Evidence Based Approaches to Chronic Pain Management:
Time to Reconsider the Benefit of Technophilism?

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Disclosure

- Nothing to disclose
Learning Objectives

- Define the concept of technophilism as it relates to pain medicine
- Describe the problems with the evidence-bases of the technophilic approaches to pain management that are currently overutilized
- Employ a plan for more rational specialist referral

Original AMA Code of Ethics (1847)

- “From the age of Hippocrates to the present time, the annals of every civilized people contain abundant evidences of the devotedness of medical men to the relief of their fellow-creatures from pain and disease…..”
- Is this the case in American pain medicine?
- If not, have we become "uncivilized"?
- I believe so…..
Spurious Symbolic Measures to Improve Pain Management in the US

- Congressional declaration of “Decade of Pain Control and Research” (HR3244)
- Initiative to treat pain as the “5th vital sign”
- The National Pain Strategy….?

“The silence on the failure of caregivers to adequately address pain in the clinical setting has been deafening”


Reasons for Inadequate Treatment of Pain and Suffering

- Lack of interest by many physicians
- Approximately 8000 board certified “pain specialists” in the US
- Training in pain management in med schools and residency programs is highly inadequate
- Concerns regarding professional sanctions and legal action relating to opioid prescription
Reasons for Inadequate Treatment of Pain and Suffering (cont’d)

- Insurance industry’s and hospital administrations’ concerns with cost-containment and profitability as opposed to quality of care
  - Insurance companies’ refusal to pay for interdisciplinary programs has resulted in a decrease from over 1000 programs in the US to fewer than 90 outside the VA and military

- TECHNOPHILISM

Technophilism

- Defined as portraying all problems as want of technical know-how
- Definition as applied to chronic pain management:
  - A reliance upon medications, procedures, and surgical approaches in lieu of treatment of the person, thereby ignoring his/her phenomenological existence
  Schatman ME. J Pain 2007;8(Suppl.):S86.
- Derived from what Hans Lenk referred to as the “technocratic imperative”—the perceived need to put into use any and all technologies (and techniques) simply because “we can”
Technophilism (cont’d)

- What drives technophilism in pain medicine?
- Is it simply obsession with all things technological?
- Perhaps if you ask my 18-year-old son....

Cause of Technophilism in Pain Medicine

- It’s actually all about the $$$$$$$.....
- Jim Giordano, the leading critic of technophilism in pain medicine
  Notes that the Hippocratic Oath “calls for the clinician to be prudent regarding using any and all treatments, so as to adhere to, and maximize the ends of the practice”
  The technocratic imperative prizes speed and efficiency
Cause of Technophilism in Pain Medicine (cont’d)

• But do speed and efficiency necessarily maximize the ends of pain medicine?
• Not necessarily…..
• And they may actually impede the ideal ends of pain medicine….
• The market economy under which most pain medicine is practiced in the US causes us to equate speed and efficiency with increasing economic gains and minimizing loss


Commodification of Pain Medicine

• Thus, it’s not technology, per se, but the commodification of pain medicine that has driven it into the toilet
• As pain research has become all about the money, too, we’re seeing “pseudoscience-fueled neuromysticism” subverting the knowledge of physicians and compromising their abilities to adequately care for their patients

• “…many sly people make money out of ignorance of the rest while endangering the health of innocent patients who, one way or the other, must pay…”

Commodification of Pain Medicine (cont’d)

- We also continue to deal with the disconnect between legitimate researchers and practicing pain physicians
  - Ivory tower researchers don’t understand the issues with which doctors in the trenches need help, and accordingly conduct irrelevant research
  - This probably has the greatest impact on primary care providers, who treat most of the chronic pain in this country

Commodification of Pain Medicine (cont’d)

- “While market and business forces may be operative in science and medicine, neither science nor medicine should be conducted as business”
- Technology, thus, needs to be used to further the health of our patients – rather than having the ends of profitability
- This is particularly important in pain medicine, given the vulnerability of our patients
Bad Segue

(Lack of) Empirical Support for Technophilic Approaches

- Opioids
- Spine surgery
- Intrathecal opioid delivery systems
- Spinal cord stimulators*
- Other interventional approaches
Opioid Analgesics

- Difficult topic for me…..
- Few would argue that opioids should be considered a first-line approach to chronic pain
- Although our society has thrown the baby out with the bathwater
- Another day, another lecture…. 
- Jane Ballantyne is certainly technically-correct

Opioid Analgesics (cont’d)

- Current knowledge of long-term analgesic efficacy comes from surveys, case series, and open-label follow-up studies rather than RCTs of sufficient length
- Maximum length of a published RCT is 32 weeks
- Weighted mean duration of opioid RCTs is approximately 5 weeks
Opioid Analgesics (cont’d)

- 2010 Cochrane Review: weak evidence for long-term pain relief, inconclusive regarding function or quality of life
- Speaking of evidence…the evidence for opioid-induced endocrinopathy is strong, based on recent reviews
- Few deniers….

