Pain Management in Patients with Advanced Disease

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& CancerCare MB
Objectives

Recognize pain in pts with advanced disease

Distinguish different types of pain

Discuss an approach to the treatment of pain in the terminally ill
Brian is a 54 year old man. He has a 33 yr hx of smoking, and a chronic cough. He works in middle management, and is sedentary.

He presented to his physician with progressive back pain 4 months ago. Initially thought to be muscular, an X-ray showed two lytic lesions in the L spine. A CXR showed a 3 cm lesion in the RUL. CT scan confirms 2 lung lesions, but a clear liver. Biochem N
His biopsy shows squamous cell carcinoma, and his bone scan is positive for multiple back lesions. He receives chemotherapy for 3 months, but the f/u CT scan shows progression. Chemo is stopped and he is referred to radiotherapy. He is now in your office with worsening back pain.

**What do you want to do?**
<table>
<thead>
<tr>
<th>Symptom</th>
<th>Prevalence</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pain</td>
<td>80 – 90+%</td>
</tr>
<tr>
<td>Fatigue/Asthenia</td>
<td>75 - 90%</td>
</tr>
<tr>
<td>Constipation</td>
<td>70%</td>
</tr>
<tr>
<td>Dyspnea</td>
<td>60%</td>
</tr>
<tr>
<td>Nausea</td>
<td>50 - 60%</td>
</tr>
<tr>
<td>Vomiting</td>
<td>30%</td>
</tr>
<tr>
<td>Delirium</td>
<td>30 - 90%</td>
</tr>
<tr>
<td>Depression/suffering</td>
<td>40 - 60%</td>
</tr>
</tbody>
</table>
Chronic Pain: Prevalence

29% of Canadians suffer chronic pain

Ave. time span of chronic pain experience is 10.7 years

80% of pts reported experiencing moderate to severe pain

Pain of all types is Under Treated

IPSOS REID Mar/01 Cdn Nat’l Pain Study
Pain in the Elderly

Untreated pain associated with:

- Depression
- Decreased socialization/withdrawal
- Impaired ambulation/mobility
- Impaired functional ability
- Sleep disturbances
- ↑ health care costs/utilization

Ferrell B, JAGS 1991: 39
Barriers to Pain Control

Assume symptom part of disease experience and/or that nothing can be done
Fear doctor will stop treatment
Fear of addiction and dependence with opioids
Being a bother; “Good patients don’t complain”
Will distract the doctor care, time trade off
Fear pain means disease progression

Cleeland et al 2000
Ward et al 1993
Barriers to Pain Control

Patient doesn’t report pain
  “expected” with disease, testing may hurt worsening of condition
Patient/family doesn’t want opioids
  addiction, loss of action, dependence
Physician doesn’t treat pain
  reluctance to prescribe, poor assessment
Poor staff knowledge
  pain intensity < elderly, cognition issues
Patient compliance

Barriers to Pain Control

Workloads, staff inconsistency, limited time
Lack of pain management protocols, tools
Inadequate assessment and dosing
Inadequate knowledge, misconceptions
  dependence/tolerance/addiction
  fears of respiratory depression
  side effects, drug interactions
Approach To Pain Control

Thorough assessment
  history; physical examination

Discussion
  goals of care, hopes, expectations, anticipated course of illness
  (impact on investigations & interventions)

Investigations
  blood tests, X-Ray, CT, MRI, etc

Treatments
  pharmacological and non-pharmacological; interventional analgesia (e.g., Spinal)

Ongoing reassessment/review
  Options, goals, expectations, etc.
Pain History

Temporal features
Daily frequency
Location/Radiation
Severity/Quality
Aggravating and alleviating factors
Previous history (chronic pain, family)
Meaning

Medication(s) taken
Dose
Route
Frequency
Duration
Effect
Side effects
Pain Assessment

Visual analog scale (VAS)

none 0 worst 10

Likert scale

0 1 2 3 4 5

Edmonton Symptom Assessment System
Edmonton Symptom Assessment System:
Numerical Scale
Regional Palliative Care Program

Please circle the number that best describes:

