PAIN MANAGEMENT AND THE ELDERLY

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Objectives:

- Name two assessment tools for evaluating pain
- Identify treatment options for controlling pain
- Describe the Pain Pentagon

DISCLOSURE
F. Michael Gloth, III, MD does have a significant financial interest or other relationship with manufacturer(s) of commercial product(s) and/or provider(s) of commercial services discussed in the presentation.
GSK, Merck, Novartis, Purdue, Roche, Wyeth
Slide 1

Pain Management in the Elderly

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Johns Hopkins University School of Medicine

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Other Resources

- Achieving Pain Relief in the Older Adult Requires Increased Knowledge:
  - Maryland State Advisory Council on Pain Management Recommendations (www.dhmh.state.md.us/ohcq/council/home.htm)
  - Revised Beer’s Criteria (Arch Intern Med. 2003; 163:2716-24)
- Pain is inadequately treated -

- 40% of Americans with cancer are in serious pain during the last 3 days of life
- 26% of nursing home residents report daily noncancer pain, yet 25% of these had no analgesic order
- 25-50% of older adults suffer from pain that interferes with daily activities
- 29% of Medicare Pts in NH’s with a fx in past 6 months suffer with daily pain

McCarthy EP et al. JAGS. 2000; 48:S110-21
Won A et al. JAGS. 1999; 47:506-42
Limcangco R UMD Doctoral Thesis ’05

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Pain

- 45-80% in nursing home residents have pain
- Age > 70 years is the number one risk factor for inadequate pain management (ECOG study)


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Cost of Chronic Pain

> The Group Health Cooperative of Puget Sound showed that of 14 medical conditions, the cost per patient was highest for stroke and lowest for chronic pain.
> Because chronic pain is so prevalent, it is the most costly medical condition.

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Reasons for Inadequate Pain Management

**Physician Reasons**
- Insufficient Assessment (>70%)
- Fear of using some medication, esp. opioids (>60%)
- Inadequate knowledge (>50%)

**Patient Reasons**
- Inadequate Reporting
- Fear of stigma of opioids


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--- Other Reasons ---

- <1% of the thousands of papers published on pain focus on the aging society
- Lack of time in the nursing home for assessment and treatment of pain
- Fear of being labeled a complainer
- Belief that pain is a normal part of aging


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AGS Guidelines for the Management of Persistent Pain in Older Persons

- Pain not a normal part of aging
- Assessment & Management
- Health System Barriers
  - Administrative
  - Regulatory
  - Revise Regulations that have created barriers
  - QI

[AGS 6/02: 50 (Suppl):S205-24]
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FEDERATION OF STATE MEDICAL BOARDS OF THE UNITED STATES, INC.

Model Guidelines for the Use of Controlled Substances for the Treatment of Pain

- Evaluation of the Patient
- Treatment Plan
- Informed Consent and Agreement for Treatment
- Periodic Review
- Consultation
- Medical Records
- Compliance with Controlled Substances Laws and Regulations


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Wong-Baker FACES Pain Rating Scale


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Visual Analogue Scale (VAS)

(AHCPR 1994)
**Slide 13**

The Functional Pain Scale

- 0  No Pain
- 1  Tolerable (Doesn’t interfere with activities)
- 2  Tolerable (Interferes with some activities)
- 3  Intolerable (Able to use phone, TV, or read)
- 4  Intolerable (Unable to use phone, TV, or read)
- 5  Intolerable (Unable to verbally communicate)


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### The Functional Pain Scale

