The Rational Use Narcotics/Opioids in the Therapy of Pain/Pain Syndromes

Benjamin M. Rigor, M.D., LL.D.
Emeritus Professor & Chairman
Department of Anesthesiology & Perioperative Medicine
School of Medicine
University of Louisville Health Sciences Center
Louisville, Kentucky, U.S.A. 40202
E-mail: bmrigorsrmd@juno.com or bmrigo01@louisville.edu
Disclaimers/Disclosures

- I am in the Speaker’s Bureau of the University of Louisville for continuing education of physicians, health professionals & for public information.

- Some of my phases II-III clinical trials were supported by grants from drug companies on a competitive/merit basis & I don’t have any financial interests or investments in them.

- The opinions expressed during this presentation are my own & do not necessarily reflect those of the University of Louisville or organized medicine (A.M.A.).
Pain & Addiction Statistics, U.S.A.

- Up to 75% of patients have unrelieved post-surgical pain.
- 50% of ICU pts. have moderate to severe pain during the last days of their lives.
- 40% of dying patients die with horrible pain!!
- In 40 – 80% of terminally ill patients, pain treatment is inadequate & prolong the agony of death!!
- Elderly & cognitively impaired patients receive only 1/3 – 1/2 of their analgesic doses of pain medicines or none at all!
Pain & Addiction Statistics, U.S.A.

- 41% of institutionalized patients have severe pain for 60-180 days before their first assessment.
- 14% of nursing home patients have persistent & resistant pain.
- Up to 20% of physicians don’t know how to prescribe narcotics/opioids for pain!!
- 42,032 drug addiction deaths in 2014!!
- 33,736 deaths from MVA in 2014.
- 18,873 pain prescription deaths (overdose) in 2014 compared to 4,040 deaths in 1999!!
Domains of Pain Medicine

- Adequate pain & other symptoms control.
- Avoidance of inappropriate prolongation of life.
- Consider resources & financial limitations.
- Respect patient/surrogate/proxy autonomy & decisions.
- Optimal family & relatives involvement (also cultural, community, economic & societal aspects).
- Emotional, psychological, existential, spiritual & pastoral support.
- Effective, efficient, adequate & clear communications.
- Bioethical & medical-legal considerations.
- Preparation for eventuality & bereavement.
What Types of Pain/Pain Syndromes are Being Treated?

- Acute, chronic or “breakthrough” pain.
- Somatic, visceral, muscular, etc. pain.
- Neuropathic, deafferentation, complex sympathetic dystrophies & other similar pain syndromes.
- Neoplastic pain, primary, secondary or metastatic – bone, brain, pulmonary, visceral, etc.
- Psychosomatic pain or pain of psychiatric origin.
Principles of Therapy

- Start with non-invasive & simple therapies.
- Use the WHO 3-step analgesic ladder.
- Monitor efficacy, compliance & toxicities.
- Start with drugs with shorter half-lives.
- Consider additive effects of other types, classes & adjuvant drugs.
- Maximize drug dosages & allow enough time for drug action/peak efficiency.
- Consider ancillary/non-drug modalities.
- Use consultants/specialists when needed.
- Discriminate on drug-seeking patients & their relatives/friends, etc.
Principles of Therapy

- Stabilize & treat all medical/associated conditions.
- Differentiate chronic, acute & breakthrough pain.
- Use fewer drugs & “rational” polypharmacy.
- Start with the lowest effective dose (LED).
- Individualize & simplify regimens & schedules.
- If needed, provide perceptual & sensory aids/aides.
- Consider resources & cost-effective care.
- Prepare patient & family for eventualities.
Deterrents to Dose Escalation & Prolonged Use

- No refills (few exceptions).
- Start with small doses.
- Use short acting preparations first.
- Caution - Long term use with increasing age.
- Six or more refills within a year increase the number of long term users!!
- Among cognitively impaired patients, use only reliable & trustworthy care givers.
- Enforce monitoring guidelines for regular urine, blood, etc. levels.
- Patient/family cannot & should/must not share/sell/donate or divert prohibited & scheduled drugs or medications.
Strategies – Prevention of Opioid Resistance/Escalation