<table>
<thead>
<tr>
<th>Symptom</th>
<th>Scale (0-10)</th>
</tr>
</thead>
<tbody>
<tr>
<td>No pain</td>
<td>0 1 2 3 4 5 6 7 8 9 10 Worst possible pain</td>
</tr>
<tr>
<td>Not tired</td>
<td>0 1 2 3 4 5 6 7 8 9 10 Worst possible tiredness</td>
</tr>
<tr>
<td>Not nauseated</td>
<td>0 1 2 3 4 5 6 7 8 9 10 Worst possible nausea</td>
</tr>
<tr>
<td>Not depressed</td>
<td>0 1 2 3 4 5 6 7 8 9 10 Worst possible depression</td>
</tr>
<tr>
<td>Not anxious</td>
<td>0 1 2 3 4 5 6 7 8 9 10 Worst possible anxiety</td>
</tr>
<tr>
<td>Not drowsy</td>
<td>0 1 2 3 4 5 6 7 8 9 10 Worst possible drowsiness</td>
</tr>
<tr>
<td>Best appetite</td>
<td>0 1 2 3 4 5 6 7 8 9 10 Worst possible appetite</td>
</tr>
<tr>
<td>Best feeling of wellbeing</td>
<td>0 1 2 3 4 5 6 7 8 9 10 Worst possible feeling of wellbeing</td>
</tr>
<tr>
<td>No shortness of breath</td>
<td>0 1 2 3 4 5 6 7 8 9 10 Worst possible shortness of breath</td>
</tr>
<tr>
<td>Other problem</td>
<td>0 1 2 3 4 5 6 7 8 9 10</td>
</tr>
</tbody>
</table>

Patient's Name ___________________________ Complete by (check one):

Date ___________________________ Time ___________________________

- [ ] Patient
- [ ] Caregiver
- [ ] Caregiver assisted
WHAT IS YOUR PAIN LEVEL?

0 1 2 3 4 5 6 7 8 9 10

No Pain Distressing Pain Unbearable Pain

Wong-Baker FACES Pain Rating Scale

Instructions for use: Face 0 is happy, because he/she has no pain. Face 1 hurts just a little bit. Face 2 hurts a little more. Face 3 hurts even more. Face 4 hurts a lot. Face 5 hurts as much as the patient can imagine, although they may not be crying to feel this bad. Explain to the patient that the face at the start of the scale shows someone who feels happy because he/she has no pain (hurt). The faces gradually show a change in the face to show the feelings of pain. The face becomes sad because the person has some or a lot of pain. Ask the patient to choose the face that best describes how they feel. The visual rating scale is recommended for persons age 3 and older.
Assessing the Difficult Patient

Dementia or delirium present challenges
Pain self-report unreliable/unavailable
Proxy report emotionally biased
Utilize directed questions if pt verbal
Read facial signs, gestures, vocal clues
Observational scales may be used
  Discomfort scale-dementia of Alzheimer type (DS-DAT)
  Checklist of non verbal pain indicators (CNPI)

Scherder E et al *BMJ* 2005;330: 461-64
Assessing the Difficult Patient

Changes in gait/decreased mobility
Negative verbalizations
    crying, groaning, moaning
Physical changes
    elevated BP, ↑ RR, diaphoresis, pupil change
Changes in facial expression
    sad, frightened, frowning, furrowing of brow
Interpret in context of other symptoms

Scherder E et al BMJ 2005;330: 461-64
Chronic Pain - Peripheral and Central Sensitization

Tissue damage, Inflammation, Nerve compression

5-HT, Bradykinin, Histamine, Prostaglandins, Cytokines

Descending Excitation /Inhibition

Dynorphin A / CCK
5HT / NE / GABA

Attention Expectation Affect

Neuronal Plasticity

Wind-up

NMDA / EAAs / SubP
NGF / NK / CGRP
CCK / 5HT / NE
GABA / NO / NA / CB1

5-HT, Bradykinin, Histamine, Prostaglandins, Cytokines

Neuronal Plasticity

Wind-up
Brian states his pain is a constant dull ache, mostly in the low back, worsening with movement or with a BM. He finds the pain sometimes radiates down his L leg. At present, he is using T3s, 8 per day, 2 at night. As well, he states he is constipated, tires easily, is drowsy at times, but sleeps poorly, mostly because of the pain.