<table>
<thead>
<tr>
<th>Scale</th>
<th>Relative Efficiency</th>
<th>Standardized Response</th>
<th>Mean</th>
<th>Effect Size</th>
<th>p-value</th>
<th>Paired t-test</th>
<th>Rank</th>
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<tbody>
<tr>
<td>FPS</td>
<td>1.00</td>
<td>0.29</td>
<td>0.29</td>
<td>0.0054</td>
<td>2.85</td>
<td>1(7)</td>
<td></td>
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<tr>
<td>VAS</td>
<td>0.32</td>
<td>0.46</td>
<td>0.47</td>
<td>0.04</td>
<td>2.14</td>
<td>2(12)</td>
<td></td>
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<tr>
<td>PPI</td>
<td>0.36</td>
<td>0.25</td>
<td>0.25</td>
<td>0.02</td>
<td>2.21</td>
<td>3(13)</td>
<td></td>
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<tr>
<td>MPQ</td>
<td>0.30</td>
<td>0.22</td>
<td>0.21</td>
<td>0.037</td>
<td>2.11</td>
<td>4(19)</td>
<td></td>
</tr>
<tr>
<td>VNS</td>
<td>0.18</td>
<td>0.25</td>
<td>0.22</td>
<td>0.067</td>
<td>1.87</td>
<td>5(24)</td>
<td></td>
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</tbody>
</table>

Legend: FPS = Functional Pain Scale; VAS = Visual Analog Scale; PPI = Present Pain Intensity; MPQ = McGill Pain Questionnaire-Short Form; VNS = Visual Numerical Pain Scale.


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**Pain**

- Nociception (A-delta vs C fibers, opioid receptors)
- Psychological (Secondary Gain, Depression, Mental Focus, Prior Experience, & Anxiety)
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The Pain Pathway

- Opioid, NMDA, & GABA Receptors -

- µ – analgesia, miosis, respiratory depression, and euphoria
- κ – analgesia, miosis, sedation, and psychotomimetic activity
- δ – analgesia, miosis, and hypotension
- N-methyl-D-aspartate (NMDA)
- Gamma aminobutyric acid (GABA)
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Treatment

- History (onset, duration, location, description, relieving and exacerbating factors, psychological components)
- Physical Findings

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Pain Management

- Nonpharmacological
- Cold, Heat, PT/OT
- TENS, Acupuncture
- Radiation
- Blocks, Relaxation, Hypnotism, Biofeedback, Massage, Vibration, Magnets, etc.
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Pain Management

- Pharmacological
  - Non-opioids
  - Opioids

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Do you remember which symptom you began with and which are side effects?

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Drug Benefit: Risk Ratio May Change with Entry into Hospice

- Long-term benefit may be negated if remaining life expectancy is < 6 months.
- Comorbidity and other morbidity risk may outweigh potential drug benefits.
- Some drugs and drug classes to consider:
  - CV drugs (Antihypertensives, Amiodarone, etc.)
  - Aspirin for CV prophylaxis
  - Warfarin (Coumadin) and other anticoagulants (e.g. Clopidogrel [Plavix], Cilostazol [Pletal] etc.)
  - Drugs for osteoporosis.
Pain Management Costs

- Always consider cost!
  - Individual Costs and Ability to Pay
  - Societal Costs
  - Cheaper per Pill may NOT be less costly
  - If pill is more expensive, but it prevents serious complications associated with ADR's, then overall health care costs may be reduced.

Pain Management-Pharmacological

- Non-opioids
  - Acetaminophen
  - COX-2 NSAID's (Celecoxib)
  - Tramadol (Ultram or Ultracet)
  - Capsaicin
  - EMLA, Lidoderm, etc.
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Prostaglandins in the Kidney

- \( \text{PGF_2} \)
- \( \text{PGA_2} \)

\( \text{↓↓} \) Na\(^+\) reabsorption (ascending limb of the loop of Henle)

\( \text{↓↓} \) Stimulates renin release, secretion of aldosterone, \( \text{↑↑} \) secretion of aldosterone, \( \text{↑↑} \) K\(^+\) secretion (distal nephron)

Brater 1999; Carmichael 1985; Clive 1984; Garella 1984; Kaojarern 1983; Patrono 1987; Stokes 1977

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COX Pathophysiology

- \( \text{COX-1} \)
- \( \text{COX-2} \)

Inducible

Constitutive

NSAIDs

- Inflammation
- Pain
- Fever

Renal function

GI cytoprotection

Platelet activity

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Effect of NSAIDs on Platelet Aggregation
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**Coxibs: Platelet Aggregation**

![Diagram showing percentage inhibition of platelet aggregation for different doses of Celecoxib and Naproxen.]

