Chronic Pain and Neurology

An Approach to Complex Patients with Intractable Pain

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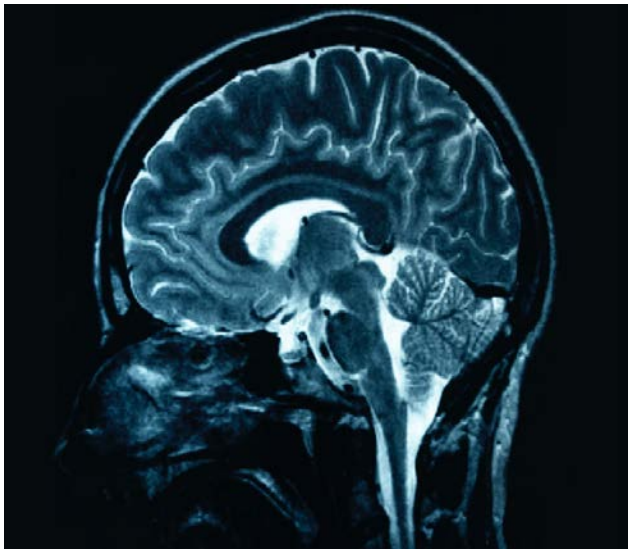
Chronic Pain and Neurological Disorders



- Headaches
- Peripheral Neuropathic Pain
- Spasticity
- Spinal Stenosis/Radicular Pain
- Complex Regional Pain Syndromes
- Post-Herpetic Neuralgia

Opposing Dilemmas in Treatment of Chronic Pain

- Providing RELIEF from Suffering
- Avoiding UNDERTREATMENT of Pain

- "Produce good for the patient and protect the patient from harm"---Primum No Curare

  Hippocrates

CASE # 1---Intractable Headaches

- 42 yo perimenopausal female with chronic daily headaches/transformed migraines x 2 years
- Onset of headaches--- Age 13
- Hormonally-associated
- “Failed most preventive medications”
- Using “triptans” at least 5 days per week
- Other meds include: tramadol, paroxetine

Learning Issues

- Hormonally-Mediated Migraines
- Mixed Headaches
- Rebound Headaches
- Serotonin Toxicity

Sex Hormones and Headaches

- Pathogenesis of Menstrually-Triggered Migraine appears to be relative withdrawal of estrogen
- De Hemicrania Menstrua---1666 (Johannis Van der Linden)
- 3 Types of Menstrual Migraine:

  1- Menstrual Migraine

  2- True Menstrual Migraine

  3-Pre-Menstrual Migraine

Epidemiology

- No gender difference with migraine in prepubertal children
- Peak incidence of migraine for women (in adolescence) and for men (in second decade)
- Migraine significantly more common in women than men (3-4x)

Mixed Headache Syndrome /Transformed Migraine

- When chronic tension headache occurs in patients with frequent migraine attacks

- Large percentage of patients evaluated in Headache Clinics present with mixed headaches

International Headache Classification

- Migraine without Aura

  -Headaches lasting 4-72 hours

  -At least 2 of the following: unilateral, pulsating quality, moderate to severe, aggravated by physical activity

  -Nausea and/or vomiting

  -Photophobia and phonophobia

- Chronic Tension-Type Headache

  - >15 days per month for > 6 months

  - At least 2 of the following: pressing/tightening, mild to moderate, bilateral, no aggravation with physical activity

  -NO vomiting

  -NO more than one of the following: nausea, photophobia, phonophobia

Drug-Induced Headaches

Non-Narcotic Analgesics

-greater than 50 g aspirin per month

-greater than 100 tabs/month of analgesics combined with barbiturates or other non-opiate analgesics

- Opiate Analgesics

  -codeine, hydrocodone, oxycodone, morphine sulfate, methadone, with or without non-opiate analgesics

- Triptan and Ergotamine Induced Headaches

  -Preceded by daily or near daily intake

  -Diffuse/Pulsating and Distinguished from Migraine by ABSENT attack pattern and/or ABSENT associated symptoms