Opioid Induced Hyperalgesia

- The evidence for OIH is not as strong as for OIE
- 2015 Israeli article notes that all evidence for OIH are experimental phenomena
- Yet reviews are strongly suggesting that it is indeed a problem
- Although there are still OIH deniers
Bottom Line on Opioids

- These are very imperfect drugs…yet sometimes the only option
- The pendulum has clearly swung awry….

- We can’t ignore an important caveat…..
- Irrespective of a lack of evidence basis for efficacy and potentially brutal iatrogenic complications, sometimes the “wrong answer” is the “only answer”…..

Bottom Line on Opioids (cont’d)

- 20% of the American population live in medically underserved areas
- Good luck finding any chronic pain treatment resources other than PCPs in these communities
- Ethical question:
  Assuming a lack of aberrancy and genuine informed consent around iatrogenic complications of opioids, should these medications be considered an option?
Bottom Line on Opioids (cont’d)

- The “tyranny of the majority” seems overwhelming…
- 2015 study found that long-term opioid therapy relieves chronic pain in “only” 20% of women
- Considered “more evidence” against COT
- If opioids work for only 20%, they must be “ineffective”
- The “evidence basis” is sometimes overrated…
- Perhaps 1000 studies with an “n of 1” needed
(Spinal) Surgery—Efficacy and Safety

- Vastly over-performed

- Evidence-basis for many surgeries is woefully poor

- Limited number of RCTs and meta-analyses make establishing evidence-bases difficult

- Iatrogenesis of spinal surgery – problematic
  - Incidental dural tears occur in 3%-16% of spine surgeries, and are associated with worse outcomes

Spine Surgery—Evidence and Risks

- 10.8% undergoing anterior cervical surgery develop dysphagia

- Surgical site infection rates as high as 10.4% identified for certain fusions
  - Adjacent segment degeneration occurs in 29.3% following spinal surgery (systematic review and meta-analysis)
  - 30-day readmission rates of 7.9% after cervical surgery and 7.3% after lumbar surgery identified

• A lot of these problems may relate to increasing obesity, as increased BMI predicts surgical failure
Spine Surgery—Evidence and Risks (cont’d)

- Feeling safe?!?!?!
- Irrespective of negative evidence-bases and risk data, spine surgery rates continue to increase
  - Increasing rates of fusions for lumbar isthmic spondylolisthesis
  - Increasing rates of spinal fusions, generally
  - Increasing rates of complex fusion procedures for spinal stenosis

Why the increase in fusions?
Are outcomes improving?
Are iatrogenic complications decreasing?
Are fusions by far the most expensive spinal procedures?
What a surprise!!!!!

Bottom Line on Spine Surgeries

- No one will argue that spine surgeries are not sometimes necessary
- But to what extent are elective surgeries driven by profit motivation?
- Deyo and colleagues have noted that elective surgeries are becoming progressively more complex
  - Resulting in progressively more iatrogenic complications
- Sound pain practice does not entail referring our refractory patients for elective surgery due to our own frustrations!

Intrathecal Opioid Delivery Systems (IODS)

- Modest efficacy established for analgesia among cancer patients – although with substantial risks
- Among patients with noncancer pain…..not so much
- Not a single RCT (other than one with an n of 8) performed for noncancer pain since the pumps were introduced in 1991 – called an “embarrassing situation”
- Data aren’t encouraging for long-term outcomes
Intrathecal Opioids

- High rates of morbidity and mortality have been identified
  - Patients receiving intrathecal opioids found to have an increased mortality rate of almost 4% at one year
- Early “research” suggested only gradual escalation of dosage with intrathecal opioids among patients with chronic noncancer pain
- More recent research indicates that this is not the case, particularly among younger patients

Intrathecal Opioids (cont’d)

- OIH has been established experimentally with intrathecal opioids
- Endocrinopathic changes occur with long-term intrathecal opioid use – just as is the case with oral opioids
- Catheter malfunctions are common, occurring in 15%-25% of patients implanted
Intrathecal Opioids (cont’d)

- Catheter malfunctions include:
  - Occlusion
  - Leakage
  - Migration
  - Dislodgement
  - Kinking
  - Puncture
  - Shearing


Intrathecal Opioids (cont’d)

- A case report of nerve root entrapment due to intrathecal coiling recently appeared in the literature

