
  • 16 Systematic reviews of variable quality (much of it low) showed that acupuncture, either used in isolation or as an adjunct to conventional therapy, provides short-term improvements in pain and function for chronic LBP.
Acupuncture

- **Joint Commission** recommends acupuncture as a treatment option for pain management; **American Pain Society** & **American College of Physicians** agree acupuncture is an option for low back pain.

- Based on NIH studies: In 2012, most (60 percent) of the respondents who had chiropractic care had at least some insurance coverage for it, but those rates were much lower for acupuncture (25 percent) and massage (15 percent). Rates of coverage for all three increased from 2002 to 2012.

- More Medicaid plans (including Oregon’s) are covering acupuncture
Systemic Inflammation

- Acute increases in C-reactive protein (CRP), IFN-gamma, IL-1, IL-6, and TNF-alpha can become chronic; in many cases there will not be elevations in CRP although there may be more increases in hsCRP
- Systemic inflammation is increased by stress, genetics, lack of exercise and exposure to toxins
- We know that it is tied to increases in auto-immune conditions, heart conditions, cancer and Alzheimer’s
- It is also a cause of chronic pain: Systemic inflammation results in lowering the pain threshold
Nutrition

• Anti-inflammatory diet: do we have any evidence?
  • Still limited and contradictory
  • Some research states that some foods are pro-inflammatory- among these foods high in
    saturated fats, added sugars, preservatives and refined carbohydrates
  • Foods shown to decrease inflammation are foods rich in omega-3 fatty acids and antioxidant
    rich foods

• 2016 study published in the Scandanavian Journal of Pain showed that patients
  with fibromyalgia who eat a FODMAP diet had a reduction in pain and improved
  daily life based on pre and post symptom analysis
  • Marum AP et al. A low fermentable oligo-di-mono saccharide and polyols (FODMAP) diet reduced pain and improved

• Chronic pain and obesity are correlated although the nature of the relationship
  may not be linear.
  • Weight loss leads to reduction in chronic pain
  • Okifuji A and Hare BD. The association between chronic pain and obesity. J Pain Res. 2015; 8:399-408
Anti-Inflammatory Food Pyramid

Andrew Weil, MD, created an Anti-inflammatory Food Pyramid to help people make optimal food choices every day.

- **HEALTHY SWEETS** (such as plain dark chocolate) Sparingly
- **RED WINE** (optional) No more than 1-2 glasses a day
- **SUPPLEMENTS** Daily
- **TEA** (white, green, oolong) 2-4 cups a day
- **HEALTHY HERBS & SPICES** (such as garlic, ginger, turmeric, cinnamon) Unlimited amounts
- **OTHER SOURCES OF PROTEIN** (high quality natural cheeses and yogurt, omega-3 enriched eggs, skinless poultry, lean meats) 1-2 a week
- **COOKED ASIAN MUSHROOMS** Unlimited amounts
- **WHOLE SOY FOODS** (edamame, soy nuts, soymilk, tofu, tempeh) 1-2 a day
- **FISH & SEAFOOD** (wild Alaskan salmon, Alaskan black cod, sardines) 2-6 a week
- **HEALTHY FATS** (extra virgin olive oil, expeller-pressed canola oil, nuts - especially walnuts, avocados, seeds - including hemp seeds and freshly ground flaxseeds) 5-7 a day
- **WHOLE & CRACKED GRAINS** 3-5 a day
- **PASTA** (al dente) 2-3 a week
- **BEANS & LEGUMES** 1-2 a day
- **VEGETABLES** (both raw and cooked, from all parts of the color spectrum, organic when possible) 4-5 a day minimum
- **FRUITS** (fresh in season or frozen, organic when possible) 3-4 a day
Food Sensitivities

• Remember the tacks
• Gold Standard is the Elimination diet (not IgG, IgE or muscle strength testing)
• Reasons to consider: chronic pain, fibromyalgia, IBS, chronic headaches, GERD, eosinophilic esophagitis
• Go to the basics: lamb or chicken, apple or pear, rice; expand from there after two weeks
• Recommend advanced planning
• University of Wisconsin: Department of Family Medicine, Elimination Diet

Turmeric

• Deep yellow root
• Active constituent is curcuminoids
• Anti-inflammatory: COX2 inhibitor; use in place of NSAIDs
• Anti-arthritic: NK-κB activation
• Uses: evidence for OA and HLD; insufficient for: IBD, RA, SLE, lichen planus, gingivitis, joint pain
• Can cause GI irritation
• Dose: 1000mg twice daily=1 tsp twice daily; take with black pepper for better absorption

• Natural Medicine Comprehensive Database
Sleep

• Pain severity was related to fewer hours slept and delayed sleep onset.

