Nurses and Physician Assistants Make a Difference in Inpatient Pain Management

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Objectives

• Recognize the importance of obtaining a medical history on admission to identify the role of medications that place patients at-risk for hypertension and/or CVD.

• Describe opportunities for interprofessional collaboration when performing medication reconciliation during transitions of care for patients with pain who are at risk for hypertension and/or CVD.

• Compare and contrast validated tools used in assessing the type and level of pain throughout the course of a patient’s hospitalization.

• Recognize opportunities for communication among multidisciplinary team members related to pain and hypertension management.
Meet Mrs. Pine

76 y.o. woman brought to the ED by son for severe thoracic region spinal pain that started with a cough 6 hours earlier.
The Nurse, Advanced Practice Nurse, And Physician Assistants

- Patient assessment
  - History
  - Physical exam
- Medication reconciliation
- Problem/risk identification
- Ordering/interpretation of diagnostic workup
- Development/Implementation of treatment plan
- Ongoing patient assessments
- Assessment of response to treatment plan
- Patient advocacy
- Patient/family education

Roles
History

Sources: Patient, Family, EMR, PCP, Pharmacy, PDMP
CC: Severe thoracic region pain, increases with any movement.
HPI: noted sudden thoracic back pain with cough this morning. Pain increases with deep breath; limits movement.
PMH: HTN, CAD, DM Type 2, NSTEMI 2021, GERD, Osteoarthritis, Chronic Low Back Pain
PSH: s/p PCI with placement of 2 stents 2/2021, R THA 2020
Family hx: father ↓ MI 70yo; mother ↓ lung CA age 78; no sibs; 2 adult children A/W
Soc: widowed X 12 years; lives in 1st floor condo; two supportive adult children live locally
Smoked 1ppd cigarettes for 32 years, quit 20 years ago; Alcohol, 4 oz wine twice weekly
Medications:  Amlodipine 10mg po daily, Glyburide 5mg po daily
  Lisinopril 10mg po daily, Pantoprazole 20mg po daily
  Hydrochlorothiazide 12.5mg po daily, Tramadol 50mg po q8h prn
Allergies: NKDA
Physical Exam:

v/s 156/88, 102, 22, 99.1, $O_2$ sat 95%

Awake, alert, oriented x 3

Grimacing

HEENT: WNL, no adenopathy

Pulm.: resp shallow, non-labored, lungs clear

CV: S1 S2, no m/r/g

Abd: soft, nontender, + BS, all pulses palp, trace pedal edema

GU: no flank tenderness, no suprapubic tenderness

M/S: Spine with sl kyphosis; + closed fist test over T 10, ROM decreased bilat hips and knees

Neuro: CN II-XIII WNL, no sensory or deficits; strength 5/5

Skin: intact, no lumps or lesions
What are the Priorities?

- Assessment: History and Physical
- Admission process and Workup
- Assure treatment of co-morbidities
- Assess risks
- Pain Management
- Assure communication of the patient’s status throughout all transitions of care
Pain is...

"An unpleasant sensory and emotional experience associated with, or resembling that associated with, actual or potential tissue damage."

Consequences of Unrelieved Pain

- **Pulmonary complications**
  - Atelectasis
  - Shunting
  - Hypoxemia
  - Infection

- **Cardiovascular complications**
  - Increased Heart rate (HR), peripheral vascular resistance (PVR), workload, B/P
  - Increased myocardial oxygen consumption
  - Hypercoagulation
  - DVT

- **GI**
  - Decreased absorption
  - Decreased motility

- **Catabolic metabolic activity**
  - Hyperglycemia
  - Muscle wasting
  - Poor wound healing

- **Genitourinary (GU)**
  - Decreased renal perfusion
  - Urinary retention
  - Fluid overload
  - F/E imbalances

- **Musculoskeletal (M/S)**
  - Decreased mobility
  - Spasm
  - Fatigue
  - Wasting

- **Neuro**
  - Reduced cognitive function
    - Memory
    - Concentration
    - Confusion

- **Psychological:**
  - Anxiety
  - Depression
  - Suicidal thoughts
  - Hopelessness

- **Quality of life:**
  - Poor sleep quality
  - Impact on relationships
  - Impact on function: work, social activities, exercise