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**Changes in GFR: Celecoxib vs Naproxen**

Day 1

![Graph comparing changes in GFR (ml/min) for Placebo, Celecoxib 200 mg, Celecoxib 400 mg, and Naproxen 500 mg. P < 0.05 for Celecoxib 400 mg vs Placebo.]

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**Hypertension with Non-Specific NSAIDs is Dose-Related**

<table>
<thead>
<tr>
<th>Dose Category</th>
<th>Odds Ratio (95% CI)</th>
<th>Adjusted* Odds Ratio (95% CI)</th>
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<tbody>
<tr>
<td>Non User</td>
<td>1.00 (Reference)</td>
<td>1.00</td>
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<tr>
<td>Low</td>
<td>1.83 (1.64-2.05)</td>
<td>1.55 (1.38-1.74)</td>
</tr>
<tr>
<td>Medium</td>
<td>2.12 (1.97-2.41)</td>
<td>1.64 (1.44-1.87)</td>
</tr>
<tr>
<td>High</td>
<td>2.39 (2.13-2.69)</td>
<td>1.82 (1.62-2.05)</td>
</tr>
</tbody>
</table>

*Adjusted for age, sex, race, nursing home residency, number of prescriptions, number of physician claims, and number of days hospitalized.

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MI Rates Among Subjects Receiving Placebo vs Rofecoxib or Celecoxib

No. of Patients 23,407 4047 3867
Error bars indicate 95% confidence intervals.


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Cardiovascular System Clinical Profile of Rofecoxib

Overall Mortality and CV Mortality in OA Studies: Events per 100 Patient Years

<table>
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<tr>
<th></th>
<th>Rofecoxib</th>
<th>NMB/c</th>
<th>Factor</th>
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<tbody>
<tr>
<td>Death</td>
<td>0.1</td>
<td>0.1</td>
<td>1.0</td>
</tr>
<tr>
<td>Cardiovascular</td>
<td>0.1</td>
<td>0.0</td>
<td>1.0</td>
</tr>
</tbody>
</table>

Rofecoxib is not a substitute for aspirin for cardiovascular prophylaxis.

NSAIDs and ASA: Cardioprotective Impact

MacDonald & Wei. Lancet 2003 361:573
CV Risk with NSAID’s


Pre-emptive Analgesia

- Reuben SS, Connelly NR. Anesth Analg. 00; 91:1221-25.

Pre-emptive Analgesia: 50 patients, elective laparoscopic tubal ligation

- Patients in the CR oxycodone (Oxycontin®) group had a shorter time to discharge (p < 0.001)
- Reported lower postoperative pain scores (p < 0.001)
- Reported lower frequency of postoperative nausea and vomiting (p < 0.05) longer time to first analgesic use (p < 0.0001)
- Required less fentanyl in the PACU (p < 0.01) and fewer acetaminophen/oxycodone tablets in the 24 hours following surgery.

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Tramadol (Ultram®) Dose Titration Study II

Summary of Time to Discontinuation Due to Nausea and/or Vomiting

- 13 Days to 150 mg/day
- 16 Days to 200 mg/day
- 10 Days to 200 mg/day

**P** = .007, 10 days vs 16 days

**P** = .006, 10 days vs 13 days

**P** = .94, 16 days vs 13 days


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Isobolographic Analysis

Drug X

ED50

Synergy? (What Range?)