• Low levels of somatomedin C (IGF-1) in patients with the fibromyalgia syndrome

• 55.4% of patients with OSA have chronic widespread pain
  • J Phys Ther Sci. 2015 Sep;27(9):2951-4. doi: 10.1589/jpts.27.2951

• Sleep deprivation lowers the pain threshold
Treatment of sleep disorders

• Look for sleep apnea- especially with patients on chronic opiates
• Opioids exacerbate sleep-disordered breathing.
  • Chest. 2016 Jun 1. pii: S0012-3692(16)49109-9
• Work on sleep hygiene- watch for daytime sleeping
  • Consider low dose melatonin to help reset sleep cycle: start with 0.3mg as opposed to the much more common doses of 3-5mg
  • Light box: 10,000 lux for 30 min every morning
• Herbs for sleep: chamomile, passionflower, hops, lemon balm, valerian
• Treat restless legs with magnesium: titrate to BM except in patients with kidney disease
Mind-body

• Mitigate disease and treatment-related symptoms
• Decrease pain, both acute and chronic
• Improve resilience to social circumstances
• Improve feelings of patient self-efficacy and self-esteem
• Provide insight, understanding, acceptance, forgiveness
• Increase compassion toward self and other
• Work through emotional trauma
Yoga

  - Yoga can reduce pain & disability, be practiced safely, well received by participants.
  - Some studies indicate yoga may improve psych symptoms, but these effects aren’t as well established.

• **2013**: Holtzman et al, Pain Research and Management. *Yoga for chronic low back pain: A meta-analysis of randomized controlled trials.* 8 RCTs, 743 patients
  - Yoga may be an efficacious adjunctive treatment for chronic LBP
  - Recommends more RCTs to include active control groups to determine whether yoga has a) specific treatment effects & b) whether yoga offers any advantages over traditional exercise programs / other alternative treatments
  
  • **Strong evidence** for short-term effects on pain, back-specific disability, global improvement & long-term effect on pain.
  
  • **Moderate evidence** for long-term effect on back–specific disability.
  
  • No evidence for either short or long term effects on health-related QOL.
  
  • Yoga can be recommended as an additional, safe therapy to chronic low back pain patients.
Meditation

  • 90 chronic pain patients were trained in mindfulness-based meditation practice.
  • The treatment group decreased pain-related drug use, and activity levels and feelings of self-esteem increased.

• Most improvements were maintained at the 15-month follow-up, and showed a high level of compliance with ongoing meditation practice.
John Sarno
Mindbody Prescription

• Symptoms arise when there is too much rage and not enough counterbalancing soothing elements; the purpose of pain is to distract from “dangerous feelings” such as rage, hurt and sadness
• Encourage patients to write about possible factors contributing to pain- childhood trauma, current stressors, feelings of inferiority
• Encourage daily writing, repetition is important
• Evidence shows that patients that used more and not less negative words actually had more benefit
• Many patients will need assistance with this process (therapy)
A few specific conditions...
Headaches

• Butterbur: specifically for migraine prophylaxis
  • one study showed reduction in frequency by 48%
  • make sure that it is a pyrrolizidine-free extract
  • Dose: 75-100mg BID, no evidence of use beyond 3 months of ongoing use

• Feverfew: reduces frequency of migraines, reduces associated symptoms of pain, nausea, vomiting and light/sound sensitivity
  • Frequently used but studies are mixed
  • Do not use in those wit ragweed allergy
  • Does: 50-100 mg daily
Headaches, cont

• Magnesium: used for migraines and cluster headaches, possibly effective- many studies are in children
  • Appears to be more beneficial in those with hypomagnesemia (long term PPI)
  • Dose: appears to be most helpful at doses around 600mg but these doses can cause diarrhea in some

• Peppermint oil: may be effective for relieving tension-type headaches when used topically
Low Back Pain

• 2007 Recommendations from American Pain Society, American College of Physicians which was based on research conducted at OHSU by Roger Chou includes the following:

• Three categories of low-back pain: nonspecific low-back pain, back pain potentially associated with radiculopathy (nerve disorders) or spinal stenosis (narrowing), or back pain associated with another specific cause. Include assessment of psychosocial risk factors to predict risk for chronic disabling back pain.