HEADACHE DISAPPEARS within 1 month after withdrawal of substance

Serotonin Syndrome

- SPECTRUM of TOXICITY
- Characterized by: 1) Neuromuscular excitation
  2) Autonomic Stimulation
  3) Altered Mental Status

- Mild-------Asymptomatic
  Moderate—Treatment Required
  Severe---------Life Threatening

Severe Serotonin toxicity

- Only occurs with combinations of drugs acting at different sites (i.e.. MAOI + SSRI)
- July 2006----FDA Alert with SSRI (or SNRI) + Triptans
- Tramadol also used frequently as a migraine abortive
- Patients need to be informed of potential risk of migraine abortive meds + anti-depressants

Tramadol “non-scheduled analgesic”

- Introduced to the US market in 1995
- More potent analgesic than oral NSAIDS
- Fewer cardiac, GI and renal SE than NSAIDS
- Less abuse potential than opiates
- (+) form-high affinity for mu opiate receptor
- INCREASES SEROTONIN LEVELS
- Risk for Serotonin Syndrome if especially in combined with other serotonergic medications

Case # 2---Peripheral Neuropathic Pain

- 65 year old Viet Nam Veteran
- History of Non Insulin-Dependent Diabetes Mellitus, Depression, PTSD, Prostatic Hypertrophy
- History of Alcohol Abuse (Remote)

- Social History: On social security disability and 50% service-connected for PTSD; smoker; married; spends most days at home

Medication History

- 5 years ago, prescribed percocet 5/325 bid prn-----now currently taking 8-10 tabs/day

  Pt asking for more opiates for pain relief.
- 2 years ago, began amitryptiline 50 mg—reduced to 25 mg hs due to SE
- 1 year ago, began gabapentin 100 mg tid—

  No SE, but no clear benefits with pain reduction

Learning Issues

- Opiates- Mechanism of Action
- Tolerance and Dependence of Opiates
- Pseudo-Addiction (Under-treatment of Pain)
- Neuropathic Pain Management Choices
- Justification for Opiate Treatment in Chronic Non-Malignant Pain

OPIATES

- Early 1970s-evidence for several opiate receptor subtypes
- Mu, Kappa, Delta
- Produce potent dose-dependent analgesia (reversed by naloxone)
- No ceiling effect (unless combined with other NSAIDS)

Tolerance and Dependence

- Opiate Tolerance-

  Down-Regulation in receptor number, or persistent uncoupling of the receptor from the g-protein

- Opiate Dependence-

  Physical symptoms of withdrawal IF opiates discontinued or rapidly reduced

Pseudo-addiction

- Undertreatment of pain whereby the patient is mistaken by members of the medical community as having numerous “aberrant behaviors” consistent with opiate addiction

  Calling physician for early refills

  Emergency Department Visits

  “Doctor Shopping”

Neuropathic Pain Management

- Tricyclic Anti-depressants (Non selective serotonin and NE re-uptake inhibitors)
- Anti-Epileptic Drugs:
    - Gabapentin
    - Pregabalin
    - Carbamezapine
    - Phenytoin

Neuropathic Pain Management (cont.)

- Selective Serotonin-Norepinephrine Reuptake Inhibitors
- Lidoderm 5% Patch
- Capsaicin Cream
- TENS unit
- Cognitive-Behavioral Interventions

  Biofeedback, Hypnosis, Relaxation Training

Selective Serotonin-Norepinephrine Reuptake Inhibitors

- Cymbalta and Venlafaxime
- Dual Receptor Blockade
- May have greater therapeutic efficacy for depression and anxiety as compared to SSRIs
- Similar strategy of combining TCAs + SSRIs with less SE
  - Duloxetine shown to be effective in peripheral neuropathic pain **independent** of depression

Opiate Use in Chronic Non-Malignant Pain

Growing Consensus for Opiate Use in Chronic Non-Malignant Pain

IF there is document improvement in Function

Accepted for Malignant/Cancer Pain Treatment

Controversial for Chronic Non-Malignant Pain in setting of SUD/Addictions

Case # 3

- 44 year old business man with intractable low back pain--------8/10 pain scale and increasing
- Diagnosed with Failed-Back Surgery Syndrome
- s/p 3 prior surgeries on his lumbar spine, including laminectomy and fusions
- Has continuous spasms in low back, increased pain with axial loading, and radicular symptoms into bilateral feet, neg SLR