- **Future pain:**
  - Untreated acute pain may alter Peripheral nervous system (PNS) and Central nervous system (CNS) leading to chronic (persistent) pain.
Assessing Pain: The Interview

Address sensitive topics:
- Alcohol
- Drugs
- Abuse
- Sexual History
- Tools:
  - CAGE questionnaire-4 question acronym for alcohol use disorder assessment
  - Opioid risk tool (ORT)
  - Screener and opioid assessment for patients with pain (SOAPP)

- Older adults – assess function, home safety, include family/caregiver
- Provide time for questions or additional information
- Be aware of HIPAA rules and updates
Important Considerations in Assessing Pain

- Developmental level
- Language barriers
- Cultural barriers
- Cognitive barriers
- Sensory deficits

Components of a Comprehensive Pain Assessment

- Pertinent medical history
- Physiologic/sensory
- Psychological
- Cognitive
- Sociocultural
- Spiritual
- Environmental
- Patient goal
- Functional status

**Pertinent History**

*History is important in identifying risks*

- Past experiences of pain
- Traumatic injuries and surgeries
- Disease processes and chronic conditions.
- Aging changes
- Medication-related Risks

- Mental health conditions:
  - Anxiety, Depression
  - Current or past substance use
- Analgesic history (medication, intervention, non-pharm)
  - What was effective?
  - What was not effective?
Hierarchy of Pain Assessment Techniques

- Consider level of pain for procedure or condition
- Self report
- Observation of non-verbal behaviors
- Proxy report
- Physiologic measure (least sensitive)
- Conduct an analgesic trial

## Mnemonics to Guide Pain Assessment

<table>
<thead>
<tr>
<th>WILDA</th>
<th>PQRST</th>
<th>OLD CARTS</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Words to describe pain</strong></td>
<td><strong>Provocation/Palliation</strong></td>
<td><strong>Onset</strong></td>
</tr>
<tr>
<td>(quality of the pain)</td>
<td><strong>Quality/Quantity</strong></td>
<td><strong>Location</strong></td>
</tr>
<tr>
<td><strong>Intensity</strong></td>
<td><strong>Region/Radiation</strong></td>
<td><strong>Duration</strong></td>
</tr>
<tr>
<td><strong>Location</strong></td>
<td><strong>Severity</strong></td>
<td><strong>Characteristics</strong></td>
</tr>
<tr>
<td><strong>Duration</strong></td>
<td><strong>Timing</strong></td>
<td><strong>Aggravating-alleviating</strong></td>
</tr>
<tr>
<td><strong>Aggravating/Alleviating</strong></td>
<td><strong>Radiation</strong></td>
<td><strong>Timing</strong></td>
</tr>
<tr>
<td>factors</td>
<td><strong>Severity</strong></td>
<td><strong>Severity (intensity)</strong></td>
</tr>
</tbody>
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Descriptors: Help in Identifying Type of Pain

- **Nociceptive Pain**: pain caused by an injury, physical pressure, or inflammation of some part of the body. Descriptors: throbbing, aching, sharp, dull, cramping

- **Neuropathic Pain**: A group of diseases resulting from damaged or malfunctioning of nerves that causes weakness, numbness and pain in hands and feet. Descriptors: burning, electrical, tingling

- **Mixed Type Pain**: Mixed pain is a complex overlap of the different known pain types (nociceptive, neuropathic, and nociplastic) in any combination, acting simultaneously and/or concurrently to cause pain in the same body area. Either mechanism may be more clinically predominant at any point of time. Descriptors: combination of nociceptive and neuropathic descriptors


Freyhagen, R. et al. (2020). When to consider “mixed pain”? The right questions can make a difference! Current Medical Research and Opinion, 36(12), 2037-2046.
Using Tools to Assess Pain

CAN PATIENT PROVIDE A SELF-REPORT?
• Intended to recognize that pain is subjective and only the patient can tell if pain exists and to what degree

• Most tools are “uni-modal” and measure only pain intensity

• Unimodal tools do not address all components of a comprehensive pain assessment previously discussed
Pain Assessment requires more than an intensity number