• Do not routinely obtain imaging or other diagnostic tests in patients with non-specific low-back pain.

• Obtain diagnostic imaging when severe or progressive neurologic deficits are present

• Evaluate patients with persistent low-back pain with MRI only if they are potential candidates for surgery or epidural steroid injection.

• Advise patients to remain active, and provide information about effective self-care options.

• Use medications with proven benefits in conjunction with back care information and self care. Assess the severity of baseline pain and functional deficits, potential benefits, risks, and relative lack of long-term efficacy and safety data before initiating therapy.

• If no improvements with self-care options, consider non-pharmacologic therapy with proven benefits for low-back pain: spinal manipulation for acute low-back pain; and for chronic or sub-acute low-back pain options include: intensive interdisciplinary rehabilitation, exercise therapy, acupuncture, massage therapy, spinal manipulation, yoga, cognitive-behavioral therapy, or progressive relaxation.
Fibromyalgia

• Improve sleep: lemon balm, passionflower, hops, chamomile, motherwort and melatonin are all possibly effective and are low risk for harm; valerian has a similar level of evidence but can cause sedation in some

• Decrease “fibro fog”:
  • Rhodiola: an adaptogen that has limited evidence for treatment of depression, anxiety and fatigue; low risk for harm (can increase hypoglycemic and hypotensive effects of some medications)
  • Ashwaganda: possibly effective for reduction in stress, anxiety and depression
  • Ginseng: several different types; in order of stimulating effects: siberian ginseng, american ginseng, panax ginseng; insufficient data- systematic reviews have been very challenging because so many different types are used
Low Dose Naltrexone

- Low-dose naltrexone for the treatment of fibromyalgia: findings of a small, randomized, double-blind, placebo-controlled, counterbalanced, crossover trial assessing daily pain levels.

- Conclusions: The preliminary evidence continues to show that low-dose naltrexone has a specific and clinically beneficial impact on fibromyalgia pain. The medication is widely available, inexpensive, safe, and well-tolerated. Parallel-group randomized controlled trials are needed to fully determine the efficacy of the medication.
  

- Inexpensive may be a stretch: ~$75/mon at compounding pharmacies in Portland
Osteoarthritis

- Glucosamine sulfate (not hydrochloride): may work by increasing the production of mucopolysaccharides, increasing synovial fluid, repairing eroded tissue and stimulating new cartilage synthesis; reduces pain scores from 28-41% and improves function by 21-46%

- SAMe: more effective than placebo and as effective as NSAIDs for improving symptoms of OA; low risk
  - Many options are poor quality (recommend the butanedisulfonate salt form)
  - $$$
Neuropathic pain

• Alpha-lipoic acid:
  • Evidence for diabetic neuropathy and fibromyalgia
  • Dose: The starting dose is 300 mg at night, then twice daily (BID). The target dose is 300 or 600 mg BID. The onset of pain relief is slow, over the course of a few weeks.

• Acetyl L-carnitine
  • Evidence of efficacy in relieving painful diabetic neuropathy, HIV associated neuropathy, and chemotherapy induced neuropathy.
  • Dose: The oral acetyl L-carnitine dose is 500 to 1,000 mg three to four times a day.
Additional Books

• The Brain’s Way of Healing: Remarkable Discoveries and Recoveries from the Frontiers of Neuroplasticity by Norman Doidge, MD
• Unlearn Your Pain by Howard Schubiner, MD
• Joint Hypermobility Handbook by Brad Tinkle, MD
• Managing Your Pain Before it Manages You by Margaret Caudill, MD, PhD, MPH
Questions?