- Use of the WHO 3-step analgesic ladder.
- Influence of the psychosocial aspects of pain.
- Utilize opioid rotation & schedules.
- Start with the lowest effective dose (LED).
- Consider additive effects of adjuvant drugs.
- Explore other routes of administration.
- Supplement with other non-pharmacological & alternative modalities/therapies.
- In cancer pain, use anti-neoplastic therapies – chemo/radiotherapy, hormones, etc.
- For resistant pain, use anesthetic, spinal & neuroaxial infusion (Ommaya), neurosurgery, etc.
- Habituation is the first stage of addiction.
Dealing With Postsurgical Pain

- What is **pre-emptive analgesia**? – Use NSAIDs, anticonvulsants, ketamine, tramadol, SSRIs, etc.
- Local anesthetic infiltration of **incisional sites/wounds**.
- Start with non-opioid remedy, if possible & applicable, i.e., TENS, acupuncture, transdermal analgesics, **splinting exercises** (learned pre-operatively), etc.
- Start take home analgesic(s) as soon as discharged.
- Limit take home analgesics to 2-3 days & no refills.
Classes of Adjuvant Drugs

- Corticosteroids & other hormonal drugs.
- Anticonvulsants.
- Antidepressants.
- Major/minor tranquilizers.
- Neuroleptic agents.
- Sedatives, hypnotics, anxiolytics & muscle relaxants.
- Miscellaneous – anti-emetics, antacids, prokinetics, calcitonin, bisphosphonates, etc.
Non-Pharmacologic & Alternative Therapies

- Physical modalities - Cutaneous stimulation, thermotherapy, cryotherapy, massage, pressure, vibration, exercises.
- Counterstimulation – TENS, acupuncture, moxa, etc.
- Psychological & Psychiatric Therapies - Hypnosis, psychotherapy, imagery, reframing, distractions & relaxation & Cognitive Behavioral Therapy (CBT), Mindfulness-based Stress (MBSR) & Reduction & Acceptance Commitment Therapy (ACT).
- Patient education.
- Social activities, projects, handworks, etc.
- Pastoral counseling.
- Improvement of coping skills.
- Transcendental meditation.
- Narcotic (NA) & alcoholic anonymous (AA).
- Touch therapy (Rekki), yoga & other exercise therapies.
- Music Therapy
- Art therapy.
- Surrogate/patient advocacy.
- Puzzles & intellectual exercises.
- Chiropractic/osteopathic manipulation(?)
- **Laughter** medicine!!!
Factors Affecting Transition/Conversion of Acute to Chronic Pain

- Previous history of drug abuse/misuse.
- Previous traumatic childhood experiences.
- Extreme anxiety & depression.
- Altered coping/adjustment mechanisms.
- Work dissatisfactions/history be being fired!!
- Heavy smoking, alcoholism, sexual deviation.
- Catastrophizing beliefs, suppressing & ignoring previous painful experiences.
- Previous history of psychological & psychiatric treatments, marital discords, & being broke!!
## Opioid Equivalent Dosages

<table>
<thead>
<tr>
<th>Drugs</th>
<th>Oral Dose</th>
<th>Parenteral Dose*</th>
</tr>
</thead>
<tbody>
<tr>
<td>Morphine</td>
<td>30 mg.</td>
<td>10 mg.</td>
</tr>
<tr>
<td>Codeine</td>
<td>200 mg.</td>
<td>NA</td>
</tr>
<tr>
<td>Meperidine</td>
<td>300 mg.</td>
<td>10 mg.</td>
</tr>
<tr>
<td>Fentanyl</td>
<td>NA</td>
<td>0.1 mg</td>
</tr>
<tr>
<td>Hydromorphone</td>
<td>7.5 mg.</td>
<td>1.5 mg.</td>
</tr>
<tr>
<td>Hydrocodone</td>
<td>30-45 mg.</td>
<td>NA</td>
</tr>
<tr>
<td>Oxycodone</td>
<td>20 mg.</td>
<td>NA</td>
</tr>
<tr>
<td>Oxymorphine</td>
<td>10 mg.</td>
<td>1.0 mg.</td>
</tr>
<tr>
<td>Levorphanol</td>
<td>4 mg.</td>
<td>0.75 mg.</td>
</tr>
<tr>
<td>Methadone</td>
<td>20 mg.</td>
<td>10 mg.</td>
</tr>
<tr>
<td>Buprenorphine (transdermal patch)</td>
<td>5 mcg/hr.</td>
<td>NA</td>
</tr>
</tbody>
</table>