1:10

1:1

1:100

ED50

Drug Y

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Tramadol + Acetaminophen

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Ultracet™ as COX-2 Add-On Therapy

Probability of Continuation

\[ P = 0.019 \]


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Vitamin D Deficiency & Pain

- Osteomalacia (Deep musculoskeletal pain)
- Vitamin D Deficiency Pain Syndrome (Pain with superficial light pressure, pressure sores painful)
- Fractures


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Percent of Subjects with Low Vitamin D Status

- All: 45%
- Nursing Home: 38%
- Community-Dwelling: 54%

Gloth et al. JAMA 1995. 274:1683-6
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Metastatic Bone Pain Management

- Non Opioids
  - NSAID's COX-2
  - Bisphosphonates (pamidronate, zoledronic acid, alendronate, risedronate, ibandronate)
  - Radionuclides (strontium 89, etc.)


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Other agents to combine with opioids

- Gabapentin (Neurontin®) and Pregabalin (Lyrica®) in neuropathic pain (such pain rarely responds adequately to opioids alone) now with an FDA indication for post-herpetic neuralgia.
- Duloxetine (Cymbalta®) and some Tricyclic Antidepressants may also be useful in addressing both neuropathic pain and depression, which commonly accompanies chronic pain.

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WHO 3-Step Analgesic Ladder

Persistent pain

Pain Relief

Strong Opioids + Adjuvant

Opioids + Adjuvant

Non-Opioids

Persistent pain

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Pain Management

- Opioids
  - Morphine CR
  - Oxycodone CR
  - Oxymorphone CR
  - Hydromorphone CR
  - Fentanyl

Equianalgesic Conversions

Opioids - Fentanyl Patch

- 18-hour reservoir
- 12-hour delay in onset with new patch
- Increased absorption with fever (heat)
- Deaths in opioid-naive patients
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Opioids in Pain Management

- Tolerance develops to many symptoms within days.
- Constipation still requires:
  - hydration
  - bulk fiber (only if hydration can be maintained)
  - activity
  - methylnaltrexone (Relistor®)
  - senna
  - sorbitol (20cc 70% BID < 3 d’s).

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Opioids in Pain Management

- Use regular dosing with 50%-100% increases when breakthrough medication is used more than 3x’s in 24 hours.
- Breakthrough dose should equate to 50-100% of the hourly dose of regularly-dosed medication (ex. 60 mg CR Morphine q12 hrs requires 10-20 mg immediate release q4 hrs).

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Pain Management – Additional pearls

- Never “prn” (Pain Relief Negligible)
- Regular Schedule (patient may refuse)
- Patient-Controlled Analgesia (PCA)
Postherpetic Neuralgia* in the Shingles Prevention Study

<table>
<thead>
<tr>
<th>Age (years)</th>
<th>Number of PHN Cases</th>
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<th>70–79</th>
<th>≥80</th>
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<td>60–69</td>
<td></td>
<td>80</td>
<td>23</td>
<td>45</td>
</tr>
<tr>
<td>70–79</td>
<td></td>
<td>5%</td>
<td>6.6</td>
<td>7.7</td>
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<tr>
<td>≥80</td>
<td></td>
<td>18.9</td>
<td>17.2</td>
<td>6.9</td>
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<table>
<thead>
<tr>
<th>Pain Pentagon©</th>
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</thead>
<tbody>
<tr>
<td>Irritation/Injury</td>
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<tr>
<td>Increased Activity</td>
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</tbody>
</table>

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Hospice

- Palliative Care at the End of Life
- Comfort and Dignity
- Medical, Social, Spiritual, Volunteer, & Bereavement components
- DME, Medications, Respite
- Medicare benefit with 6-month prognosis
- SUPPORT & ECOG trials
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Summary

- FPS to help assess pain in seniors
- AVOID NSAIDs if needed consider Naproxen
- Pre-emptive Analgesia
- Synergy
- Vitamin D
- Prevent pain with CR opioids or vaccine
- Pain Pentagon

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© Hagar the Horrible. Dik Browne.

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Pain Management
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www.SeniorHealthCare.org