Integrative Pain Medicine

Caring for the Whole Patient
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DISCLOSURE

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• *Heathertickmd.com*
Seven Habits of Successful Conventional Physicians

- We are well intentioned
- Rushed
- We are buried in electronic “paperwork”
- We rely on tests
- We focus on getting a diagnosis
- 54% in primary care suffer “burn out”
- We are part of the system that is the third leading cause of death (Makary MD, BMJ 2016;353:i2139)
A lot of trust in...

- Validity of tests
- Their applicability to the unique patient we are treating
- The latest trend: how did we label/treat patients before this trend, how certain were we that it was the right approach.
- Drug solutions-and more drug solutions to the side effects
Less trust in...


• **The ability of the body to heal**

Less experience with...

• The offer an intervention whose side effects include better health instead of renal failure
• How good it feels to refocus the conversation on the pursuit of health
• How a focus on health as a positive attribute helps our patients and ourselves.
• With respect to neuroplasticity: Which circuits do we want to reinforce.
Trust?
Less trust in...

- Marcia Angel, NEJM, *The Truth About Drug Companies*

- Richard Horton *The Lancet*, “much of the scientific literature, perhaps half, may simply be untrue”, blaming, among other things, studies with small sample sizes, researchers’ conflicts of interest and “an obsession” among scientists for pursuing fashionable trends of dubious importance”.

Risk of Standard of Care

- Prescription opioid inadvertent ODs kill more people than heroin and cocaine combined (46/d)
- Escalating drug use and procedures and no improvement in outcomes
- Frequency of back surgery correlates with numbers of surgeons in the area rather than incidence in pathologies
- Medical care is a public health hazard

(Don Berwick IHI)
The Moral Era

• YouTube: Address to the 27th annual meeting of Institute for Healthcare Improvement

• https://www.youtube.com/watch?v=DKK-yFn7e_0

• Difference between QI, and transformation
Health Creation or Healthcare

• Our health care model is a disease management model
• Whole person care
• Time, attention
• Silver Bullet model- does not work for chronic conditions
• “healing is always possible”
What distinguishes IM/IPM?

• **Diagnosis:** an agreed upon label for a set of symptoms

• **Benefits?** It helps in urgent, acute situations Billing, coding Entitlements

• **Disadvantages?**
Health Creation or Healthcare

• Our health care model produces life long customers for many different types of services

• Was this our intention?
What distinguishes IM/IPM?

Medicine is like a game of connect the dots

What about the connectors?
How did we get this so wrong?

- The pressures of modern practice have pushed us to accept simple solutions to complex problems.

- We also have a story telling problem: We are a bit too quick to come up with explanations for things we really don’t have an explanation for.  
  (Malcolm Gladwell)
Connectors

• Nutrition and microbiome
• Fascia
• Movement—another side to neuroplasticity
• Mitochondria
EPIC: European Prospective Investigation into Cancer and Nutrition

23,000 people for 7.8 years
  – Not smoking
  – Exercise 3.5 hr/week
  – Healthy diet: veg, fruit, beans, whole grains, nuts, seeds, low meat consumption
  – BMI <30

THE KEY TO HEALTH:

WOULD YOU TAKE A DRUG THAT PREVENTED THIS PERCENTAGE OF DISEASES?

- **Diabetes**: 93%
- **Heart Attacks**: 81%
- **Strokes**: 50%
- **Cancers**: 36%
SUGAR

• Average US person consumes 150 pounds of sugar per year
• ½ pound each day
THE KEY TO HEALTH:

WE ARE WHAT WE EAT.

To be more specific, we are what we INGEST, DIGEST AND ABSORB.
Metchnikoff

• Nobel Prize in 1908 for work in immunity
• He discovered macrophages, phagocytosis and cell mediated immunity (co-recipient Paul Erlich established the principles of humeral immunity)
• He also developed the concept of good and bad bacteria in the gut and their association with health and prolonged life.
What has...

• a profound effect on inflammation, the immune system and our mood but is not a drug

• 10 times as many cells as us

• 200 times as much DNA as us
THE GUT

- 70-80% of the immune system lines the gut
- 80% of serotonin is in the gut
- Enough neurons in the gut for a small mammals brain
Heartburn and GI Health

• Acid stimulates
  – Unfolding of proteins
  – Gastric emptying
  – Pancreatic enzymes
  – Sterilizes food
  – Optimizes microbiome
  – nutrient absorption
  – inflammation
Epigenetics

• Epigenetic gene regulation comprises the heritable changes in gene expression that occur in the absence of changes to the DNA sequence itself… acetylation, methylation, phosphorylation….. potential for nutritional and environmental factors to influence fetal, adult, and transgenerational epigenetic gene regulation, resulting in numerous phenotypic consequences

The agouti mouse model: an epigenetic biosensor for nutritional and environmental alterations on the fetal epigenome

