Chapter 14
Nonopioid Analgesics: Nonsteroidal Anti-Inflammatory Drugs (NSAIDs) and Migraine Headache Medications

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Pain Assessment

- A key component to good pain management is the pain assessment. Location and intensity are the basic components of an assessment.
- The sensation of pain is subjective—effort is taken with standardized pain measurement tools to help the patient relay information needed to provide pain relief

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Assessment Guidelines

- Patient's subjective description of the pain (What does the pain feel like?)
- Location(s) of the pain
- Intensity, severity, and duration
- Any factors that influence the pain
- Quality of the pain
- Patterns of coping
- Effects of previous therapy (if applicable)
- Nurses' observations of patient's behavior

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Sample Assessment Questions

- Does the pain keep you awake at night? Prevent you from falling asleep or staying asleep?
- What makes your pain worse? What makes it better?
- Can you describe what your pain feels like? Sharp, stabbing, burning, or throbbing?
- Does the pain affect your mood? Are you depressed? Irritable? Anxious?
- What over-the-counter or herbal remedies have you used for the pain?
- Does the pain affect your activity level? Are you able to walk? Perform self-care activities?

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Populations at Higher Risk for Poor Pain Assessment

- Infants and children
- Older adults, especially those cognitively impaired
- Developmentally disabled children and adults
- Those with communication problems such as limited English proficiency or limited health literacy
- Those unable to communicate due to the illness or treatment process

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NSAIDs: Actions and Uses #1

- Exact mechanism of action unknown; thought to work by inhibiting action of enzyme cyclooxygenase responsible for prostaglandin synthesis; NSAIDs inhibit two related enzymes
- Inhibit activity of cyclooxygenase-1 (COX-1): Enzyme helps to maintain the stomach lining
- Inhibit activity of cyclooxygenase-2 (COX-2): Enzyme triggers pain and inflammation

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NSAIDs: Actions and Uses #2

- Ibuprofen and naproxen: block COX-2, produces pain relief; inhibit COX-1, causes adverse reactions including unwanted GI reactions such as stomach irritation and ulcers
- Celecoxib: inhibits only COX-2; less potential for GI adverse reactions
- Used for osteoarthritis, rheumatoid arthritis, and other musculoskeletal disorders; mild to moderate pain; primary dysmenorrhea; fever reduction

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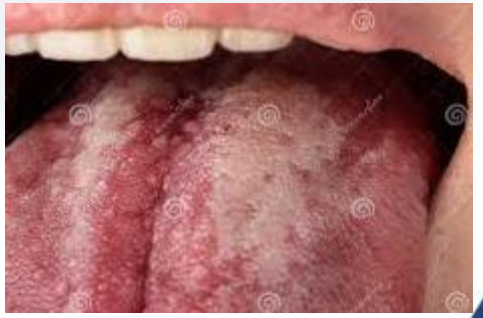
NSAIDs: Adverse Reactions #1

- Gastrointestinal system reactions
  - Nausea, vomiting, dyspepsia, diarrhea, constipation, epigastric pain, indigestion, abdominal distress or discomfort, intestinal ulceration, stomatitis, jaundice, bloating, anorexia, dry mouth



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NSAIDs: Adverse Reactions #2

- Central nervous system reactions
  - Anxiety, lightheadedness, vertigo, headache, drowsiness, somnolence, insomnia, confusion, depression, stroke, psychic disturbances
- Cardiovascular reactions
  - Congestive heart failure, decrease or increase in blood pressure, cardiac arrhythmias, myocardial infarction

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NSAIDs: Adverse Reactions #3

- Renal reactions
  - Hematuria, cystitis, elevated blood urea nitrogen, polyuria, dysuria, oliguria, acute renal failure in those with impaired renal function
- Sensory reactions
  - Blurred or diminished vision, diplopia, swollen or irritated eyes, photophobia, reversible loss of color vision, tinnitus, taste change, rhinitis

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NSAIDs: Adverse Reactions #4

- Hematologic reactions
  - Neutropenia, eosinophilia, leukopenia, pancytopenia, thrombocytopenia, agranulocytosis, aplastic anemia
- Skin reactions
  - Rash, erythema, irritation, skin eruptions, exfoliative dermatitis, Stevens--Johnson syndrome, ecchymosis, purpura