What can we do for Brian now?
Pain Classification

Nociceptive
- visceral
- superficial
- deep
- bony

Neuropathic
- neuralgic
- dysesthetic
- hyperalgesia

Adapted from Jovey R, 2002
Pain

**Nociceptive**

**Somatic:**
intermittent to constant
sharp, knife-like, localized

**Visceral:** constant/intermittent
crampy/squeezing
poorly localized, referred
**Pain**

*Nociceptive*

**Bony:** constant, dull ache localized may have neuropathic features

**Breakthrough:**

Severe temp ↑ in pain on baseline of moderate intensity

Caused by movement, cough, wound dressing, etc

Portenoy R, Seminars in Oncology, 24;1997
Pain

**Neuropathic**
Destruction/injury of nerves

- **Dysesthetic**: burning/tingling constant, radiates
- **Neuralgic**: shooting/stabbing shock-like/lancinating paroxysmal
# Pain: Treatment Spectrum

<table>
<thead>
<tr>
<th>PHYSICAL</th>
<th>PSYCHOLOGIC</th>
<th>PHARMACOLOGIC</th>
<th>SURGICAL</th>
</tr>
</thead>
<tbody>
<tr>
<td>Normal activities</td>
<td>Hypnosis</td>
<td>OTC medication</td>
<td>Orthopedic</td>
</tr>
<tr>
<td>Aqua-fitness</td>
<td>Stress</td>
<td>Alternative therapy</td>
<td>Neurotomy</td>
</tr>
<tr>
<td>Physio</td>
<td>Management</td>
<td>Topical medications</td>
<td>Neurectomy</td>
</tr>
<tr>
<td>• Passive</td>
<td>Cognitive</td>
<td>NSAIDs</td>
<td>Implantable stimulators</td>
</tr>
<tr>
<td>• Active</td>
<td>Behavioural</td>
<td>Tricyclics</td>
<td>Implantable pain pump</td>
</tr>
<tr>
<td>Stretching</td>
<td>Family therapy</td>
<td>Anticonvulsants</td>
<td></td>
</tr>
<tr>
<td>Conditioning</td>
<td>Psychotherapy</td>
<td>OPIOIDS</td>
<td></td>
</tr>
<tr>
<td>Weight training</td>
<td>Mirror Visual Programming</td>
<td>Local anesthetics</td>
<td></td>
</tr>
<tr>
<td>TENS</td>
<td></td>
<td>• Blocks</td>
<td></td>
</tr>
<tr>
<td>TCNS</td>
<td></td>
<td>• Oral congeners</td>
<td></td>
</tr>
<tr>
<td>Massage</td>
<td></td>
<td>Muscle relaxants</td>
<td></td>
</tr>
<tr>
<td>Chiropractic</td>
<td></td>
<td>Sympathetic agents</td>
<td></td>
</tr>
<tr>
<td>Acupuncture</td>
<td></td>
<td>NMDA blockers</td>
<td></td>
</tr>
<tr>
<td></td>
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<td></td>
</tr>
</tbody>
</table>
WHO Analgesic Ladder (proposed revision)

- Mild pain (0-3): Acetaminophen & NSAIDs
- Moderate (4-6): Codeine + Step 1
- Severe (7-10): Morphine + Step 2
- Severe (7-10): Surgery + Step 4
- Severe (7-10): Anesthesia + Step 3

Adjuvant Rx may be added at any step

By the mouth
By the clock
By the ladder
"A brain tumour! Thank goodness - all this time I thought you were on drugs!"
## Opioid Choice in Canada

<table>
<thead>
<tr>
<th>Opioid</th>
<th>PO</th>
<th>IV</th>
<th>PR</th>
<th>LA</th>
<th>TD</th>
<th>TM</th>
</tr>
</thead>
<tbody>
<tr>
<td>Morphine</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Oxycodone</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Hydromorphone</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Methadone</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Fentanyl</td>
<td></td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Sufentanil</td>
<td></td>
<td>X</td>
<td></td>
<td></td>
<td></td>
<td>X</td>
</tr>
</tbody>
</table>

# Opioid Choice in Canada

<table>
<thead>
<tr>
<th></th>
<th>PO</th>
<th>IV</th>
<th>PR</th>
<th>LA</th>
<th>TD</th>
<th>TM</th>
</tr>
</thead>
<tbody>
<tr>
<td>Codeine</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Tramadol</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>?</td>
</tr>
</tbody>
</table>

**PO**: oral, **IV**: intravenous/subcutaneous, **PR**: rectal, **LA**: long acting, **TD**: transdermal, **TM**: sublingual
## Analgesic Equivalence