- Infection rates of 5% have been identified

- Costs
  - Average lifespan prior to explantation for battery replacement is 5.4 years
  - 75% of patients require more than one pump implantation
  - Among patients who completed the study, overall costs ranged from $5.29 to $2973.10/day for single pumps (mean=$10.30/day), with mean cost of second or later pumps=$10.73/day ($4000/year)

Intrathecal Opioids (cont’d)

- There’s a serious problem with the research and the consensus guidelines – generally published by investigators on industry payrolls
- We have to remember that consensus guidelines and evidence-based guidelines are not the same – particularly when guideline writers are paid by the leading manufacturers of the equipment that they’re evaluating

Bottom Line on Intrathecal Opioids

- Conclusion: “there is still a scarcity of rigorous evidence to guide its integration into clinical practice”
- But it’s so damn high-tech that it must be good….
- Or so the manufacturers of intrathecal hardware and the opioids that they use will tell us…
- Insurers have become reluctant to pay for intrathecal opioids
- Nice to see them get something right in pain medicine…..
- Most malpractice claims relating to implantable devices for chronic pain relate to intrathecal pumps
Spinal Cord Stimulators

- First published clinical report of SCS dates back half a century
- Systematic reviews determined that SCS was moderately effective for pain relief for some types of neuropathic pain
- Although reviews of SCS determined weak evidence for efficacy in other conditions

Spinal Cord Stimulators (cont’d)

- With no evidence for greater efficacy compared to other treatments found in a workers compensation population
- Why do the “accepted indications” for treatments like SCS increase without empirical support?
- Cost-effectiveness has been established only for failed back surgery syndrome and CRPS
- Traditional tonic, low frequency SCS can be effective for radicular pain, but does little for axial back or neck pain
Complications of SCS

▪ “The long-term success of spinal cord stimulation is impeded by the high incidence of adverse events”

▪ Over a quarter of patients over a 10-year period experienced adverse events – most involving hardware

▪ Mean complication rates as high as 42% have been identified in reviews

▪ Risk of spinal cord injury is 0.5%

Complications of SCS (cont’d)

▪ Unit discomfort and/or migration are the most common complications (11.1%)

▪ Followed by lead migration (8.5%)

▪ Other common complications include infection and paresthesia/dysesthesia

▪ Revision or explantation each occurred in 24% of patients
  – Loss of therapeutic effect was the most common reason for explantation
Costs of SCS

- Average 2-year total costs determined to be >$80,000
- Complications are frequent and expensive
  - Average cost of addressing complications >$7,000 (2006 Canadian dollars)
- Batteries are either nonrechargeable or rechargeable
- Nonrechargeable units require surgical replacement every 4 years or less

Costs of SCS (cont’d)

- A rechargeable unit can last up to 25 years
- Not surprisingly, while the initial cost of a unit with a rechargeable battery is higher, it’s more cost-efficient in the long run
- Rechargeable systems can save up to $168,000 over a patient’s lifetime
New SCS Technology

- High frequency SCS (10-kHz) provides analgesia without causing the paresthesias associated with traditional SCS
- Importantly, the new technology is effective for axial pain as well as radicular symptoms
- Can be used while driving and sleeping
- Empirically established as improving insomnia associated with chronic pain
- Found to significantly reduce axial back pain in patients who never underwent surgery for 36 months…..and counting
**Bottom Line on SCS**

- The process of trialing SCS makes the approach potentially the least destructive of the technophilic treatments.
- Still very expensive.
- Historically utilized for conditions without evidence-basis.
- New high frequency SCS broadens appropriate applications – and ongoing research will broaden them further.
- Perhaps the greatest innovation in pain medicine I’ve seen.

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**Other Interventional Approaches**

- Reasonable evidence-basis for acute pain
- For chronic pain, efficacies depend upon whom you ask….
- 2009 update of a Cochrane Review: “There is insufficient evidence to support the use of injection therapy in subacute and chronic low-back pain”
- Bottom line – interventional techniques are not a panacea for most types of chronic pain.
- “Interventional pain management….will probably suffer the most under the new affordable health care law and regulatory burdens”
Other Interventional Procedures

- Vastly overutilized in the US due to profit motivation
- Evidence-basis of many interventional approaches for chronic pain is limited
- Unless they’re based on reviews done by interventional pain management societies, in which case they’re generally methodologically flawed and self-serving

So What Is the Answer?