- Had Sky-diving accident over 20 years ago and has also had many lifting injuries
- Current Social and Medical Problems include:

  Insomnia and Depression with irritability,

  Recently separated from spouse and worried about custody of children

- Medications:

  Tried “everything”, including NSAIDS, muscle relaxants, gabapentin, tramadol and hydrocodone
- Has not tried non-pharmacological interventions

- Current Medications:

  Methadone 20 mg tid

  Xanax 1-2 mg hs for insomnia

  Soma 350 mg 3-4 times per day

  Gabapentin 1200 mg tid
- NKDA
- Recent Events: Increasing Pain despite high levels of opiates, frequent ED visits, urine tox screen positive for oxycodone, calling physician for early refills each month

Learning Issues

- Addiction vs. Pseudo-addiction
- Buprenorphrine Treatment for Addiction (and Pain Management)
- Opiate Induced Hyperalgesia
- Use of most effective non-opiod adjunctive medications
- Interventional Pain Management Options
- A Comprehensive Approach to Chronic Pain

Addiction vs. Pseudo-Addiction

- Opiate Addiction:

  " A neurobehavioral syndrome characterized by the repeated, compulsive seeking or use of an opioid despite adverse social, psychological, and/or physical consequences"

- Pseudo-Addiction:

  Under-treatment of pain---certain behaviors may resemble addiction

Buprenorphrine

- October 2002, FDA approved 2 sublingual formulations of this Schedule III opiate agonist
- Approved for Opiate Addictions
- Prescribed with special FDA license
- Can be prescribed in any medical facility
- Methadone remains only available for opiate addiction in federally approved out-patient clinics (single dosing)

Buprenorphrine-Mehanism of Action

- Partial Opiate Agonist-----/ceiling effect
- Very High Affinity for mu-opiate receptor
- Prevents Binding of Full Opiate Agonists
- Combined with naloxone: sub-lingual preparation

  Suboxone (buprenorphrine +naloxone)
- Abuse with injection use prevented

Maximize Non-Opiate Analgesics/ Medication Interactions

- Neuropathic Pain Medications
- Anti-Spasticity Medications
  - -Baclofen more effective than carisprodol
  - -Abuse potential for carisprodol
- Anti-Depressant Medications
  - - SSNRIs
  - -TCAs
- Caution with Long-Acting Opiates (Methadone + benzodiazepines)