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NSAIDs: Adverse Reactions #5

- Metabolic/endocrine reactions
  - Decreased appetite, weight increase or decrease, hyperglycemia or hypoglycemia, flushing, sweating, menstrual disorders, vaginal bleeding
- Other
  - Taste change, rhinitis, tinnitus, visual disturbances, thirst, fever, chills, vaginitis

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NSAIDs: Contraindications

- Cross-sensitivity, if allergic to one NSAID, there is increased risk of allergic reaction to others; hypersensitivity to aspirin; for post-operative pain following CABG; during third trimester of pregnancy and lactation
- Ibuprofen: hypertension, peptic ulceration, or GI bleeding
- Celecoxib: allergic to sulfonamides, or history of cardiac disease or stroke

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NSAIDs: Precautions

- Cautious use: pregnancy (pregnancy category B); elderly patients; patients with bleeding disorders, renal disease, cardiovascular disease, hepatic impairment

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NSAIDs: Interactions #1

- Anticoagulants: increased risk of bleeding
- Lithium: increased effectiveness of and possible toxicity of lithium
- Cyclosporine: increased effectiveness of the cyclosporine
- Hydantoins: increased effectiveness of the anticonvulsant
- Diuretics: decreased effectiveness of the diuretic

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NSAIDs: Interactions #2

- Antihypertensive drugs: decreased effectiveness of antihypertensive drug
- Acetaminophen in long-term use: increased risk of renal impairment

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Drugs Used in the Treatment of Migraine Headaches

- Pain associated with migraine headaches is believed to be caused by vascular spasms. Drugs used to treat migraine headaches are given:
  - Prophylactically to prevent the spasms
  - To treat the acute pain when a migraine occurs

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Actions and Uses

- The symptoms of migraine headaches are believed to be caused by local cranial vasodilation and stimulation of trigeminal nerves
- Activation of the 5-HT receptors causes vasoconstriction and reduces the neurotransmission, which in turn produces pain relief
- Selective serotonin drugs are used for the relief of moderate to severe pain and inflammation related to migraine headaches

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Adverse Reactions

- The most common are dizziness, nausea, fatigue, pain, dry mouth, and flushing
- Cardiovascular system
  - Coronary artery vasospasm
  - Cardiac arrhythmias and tachycardia
  - Myocardial infarction

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Contraindications and Precautions

- These drugs are contraindicated in patients with a known hypersensitivity to selective serotonin agonists and should only be used when a clear diagnosis of migraine headache has been established
- 5-HT agonists should not be used in patients with ischemic heart disease (such as angina or myocardial infarction), transient ischemic attacks (TIAs), or uncontrolled hypertension or those patients taking monoamine oxidase inhibitor (MAOI) antidepressants
- These drugs should be used cautiously in patients with hepatic or renal function impairment, such as the elderly or patients requiring dialysis

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Nursing Process: Assessment #1

- Preadministration assessment:
  - History: allergies, GI bleeding, cardiovascular disease, stroke, hypertension, peptic ulceration, or impaired hepatic or renal function; if present notify primary health care provider
  - Assess and document type, onset, intensity, and location of pain
  - Note if pain is different from previous episodes of pain

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Nursing Process: Assessment #2

- Arthritis; musculoskeletal disorder; soft tissue inflammation: examine the joints or areas involved for appearance and mobility
- Evaluate ability to carry out activities of daily living
- Important for plan of care and evaluation of response to drug

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Nursing Process: Assessment #3

- Ongoing assessment:
  - Monitor pain relief; reassess pain rating 30 to 60 minutes following administration of the drug
  - Persisting pain: assess and document severity, location, and intensity; monitor vital signs at least every 4 hours
  - Assess for decrease in inflammation and mobility in joints
  - Report any adverse reactions (dark stools, prolonged bleeding)

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Nursing Process: Nursing Diagnoses