- We need to become more person-centered in treating chronic pain!
- We need to become more biopsychosocial….and less technophilic
- “Chronic pain” is not synonymous with “persistent pain”
- Chronic pain is a “disease of the person”
- How is the “person” compromised by chronic pain?
Person-Centered, Biopsychosocial Approach

- Chronic pain has the potential to affect the sufferer in myriad ways:
  - Vocationally
  - Financially
  - Legally
  - Socially
  - Sexually
  - Recreationally
  - Spiritually
  - Emotionally


Person-Centered, Biopsychosocial Approach (cont’d)

- Patients with chronic pain need to be considered phenomenologically, with each of these areas addressed
- Technophilic approaches are about as nonphenomenological as we can get!
- “The history of pain medicine is replete with failures of the biomedical model”
- Yet it’s so profitable….
Treating the Person

- Through person-centered approaches, we have the opportunity not only to reduce chronic pain, but to reduce suffering as well.

  “Tendencies toward overspecialization, overreliance on technology, and loss of humanitarian concern have constituted the dark side of modern medicine’s stunning achievements.”


Treating the Person (cont’d)

- Although the biomedical model may be an effective approach to disease states in which the cause is clearly defined, it is not appropriate for conditions such as chronic pain.


- The “maldynic” quality of most types of chronic pain already marginalizes the patient.

- Does subjecting a patient to unnecessary technophilic approaches further marginalize him/her?
What Can the Primary Care Provider Do?

- Treating patients with chronic pain is frustrating… and time-consuming
- Do these patients actually want referral to a specialist?
- Perhaps early on…..
- Yet patients with pain become frustrated by failure, too…
- How many specialists should a patient see?
- Do patients with chronic pain ultimately lose faith?

Referral to Specialists

- “Referrals to specialists…by the primary care physician should reflect the prudent judgment that more advanced consultation, if not treatment, is required”
  Giordano J, Schatman ME. Pain Physician 2008;11:775-784.
- Is this why referrals of chronic pain patients are generally made?
- Or is it done out of frustration?
- How often does this backfire…..?
Referral to Specialists (cont’d)

- Do patients referred to interventionalists ever not receive at least one injection?
- If a patient allows it, does he/she generally receive 3 ESIs….irrespective of the outcomes of the first 2?
- How often does an interventionalist or a surgeon change a patient’s medications or recommend an evidence-based therapy?
  - A lack of collaboration or “ownership” of chronic pain patients by specialists is a source of frustration for PCPs


Strategy for Success

- Rarely should an interventionalist or a surgeon be the first line of referral
- Consider the physician who practices most biopsychosocially
- Consider a physiatrist!
- Approach is more biopsychosocial than other pain specialists
  - Possess tools including medication, physical therapies, assistive technologies, education programs, and others
- Often specialize in treating injured workers
Physiatrists

- Broadest armamentaria of conservative treatment approaches
  - The emphasis of treatment is on functional outcomes, not just “pain scores”
  Akuthota V. PM&R 2012;4:545-547.
- “…physiatry is specifically geared toward the provision of holistic care and rehabilitation over time”
- Top-notch diagnosticians
  - Fellowships in sports, spine, pain, and general musculoskeletal medicine have increased in popularity among PM&R residents
- They know when to refer….and to whom

Physiatrists (cont’d)

- Numerous practice applications in PM&R have been empirically established as cost-effective
- Biopsychosocial physiatrists question the benefit of the explosion in the rates of interventional approaches
  Bagnnall DL. PM&R 2010;2:3-5.
- Although many have become experts in regenerative therapies
- Mandatory physiatric consultation found to result in reduced rates of surgery for back pain, with high patient satisfaction
Summary and Conclusions

- Irrespective of what our adolescent kids tell us, technology is not the answer to all of our problems….including chronic pain
- Finding “quick and easy” answers is alluring yet impossible
- We have to remember that chronic pain is a “disease of the person”…..and thus the whole of the person must be addressed
- We’ve all learned our lessons about opioids being a “quick fix”

Summary and Conclusions (cont’d)

- We need to beware of those claiming that surgery, intrathecal opioids, spinal cord stimulation, and endless injections are the “answer”
  - These technophilic approaches are far more financially-motivated than evidence-based
  - With the possible exception being the new high frequency SCSs
- Primary care providers are under the gun to find quick and easy ways to treat patients with chronic pain
  - Treating them biopsychosocially is indeed time-consuming
Summary and Conclusions (cont’d)

- Be careful to whom you refer!!!!!!!!!!!!!!!!!
  - Knee-jerk referrals will generally frustrate your patients….and you!
- Physiatrists are generally the best physicians to whom to refer patients with chronic pain when your own treatment armamentarium becomes exhausted
  - Find a good one who believes in a biopsychosocial approach, not one who has become a full-time interventionalist
- Doing so will help your patients immensely….and allow you to feel good about providing sound and ethical treatment

THANK YOU