*Dosing to a number is a dangerous practice*

- Pain intensity ratings are subjective and cannot be measured objectively.
- No research to show a specific pain intensity rating requires a specific medication or medication dose.
- Many factors, other than intensity, influence opioid risks as well as non-analgesic risks.
  - Age
  - Pain quality
  - Sedation level
  - Respiratory status
  - Functional status
  - Opioid tolerance
  - Drug-drug interactions
  - Prior responses to treatment
  - Comorbidities: cardiovascular, renal, and hepatic

## Tools for Patients Who Are Able to Self-Report Pain

<table>
<thead>
<tr>
<th>Scales</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Pain</strong></td>
</tr>
<tr>
<td>• Numeric Rating Scale (NRS) 0-10</td>
</tr>
<tr>
<td>• Verbal Descriptor Scale</td>
</tr>
<tr>
<td>• Visual Analogue Scale</td>
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<tr>
<td>• Faces Pain Scale-Revised</td>
</tr>
<tr>
<td>• Iowa Pain Thermometer</td>
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| FPS-R                                                                 |

| Iowa                                                                  |

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Tools Evolving and Expanding

- Pain assessment involves a dialogue, rather than simply a number on a tool.

- Unidimensional tools measure only pain intensity and not the complexity of the pain experience.

- Function, including participation in activities, may provide more indication of pain relief than pain intensity report.

## Clinically Aligned Pain Assessment (CAPA®) Tool

<table>
<thead>
<tr>
<th>Question</th>
<th>Response</th>
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</table>
| 1. Comfort         | • Intolerable  
                     • Tolerable with discomfort  
                     • Comfortably manageable  
                     • Negligible pain          |
| 2. Change in pain  | • Getting worse  
                     • About the same  
                     • Getting better         |
| 3. Pain control    | • Inadequate pain control  
                     • Effective, just about right  
                     • Would like to reduce medication |
| 4. Functioning     | • Can’t do anything because of pain  
                     • Pain keeps me from doing most of what I need to do  
                     • Can do most things but pain gets in the way of some  
                     • Can do everything I need to do                      |
| 5. Sleep           | • Awake with pain most of the night  
                     • Awake with occasional pain  
                     • Normal sleep               |

Clinically Aligned Pain Assessment (CAPA©) Tool

• Advantages:
  • Can be used to assess acute & chronic pain
  • Focus on functional ability & sleep
  • Guides clinical decision making
  • Validated for clinical use

• Disadvantages:
  • Not validated for research
  • Lacks scoring “rules”
  • May not be appropriate for those with minimal pain
Functional Pain Scale

0 = No Pain
1 = Tolerable (and doesn’t prevent any activities)
2 = Tolerable (but does prevent some activities)
3 = Intolerable (but can use telephone, watch TV, or read)
4 = Intolerable (but can’t use telephone, watch TV or read)
5 = Intolerable (and unable to verbally communicate because of pain)

DOD & Veterans Pain Rating Scale

Includes additional questions that address activity, sleep, mood, stress

Tools for Assessment of Persistent Pain

Examples of tools:
- McGill Pain Questionnaire
- Chronic Pain Grade Scale
- Brief Pain Inventory
- PEG Scale

Advantages: Measures impact of pain on daily, social, and work activities

Disadvantages: Takes time. Patients need rich vocabulary and ability to understand instructions

PEG SCALE

“Pain average,” “interference with Enjoyment of life,” and “interference with General activity.”

Validated for use in ambulatory settings

1. What number best describes your pain on average in the past week:

   0 1 2 3 4 5 6 7 8 9 10

   No pain                      Pain as bad as you can imagine

2. What number best describes how, during the past week, pain has interfered with your enjoyment of life?

   0 1 2 3 4 5 6 7 8 9 10

   Does not interfere          Completely interferes

3. What number best describes how, during the past week, pain has interfered with your general activity?

   0 1 2 3 4 5 6 7 8 9 10

   Does not interfere          Completely interferes

**Observational tools:**
for those who cannot self-report

*Observational scales do not measure intensity, only suggest the likelihood that pain is present*
**Observational Tools**

**Elderly with Dementia**
- Checklist of Nonverbal Pain Indicators (CNPI)
- Pain in Advanced Dementia Scale (PAINAD)
- Pain Assessment Checklist for Seniors with Limited Ability to Communicate (PACSLAC)