Trauma and Epigenetic changes
Omega 3: DHA and EPA

- Omega 3’s anti-inflammatory prostaglandin pathways
- >3 gm DHA + EPA/day reduced pain

Omega 3: side effects

Effective for: Lowering TG

Likely: Reduced risk of dying of heart disease

Possibly: Reduced risk for HT, RA, Dysmenorrhea, ADHD, Raynauds, Stroke, Osteoporosis, IgA nephropathy etc

Vitamin D

• Low vit D levels correlated to higher opioid use (2x) and longer duration of use (2x)

• “vitamin D inadequacy may represent an under-recognized source of nociception and impaired neuromuscular functioning among patients with chronic pain”

Vitamin D Side Effects

- Decreased inflammation
- Increased bone density
- Less susceptibility to infections such as flu
- Less diabetes
- Less auto-immune disorders
- Possible role in cardiac and brain health

- Overdose extremely rare (over 150ng/ml)

Magnesium

• Mg inhibits release of Ach from motor end plates -muscle relaxation-FM, MFPS, cramps

• Conversely, magnesium depletion facilitates neuromuscular excitability, producing tremor, cramps, and tetany. Cohen S et al, Anesthesiology 2004; 101:495–526,

• Recent rat studies on mechanisms NMDA receptors and nerve pain

• Improves constipation and irritable bowel,

• Sleep disorders

• Bone health, Collagen formation
Vitamin B12

• Vitamin B12 in low back pain: a randomised, double-blind, placebo-controlled crossover study daily injections of 1000mcg

• Reduction of pain in both active arms of the crossover

Vitamin B12-side effects

• Powerful methylator (mitochondria and detox)
• Co factor for methionine synthase: lowers homocysteine
• Possibly helpful: Diabetic neuropathy
  Fatigue
  Fractures (Mayo Clinic)
Turmeric (Curcuma longa)
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• 107 knee OA patients: 800 mg/d ibuprofen=2g/d curcumin for pain

• Laparoscopic cholecystectomy: Less pain and fatigue and analgesic use in curcumin group vs placebo (500mg q6h) DBPC RCT
  Agarwal KA, et al, Surg Endosc 2011; June 14
Turmeric – Side Effects

- Neuroprotective - animal models
- New neurons in the hippocampus
- Studied in Alzheimer’s prevention and improved function in Alzheimer’s patients
Fascia

- Langevain

- Myers
Myofascial Pain: most common cause of pain


• Simons D, overall 30-93% of people with body pain have MFTPs.
Myofascial Pain

• Back pain patients who were disabled for long periods had tenderness over muscle motor points in affected myotomes.

• Tender motor points = indicators of radicular involvement/irritation at the nerve root and differentiate rapidly healing low back strain from one that is slow to improve.

Myofascial pain


Vibration Sonoelastography of Muscle with MTrP

Hypoechoic trigger point

Focal decrease of color variance indicates a localized stiffer region
Vibration Sonoelastography of Uninvolved Muscle

Uniform echogenecity in uninvolved muscle

Uniform color variance indicates homogeneous stiffness
Movement

• Movement as pain relief

• Movement Disorders in Chronic pain
  – Barbe
  – Napadow
  – Sahrmann
Mitochondria

- Energy production
- Detoxification
- Susceptible to free radical damage

- Dependent on robust system of antioxidants
Mitochondria

- OXPHOS defects reduce mitochondrial ATP production, and “can theoretically give rise to any symptom, in any organ or tissue, at any age, with any mode of inheritance.”

Mitochondrial Damage

Drugs affecting mitochondrial function:

• NSAIDS, Aspirin, acetaminophen, antidepressants, local anesthetics, anxiolytics, antipsychotics, statins, oral hypoglycemic agents and anticonvulsants

• environmental toxics -80,000 new chemicals


Better Living Through Chemistry
What is Fibromyalgia?

- microglial activation = central sensitization
- peripheral pain or stress role in central sensitization (S Mense)
- stress induced peripheral sensitization (Khasar, J Neurosci. 2008 May 28; 28(22): 5721–5730.0)
- magnesium deficiency
- disturbed microbiome
What is Fibromyalgia?

• small fiber neuropathy more common than we suspected=inefficient circulation A-V shunting in microvasculature


• Inflammatory cytokines=brain fog, mast cells causing bladder irritation (Fabien Marchand et al, NatureReviews: 2005;7)
What is Fibromyalgia?

• Is pursuit of health an option?
• Is polypharmacy part of the solution or part of the problem?
• Is there an endgame for each new drug you start?
• When patients don’t get better what to do?
• Prevalance? Age distribution?
Are we looking for answers in the right places?
Integrative Pain Medicine

What? Why?
If not now, when? If not you, who?

(Schoomaker and Buckenmaier, Pain Medicine 2/2016)