- **Acute** or **Chronic Pain** related to peripheral tissue damage caused by the disease process or GI bleeding or inflammation from NSAID therapy
- **Impaired Physical Mobility** related to muscle and joint stiffness
- **Risk for Injury** related to adverse reaction of NSAID causing damage to optical field
- **Impaired Skin Integrity** related to photosensitivity when using 5-HT agonists

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Nursing Process: Planning

- Expected outcome: optimal response to drug therapy; management of adverse reactions; understanding of and compliance with prescribed treatment regimen

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Nursing Process: Implementation #1

- Promoting an optimal response to therapy:
  - NSAID administered with food, milk, or antacids
  - Several weeks of treatment: full therapeutic response

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Nursing Process: Implementation #2

- Monitoring and managing patient needs
  - Pain
    - Elderly more vulnerable to GI bleeding due to higher incidence of rheumatoid arthritis and osteoarthritis and use of NSAIDs on long-term basis
    - Encourage to take drug with full glass of water and food

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Nursing Process: Implementation #3

- Monitoring and managing patient needs (cont.)
  - Impaired physical mobility
    - Provide comfort measures, support limbs, apply heat or cold, rest joint, avoid overuse
    - Assistive mobility devices such as canes, crutches, walkers

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Nursing Process: Implementation #4

- Monitoring and managing patient needs (cont.)
  - Assist patient using orthopedic and assistive devices
  - Experience increased range of motion and reduced pain/tenderness/swelling
  - Observe for adverse drug reactions, GI bleeding, and cardiovascular reactions

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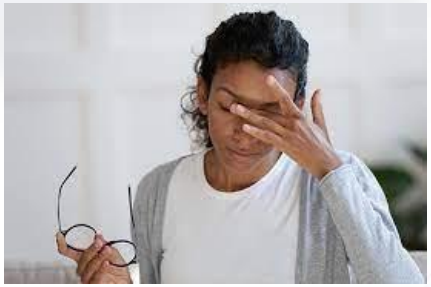
Nursing Process: Implementation #5

- Monitoring and managing patient needs (cont.)
  - Disturbed sensory perception: Visual
    - Causes visual disturbances
    - Report blurred, diminished vision or changes in color vision
    - Visual changes are asymptomatic; patients on long-term therapy need periodic eye examinations



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Nursing Process: Implementation #6

- Educating the patient and family
  - Patients may discontinue the drug, fail to take the drug, increase dose, decrease or increase time intervals when drug is to be taken; the patient and family need to understand the fact that the drug needs to be taken correctly even if symptoms are relieved
  - Develop teaching plan: appropriate prolonged use of the drug

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Nursing Process: Implementation #7

- Educating the patient and family (cont.)
  - Discuss points to be included in teaching plan for a patient receiving NSAIDs
    - »Take exactly as prescribed
    - »Notify dentist or primary health care provider if pain not relieved, fever not reduced
    - »Take drug with food and full glass water

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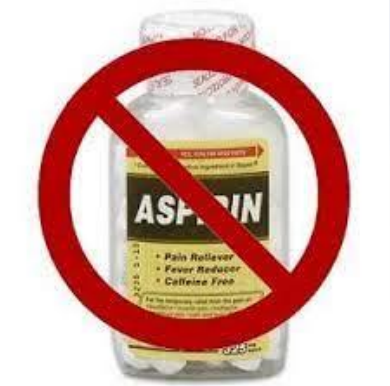
Nursing Process: Implementation #8

- Educating the patient and family (cont.)
  - Inform all health care providers when drugs are taken
  - Consult primary health care provider if fever and temperature remains elevated for more than 24 hours
  - Notify primary health care provider if pain persists more than 10 days or fever more than 3 days
  - Advise not to use aspirin



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Nursing Process: Implementation #9

- Educating the patient and family (cont.)
  - Drug may take several days to produce effect; if not relieved in 2 weeks consult primary health care provider
  - Causes dizziness/drowsiness/blurred vision; use caution while driving or with tasks requiring alertness
  - Notify primary health care provider if adverse reactions occur

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Nursing Process: Evaluation

- Relief from pain and discomfort; better mobility
- Body temperature: normal
- Adverse reactions: identified, reported, and managed
- Patient verbalizes understanding of treatment regimen and adverse effects of the drug

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