**Critically Ill, Non-verbal**
- **BPS: Behavioral Pain Scale**
  - Evaluates 3 behavioral domains: facial expression, movements of upper limbs, compliance with ventilation
- **CPOT: Critical-Care Pain Observation Tool**
  - Evaluates 4 behavioral domains: facial expressions, movements, muscle tension, ventilator compliance. (0-8)

Screening vs. assessing pain

- A 'screening' is a process for evaluating the possible presence of a problem.
- An 'assessment' gathers more detailed information through collection of data, observation, and physical examination.
- Pain assessment tools are generally evidence-based and often include, at a minimum, an evaluation of pain intensity, location, quality, and associated symptoms.
- An accurate pain screening and assessment is the foundation on which an individualized, effective pain management plan is developed.
Who will screen for pain?

The multidisciplinary team

Physicians
- Emergency Room physicians
- Hospitalists
- Cardiologists
- Neurosurgeons
- Pain Specialists
- Interventional Radiologists

APNs/PAs

Registered Nurses

LPNs/LVNs

Pharmacists

Patient Care Assistants

Radiology Techs

Physical Therapists

Dietitians

Dietary Assistants

Laboratory techs

Respiratory therapists

Couriers
Frequency of Pain Assessment

- Admission
- Every shift?
- When screening or patient report indicates presence of pain
- Following an analgesic intervention: timing depends on the intervention
- Before, during, and following pain producing procedures (Dressing changes, Dx procedures)
- With increased activity (Mobility Changes)

Back to our patient...
Pain Assessment:

OLD CARTS: onset, location, duration, characteristics, aggravating/alleviating, radiation, timing, severity (intensity).

**Acute Pain:** began with strong cough, thoracic spine, constant sharp and stabbing, worsens with movement and cough, alleviated by staying motionless, took acetaminophen 1000mg with some relief 6 hours ago, constant, severity 10/10 before meds, 6/10 after medication but now increasing.

**Chronic/Persistent Pain:** 5 years+, bilat. knees/hips, low back, dull, stiff aching, increased by activity, worse in morning, alleviated with rest, heat, meds, no radiation, 6/10 to 4/10 with meds.
Mrs. Pine’s Workup Results:

CT scan shows Acute T 10 vertebral Compression Fracture

Cardiac Causes Ruled Out:
- MI
- Aneurysm
- Tamponade

Pulmonary Causes Rules Out:
- Infection
- Pulmonary Embolism
- Tumor
- Pneumothorax
Let’s focus on the Pain

**Patient Medical History:**
- Medical Conditions: HTN, CAD, NSTEMI, DM II, OA, Chronic low back pain, GERD
- Allergies: NKDA
- Social History: Smoking hx, alcohol
- Review of Systems: chronic bilat. knee pain

**Medications:** Amlodipine 10mg po daily, Glyburide 5mg po daily  
Lisinopril 10mg po daily, Pantoprazole 20mg po daily  
Hydrochlorothiazide 12.5mg po daily, Tramadol 50mg po q8h prn

**What more do we need to know?**
What about Medication Reconciliation?

When was the tramadol last taken?

What does the chart show?
• The Prescription Drug Monitoring Program (PDMP)?
• What does the patient say?
• When does she take the tramadol?
  How often?
  What indication?
  How effective?
  Any adverse effects?

Have you considered:
• Contraindications?
• Drug-Drug Interactions?
Medication Reconciliation

Why is it important?

- The Joint Commission: Medication Reconciliation is a 2022 National Patient Safety Goal.
- 2020 published study of 904 records showed unintended medication discrepancies related to hospital admissions and discharges are common and may result in medication errors. Over-the-counter omissions are among discrepancies.
- 2016 Systematic review and meta-analysis found pharmacy-led medication reconciliation intervention usually revealed a trend towards reduction in medication discrepancies, compared with usual care.