<table>
<thead>
<tr>
<th>Opioid</th>
<th>PO</th>
<th>IV/SC</th>
</tr>
</thead>
<tbody>
<tr>
<td>Codeine</td>
<td>100 mg</td>
<td>50 mg</td>
</tr>
<tr>
<td>Tramadol</td>
<td>50 mg</td>
<td></td>
</tr>
<tr>
<td>Morphine</td>
<td>10 mg</td>
<td>5 mg</td>
</tr>
<tr>
<td>Oxycodone</td>
<td>5 mg</td>
<td>2.5 mg</td>
</tr>
<tr>
<td>Hydromorphone</td>
<td>2 mg</td>
<td>1 mg</td>
</tr>
<tr>
<td>Methadone</td>
<td>1 mg</td>
<td></td>
</tr>
<tr>
<td>Fentanyl</td>
<td></td>
<td>50 mcg</td>
</tr>
<tr>
<td>Sufentanil</td>
<td></td>
<td>5 mcg</td>
</tr>
</tbody>
</table>
Codeine for Pain?

Pro-drug
7-10% whites poor metabolism
1-7% whites ultra rapid metabolism
~100 Rx metabolized 2D6 (β-blockers, SSRIs, neuroleptics, opioids)

Drug-drug interactions common
Use caution in using codeine/acetaminophen

Gasche, Y et al. *NEJM* 2004;351:2827-31
Tramadol

Acetaminophen/tramadol (Tramacet®)
Active at the µ-opioid receptor
Weak inhibitor of epinephrine, serotonin uptake
Pro-drug (M1 6x potency, better binding)
Metabolism by CYP2D6, 3A4
SSRIs may lead to ↑ levels, seizures
Favourable S/E profile (5% constipation rate, less nausea)
# Morphine to Fentanyl Equivalency

<table>
<thead>
<tr>
<th>Morphine (po)</th>
<th>Fentanyl patch (TD)</th>
</tr>
</thead>
<tbody>
<tr>
<td>60 mg</td>
<td>25 µg/h</td>
</tr>
<tr>
<td>45-134 mg</td>
<td>50 µg/h</td>
</tr>
<tr>
<td>135-224 mg</td>
<td>75 µg/h</td>
</tr>
<tr>
<td>225-314 mg</td>
<td>100 µg/h</td>
</tr>
<tr>
<td>315-404 mg</td>
<td></td>
</tr>
</tbody>
</table>

*Duragesic® insert, Janssen-Ortho, Inc.*
Opioid Dosing

**Immediate release:**
- Morphine/Oxycodone
- Hydromorphone

\[ \text{q 4 h} \]

**Long acting:**
- Contin®/Meslon®
- Kadian®

\[ \text{q 12 h or q 8 h} \]

\[ \text{q 24 h} \]

**Fentanyl patch:**
- Duragesic®

\[ \text{q 2 - 3 days} \]
Brian states his pain is a constant dull ache, mostly in the low back, worsening with movement or with a BM. He finds the pain sometimes radiates down his leg. At present, he is using T3s, 8 per day, 2 at night. As well, he states he is constipated, tires easily, is drowsy at times, but sleeps poorly, mostly because of the pain.

What can we do for Brian now?
## Pain Management

<table>
<thead>
<tr>
<th><strong>Nociceptive</strong></th>
<th><strong>Agent</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>soft tissue</td>
<td>opioids</td>
</tr>
<tr>
<td>visceral</td>
<td>opioids</td>
</tr>
<tr>
<td></td>
<td>steroids</td>
</tr>
<tr>
<td></td>
<td>surgery</td>
</tr>
<tr>
<td></td>
<td>radiation tx</td>
</tr>
</tbody>
</table>
## Bone Metastases

Frequency of Bone Metastases Associated With Common Malignancies

<table>
<thead>
<tr>
<th>Primary tumor</th>
<th>Bone mets</th>
</tr>
</thead>
<tbody>
<tr>
<td>Breast carcinoma</td>
<td>65%–85%</td>
</tr>
<tr>
<td>Prostate carcinoma</td>
<td>65%–75%</td>
</tr>
<tr>
<td>Multiple myeloma</td>
<td>95%–100%</td>
</tr>
<tr>
<td>Lung carcinoma</td>
<td>60%</td>
</tr>
<tr>
<td>Bladder carcinoma</td>
<td>40%</td>
</tr>
<tr>
<td>Thyroid, kidney carcinoma</td>
<td>28%–60%</td>
</tr>
</tbody>
</table>

Coleman RE, *Cancer* 1997
Bone Pain

Pharmacologic treatment

Opioids

NSAIDs/steroids/Cox-2 inhibitors

Bisphosphonates
  pamidronate (Aredia®)
  clodronate (Bonefos®)
  zoledronate (Zometa®)