Opiate Induced Hyperalgesia

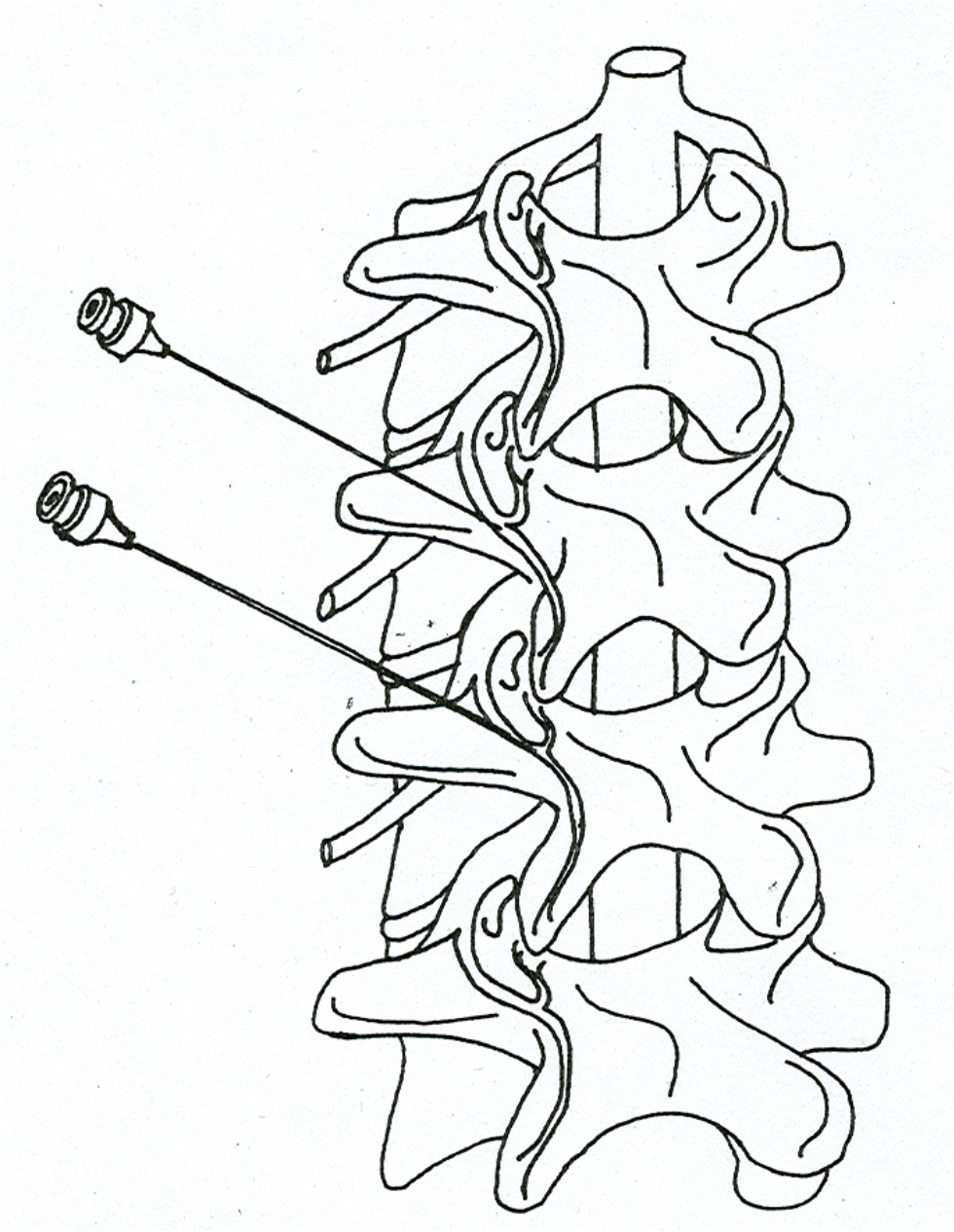
- Form of Central Sensitization
- Seen in patients needing increasing doses of opiates to manage chronic pain
- Potential Treatments:

    1- Opiate Rotations (Caution with Methadone---non-linear conversion ratios and very long half-life)