*IV, IM, SC
# Opioid Doses & Morphine Milligram Equivalents (MME’s)

<table>
<thead>
<tr>
<th>Fentanyl (Transdermal)</th>
<th>Morphine</th>
<th>Hydrocodone</th>
<th>Oxycodone</th>
<th>Codeine</th>
</tr>
</thead>
<tbody>
<tr>
<td>25 mcg/hr</td>
<td>60 mg</td>
<td>7.5 mg</td>
<td>30 mg</td>
<td>200 mg</td>
</tr>
<tr>
<td>50</td>
<td>120</td>
<td>15.0</td>
<td>60</td>
<td>400</td>
</tr>
<tr>
<td>75</td>
<td>180</td>
<td>22.5</td>
<td>90</td>
<td>600</td>
</tr>
<tr>
<td>100</td>
<td>240</td>
<td>30.0</td>
<td>120</td>
<td>800</td>
</tr>
</tbody>
</table>

**Morphine Milligram Equivalents (MME’s)**

> 50 MME/day total dose for morphine sulfate (oral) or
> 50 mg of hydrocodone or  >33 mg of oxycodone (oral)

Avoid > 90 MME/day total for morphine sulfate (oral) or
>90 mg. of hydrocodone or 60 mg of oxycodone (oral)
Why Do We Have to Treat Pain?

- Enhancement of coping/adjustment mechanisms.
- Facilitate physical therapy & rehabilitation.
- **Enhance immune responses!!**
- Reduce & manage stress & feeling of insecurity & futility.
- For psychological rewards, enhancement & gratification.
- Expand & cooperate with research protocols & advances in pain medicine.
- Supplement & enhance training of physicians & other health care providers in pain medicine.
Progress in Narcotic & Addiction Research

- Abuse Deterrent Formulations (ADF) – Delivery systems that cannot be abused – MorphoBond, Embeda, Hysingla ER, Troxyca ER, etc.
- NKTR-181 (Nektar experiments) – mu-opioid analgesics without addictive side effects (Doberstein).
- Development of endomorphin analogs – No or reduce addiction potential, hyperalgesia & respiratory depression (Zadina).
- Exercise-induced hypoalgesia for neuropathic pain - ↓TNF, ↓IL-1B, downregulation of pro-inflammatory cytokines, ↑endogenous opioids, ↑levels of serotonin, GABAergic inhibition & ↓histone acetylase in glial cells & dorsal horn.
- Phenomenon of “opioid hyperalgesia” (OIC) from chronic opioid use resulting in spinal microglial reactivity & release of pro-inflammatory mediators.
Progress in Narcotic & Addiction Researches

- Gene targeting & identification.
- Identifying clinically relevant biomarkers.
- Atomic level modeling & genomic technology.
- Genetic polymorphism in addiction medicine.
- The Betty Ford Model – Use of buprenorphine/naloxone (Suboxone) or extended release naltrexone (Vivitrol) & probuphine for the treatment of addiction.
- New concepts on intranasal, inhaled and subcutaneous naloxone by police cruisers/ERs/hospitals, lay persons (?), etc.
Dilemmas in Pain Management

- The end-of-life care/the terminal patient.
- The “narcotic seeking patients”!
- Pain & horror of human experimentation.
- The elderly & cognitively impaired patients.
- Paternalism by the physicians & the other health care providers.
- Palliative care & the hospice environment.
- Use of non-conventional or not proven modalities/therapies/the “charlatans of care” & deceptions by eager intrepreneurs!
- Substantive justice & limited resources.
Suggested Reading List

- CDC Guidelines for Prescribing Opioids for Chronic Pain: [www.cdc.gov/drugoverdose/prescribing/guideline.html](http://www.cdc.gov/drugoverdose/prescribing/guideline.html).
- Cosio D. How to set boundaries with chronic pain patients. J Fam Pract 2014;63 (3 suppl.)S3-S8.
- Darnell B, Mackey SC. In the wake of CDC Opioid guidelines & natural pain strategy leveraging pain psychology & platforms to address the national pain & opioid crisis. PAINWEEK, Las Vegas, NV, Sept. 6-10, 2016.