Calcitonin (Miacalcin®)
“Radiation” by Robert Pope, © Robert Pope Foundation
Bone Pain

**Surgical options**

- Pathologic # (splint, cast, ORIF)
- Intramedullary support
- Amputation
- Spinal cord decompression
- Vertebral reconstruction
Neuropathic Pain – Peripheral/Central Sensitization

Neuronal plasticity
Wind-up
Hyperalgesia
Allodynia

Attention
Expectation
Affect

Descending
Excitation /Inhibition
Dynorphin A / CCK
5HT / NE / GABA

NMDA / EAAs / SubP
NGF / NK / CGRP
CCK / 5HT / NE
GABA / NO / NA
Neuropathic Pain

**Pharmacologic treatment**

- Opioids
- Steroids
- Anticonvulsants
- TCAs (dysesthetic)
- Cannabinoids
- $\alpha$ - adrenergic agonists (clonidine)
- NMDA receptor antagonist
Neuropathic Pain

**Steroids**

- ↓ inflammation
- ↓ edema
- ↓ spontaneous nerve depolarization

Multipurpose

- nausea, appetite, energy

Long term use = adverse effects
Neuropathic Pain

**Anticonvulsants**

Gabapentin (Neurontin®)
- 300 mg, titrate to effect (up to 3600 mg/d)

Pregabalin (Lyrica®)
- 25 mg, titrate to effect (max 600mg/d)

Topiramate (Topamax®)

Lamotrigine (Lamictal®)

Carbamazepine (Tegretol®)
Neuropathic Pain

**Antidepressants**

- Amitriptyline (Elavil®)
- Nortriptyline (Aventyl®)
- Desipramine (Norpramin®)
- SSRIs (venlafaxine)
Neuropathic Pain

**NMDA Receptor Antagonists**

(N-methyl-D-aspartate)

* Methadone
* Ketamine
* Dextromethorphan
When to Use Methadone?

- Neuropathic pain
- Very high opioid doses
- Reactions/adverse effects to Rx
- Severe neurotoxicity
- Significant addictions history
- Cost of Rx is an issue
Neuropathic Pain

**Non-pharmacologic**
- Radiation tx
- Surgery
  - rhizotomy, cordotomy
- Anaesthetic tx
  - nerve block
  - epidural block
Chronic neuropathic pain model
Brachial plexus avulsion, n=48
Randomized, blinded, X-over design
THC vs THC/CBD vs placebo
Oromucosal spray delivery
Significant improvements in pain & sleep scores
Mild to moderate S/E, resolved spontaneously

Therapeutic Options

Currently available
- Nabilone (Cesamet®)
- Dronabinol (Marinol®)
- Sublingual extracts (Sativex®)
- Herbal cannabis (through MMAR)

In development
- Ajulemic acid (CT-3)
- Dexanabinol (HU-211)
- Skin patches, rectal suppositories, inhalers…
TYPICAL, THE BIG CHAINS MOVE IN, TO SQUEEZE OUT THE MOM AND POP OPERATIONS.
Complimentary Therapies

Acupuncture
Massage
Rehabilitation techniques
Herbal preparations
Naturopathy/homeopathy
Magnets
Alternative routes of delivery
Psychosocial Support

- Support groups
- Psychotherapy
- Cognitive therapy
- Behavioral therapy
- Meditation/relaxation
- Hypnosis/Biofeedback
His pain is treated with opioids and adjuvant analgesics, and he receives a dose of radiation to the lumbar spine. He complains to the technician about his constipation and occasional N/V. The radiation oncologist tells him to take Gravol, which only makes him drowsy. His appetite worsens, and he has trouble keeping down fluids. His wife calls the office and tells you he is now confused.
Brian and his wife meet you in ER. He states he feels weak, c/o abdominal pain, generalized aches and poor oral intake. His wife states he has been “a little mixed up” over the past 24 h.