    2- Buprenorphrine Treatment

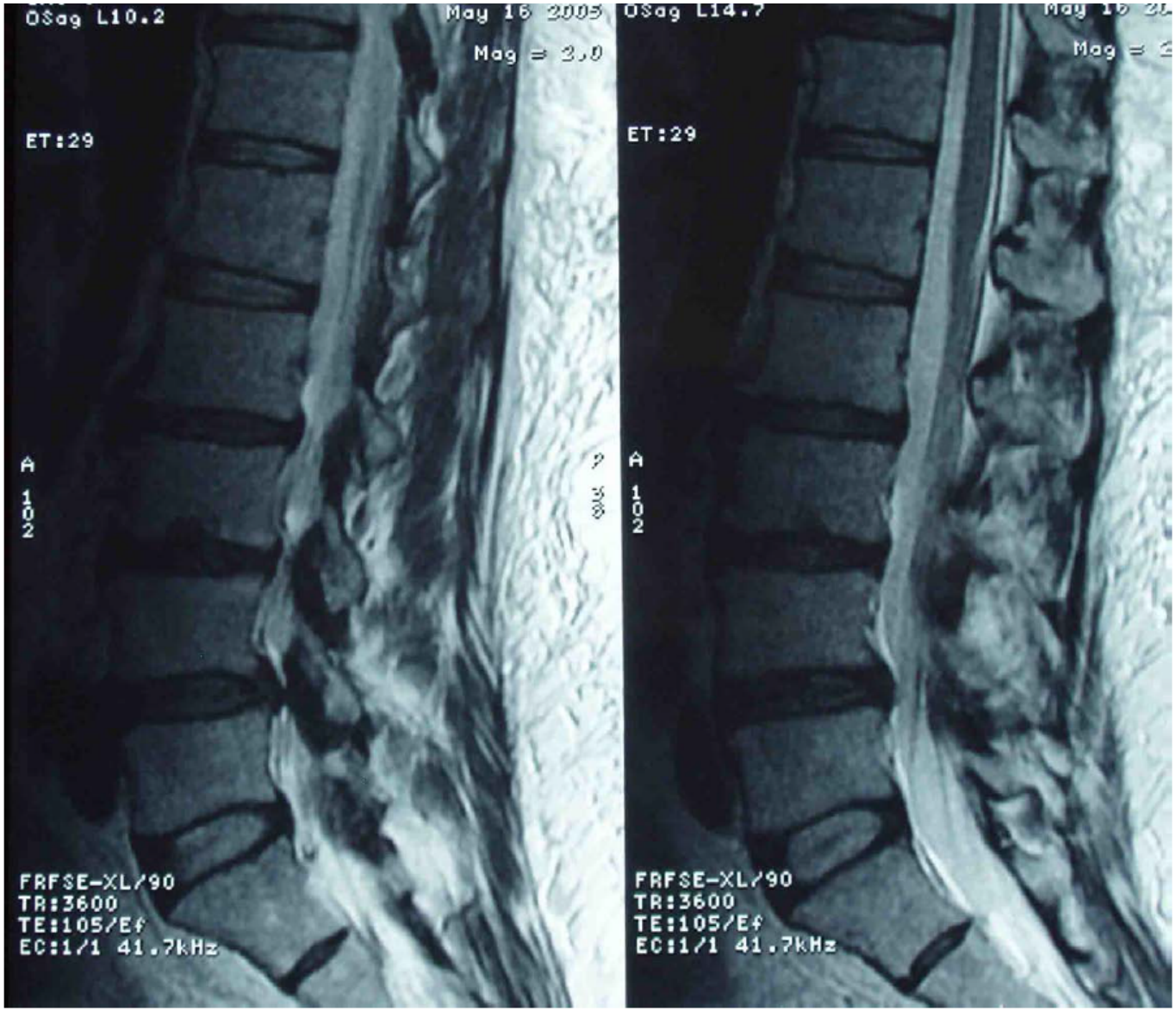
Indications for Common Interventional Pain Procedures

- MEDIAL BRANCH BLOCKS
- Pain originating from facet joints likely to be etiology of 15-40% of non-radicular low back pain and 40-60% of non-radicular neck pain
- Zygapophyseal (facet) joints subject to degenerative arthritis



EPIDURAL STEROID INJECTION (ESI)

- Indicated for patients with radiculopathy
- Possible mechanisms of Action
  - anti-inflammatory effect on nerve
  - moderate block of nociceptive C-fibers
  - decreases CNS sensitization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RADIOFREQUENCY ABLATION (RF)

Destruction of the nerves that signal pain

Uses for trigeminal neuralgia, cervical, thoracic, lumbar facet denervation,

and neuropathic pain with stellate ganglion lesioning

- Dorsal Column Stimulation
    - Implanted Spinal Cord Stimulators
    - Indicated for “Failed Back Surgery Syndrome”
    - Relieves pain by applying sufficient electrical stimulation to cause paresthesias over the areas of pain

Benefit of Interventions ???

- Between 1994 and 2001, lumbar ESIs

  Increased from 553 of 100,000 medicare pts

  to 2,055 of 100,000 medicare pts

DESPITE no increase in diagnosis

- Recent VA Data show opioid use also rising and that ESIs does not decrease subsequent opioid use

Comprehensive Pain Management

- Requires interdisciplinary approach to patient with chronic neurological non-malignant pain
    - Neurological Diagnosis
    - Medication Management
    - Psychiatry
    - Behavioral Medicine
    - Physical Rehabilitation
    - Interventionalist (Anesthesia)
    - Addictions Specialist