Medication Reconciliation

Significance

- As of 2020, the FDA reports there were over 300,000 over-the-counter drug products.
- Older adults: the biggest consumers of prescription and over-the-counter medications and dietary supplements.
- Study of 88 older adults living in senior citizen community, high percentage of self-reported OTC self-medication, inappropriate use, and experiences of adverse effects.
- In a 2008 study, 68% of older adults using prescription drugs were also using OTC medications and/or dietary supplements.
- Of 46 major drug interactions found, over ½ were due to OTC drugs.

Food & Drug Administration (2020). Drug applications for over-the-counter drugs. Retrieved March 27, 2022 from Drug Applications for Over-the-Counter (OTC) Drugs | FDA


Mrs. Pine’s OTC meds

- Ibuprofen 400mg po taken at least three times/day
  - 600mg taken early today

- Loratadine 10mg taken daily
  - Last taken early today

- Senna 2 tabs taken every night
CV and Renal Function Risks related to:

- Aging
- Pain
- Regular NSAID use
- Diabetes
- Hypertension and coronary artery disease
Regular Use of NSAIDs

- NSAID related Prostaglandin inhibition may increase blood pressure and blunt the effects of anti-hypertensive drugs: ACE inhibitors, angiotensin II receptor 1 blockers and thiazide diuretics.
- Those with altered hepatic or renal function are at increased risk for adverse effects.
- NSAID-induced Acute Kidney Injury (AKI) may result from absolute volume depletion and dehydration, reduced effective arterial volume or severe hypercalcemia.
- Elderly patients are at greatest risks of NSAID complications

COX Nonselective NSAIDS should be avoided for chronic use, unless other alternatives are not effective, and patient can take gastroprotective agent.

COX Nonselective NSAIDS are associated with an increased risk of GI bleeding or peptic ulcer disease in high-risk groups, including those > 75 years or taking oral or parenteral corticosteroids, anticoagulants, or antiplatelet agents.

COX Nonselective NSAIDS can increase blood pressure and induce kidney injury.

NSAIDS and COX-2 inhibitors are among the medications that can exacerbate heart failure or promote fluid retention.

NSAIDs should be avoided in patients with Stage IV renal disease (CrCl <30) as they may increase risk of acute kidney injury and further decline of renal function.


Sympathomimetic amines: stimulate α-adrenergic receptors directly or indirectly causing vasoconstriction. Decongestants: pseudoephedrine, phenylpropanolamine, and ephedrine.

Aspirin: NSAID effect at high doses, Prostaglandin Inhibition and hypertension.

Acetaminophen: Regular daily intake of 4 g acetaminophen found to increase systolic BP in individuals with hypertension by ≈5 mm Hg when compared with placebo.

Dietary:
  - Caffeine products

Herbals and Supplements:
  - Licorice: may raise BP through its mineralcorticoids effect
  - Ginseng: large doses and prolonged use: hypertension and reduced warfarin effect


**Mrs. Pine...Concerns?**

*Effect of pain on medical conditions: HTN, CAD, NSTEMI?*

**Complex relationship between pain and HTN:**

Acute pain: stress hormones, *SNS activity/Endocrine HTN, tachycardia, fluid retention.*

Concerns: increased cardiac workload, increased oxygen demand, ischemia

Hypertension in acute pain may have a hypoalgesic effect d/t negative feedback loop

Chronic pain: regulatory dysfunction in pain pathways, often positive correlation between pain and blood pressure.

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Mrs. Pine is transferred to a medical floor and reports 8/10 sharp, stabbing spine pain.

- She was given 30mg IV ketorolac 4 hours ago in the ED.
- The hospitalist tells you she should be fine. “She’s an older patient and older people don’t really feel as much pain as younger people. Besides, a little pain is better than the side effects of medications.”
- How do you advocate for the patient?
- What communication strategies can you use?
Uncontrolled pain may have significant biopsychosocial consequences.
All members of the multidisciplinary team have a role in screening for pain.
Assessment of pain, risks associated with undertreated pain, and responses to treatment are necessary for effective care and harm reduction.
Pain is a complex, subjective experience and assessment tools comprise only one component of the assessment process.
Analgesic selection must be based on consideration of medical history, including cardiovascular, pulmonary, renal, and hepatic function.
The multidisciplinary team has a role in assuring patient comfort and safety.
Remember, Nurses and Physician Assistants Make a Difference in Inpatient Pain Management!

Thank You.