Labs: ↑ urea, Cr = dehydration

X-ray: ++ constipation, dilated bowel loops

What is happening to Brian?
NEVER TAKE A PILL THAT HAS MORE SIDE EFFECTS THAN YOU HAVE SYMPTOMS.
<table>
<thead>
<tr>
<th>Opioid Adverse Effects</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>GI</strong></td>
</tr>
<tr>
<td><strong>Autonomic</strong></td>
</tr>
<tr>
<td><strong>CNS</strong></td>
</tr>
<tr>
<td><strong>Cutaneous</strong></td>
</tr>
</tbody>
</table>
Opioid Adverse Effects

Risk ↑10-25% if >60 y (2-3x > 30 y)
Ass’d with females, small size, poor liver/renal function, # Rx, prior A/E
Changes in drug distribution, metabolism, elimination
Same dose of opioid may give higher plasma concentrations and ↑ A/E
Treatment of Adverse Effects

Reduce opioid dose
Symptomatic management of adverse effect
Opioid rotation (or switching)
Switching route of administration

ASCO Consensus statement, JCO 2001
Brian improves with hydration and laxatives. Pain control is good when he is not moving, but can be 8/10 when walking or going to the washroom. The pain is sharp and mostly in the back.

What can we do for him now?
Incident Pain

Subtype of “breakthrough” pain
Severe transitory increase in pain on baseline of moderate intensity or less
Caused by movement (voluntary or otherwise), cutaneous wounds, dressing changes, toileting, cough, etc.
Due to somatic, visceral, neuropathic pain
Related to baseline pain mechanism/cancer

Portenoy R Sem Onc 1997; 24(S16):7-12
Pain

Excessive sedation

Baseline dose

Incident Incident Incident

Time
Incident Pain

**Usual situation**

5 - 15% daily dose (50-100% hourly dose)
oral or parenteral

can be q 1 - 2 h prn

May cause severe sedation, A/E

Delay in onset 15 - 60 min

Duration of action (& A/E) outlasts activity
"You might at first experience a hint of drowsiness..."
Incident Pain

**Ideal agent:**

Potent opioid, pure $\mu$ agonist
Rapid onset, early peak effect
Short duration
Easily administered in all environments of care (e.g. home, LTC, PCH)
Safely given to pts with advanced illness
# Opioids in Comparison

<table>
<thead>
<tr>
<th>Opioid</th>
<th>Equival/Lipid sol</th>
<th>Onset (min)</th>
<th>Peak effect (min)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Morphine</td>
<td>10/ 1.4</td>
<td>7.5</td>
<td>25</td>
</tr>
<tr>
<td>Fentanyl</td>
<td>0.1-0.2/ 816</td>
<td>1.5</td>
<td>4.5</td>
</tr>
<tr>
<td>Sufentanil</td>
<td>0.01-.04/ 1727</td>
<td>1.0</td>
<td>2.5</td>
</tr>
<tr>
<td>Alfentanil</td>
<td>0.4-0.8/ 129</td>
<td>0.75</td>
<td>1.5</td>
</tr>
</tbody>
</table>

**Elimination**

Hepatic metabolism
- fentanyl/sufentanil: oxadative dealkylation

Renal clearance
- fentanyl <6%, sufentanil 0.6%

Single IV bolus dose studies
## Incident Pain and Dyspnea Protocol

<table>
<thead>
<tr>
<th>Step</th>
<th>Medication</th>
<th>Dose SL (50 µg/ml)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Fentanyl</td>
<td>50</td>
</tr>
<tr>
<td>2</td>
<td>Sufentanil</td>
<td>25</td>
</tr>
<tr>
<td>3</td>
<td>Sufentanil</td>
<td>50</td>
</tr>
<tr>
<td>4</td>
<td>Sufentanil</td>
<td>100 *</td>
</tr>
</tbody>
</table>

*100 µg requires 2 ml of the 50 µg/ml (large vol). Recommend it be given in two portions of 1 ml each, 10 - 15 minutes apart. The planned activity (dressing change, moving the patient, etc.) should wait until 10 - 15 minutes after the second portion.

WRHA Palliative Care Program, courtesy of Dr. M Harlos
Brian uses the fentanyl prn, and moves more comfortably. He returns home, but over the next 3 wks his condition deteriorates to the point of being bed bound. Palliative care nurses visit, no further interventions needed. He dies a few days later, with his family at his side. His wife thanks the coordinator, and states that he died peacefully.
Summary

Pain is common, generally undertreated
Assessment essential
Tailor treatment to pain type
Adjuvant Rx useful
Anticipate side effects
Patient education important
Help is available
WRHA Palliative Care Pgm

Central intake number: 237-2400
Palliative Nurse/Physician on call 24/7
Physician accessed through St. Boniface
Paging: 237-2053
www.palliative.info
“Death is taking another holiday. I’m the fat lady who sings”