Nursing Care for Patients Receiving Medications that Affects Perception and Coordination

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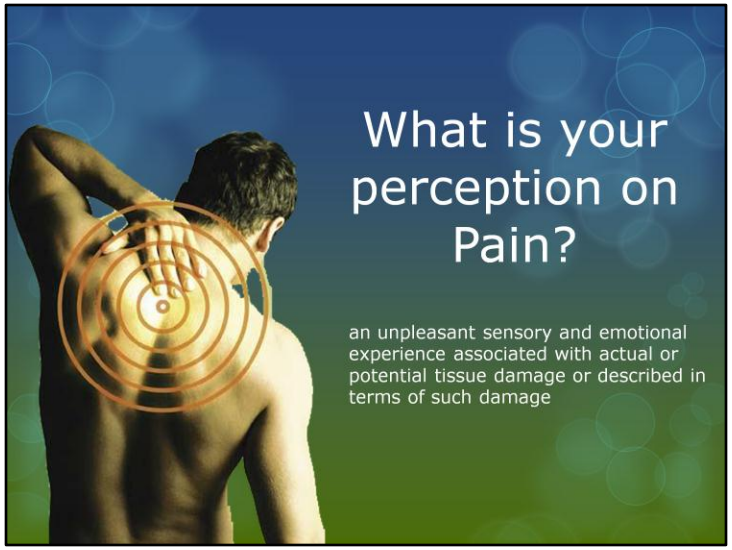


Pain: (international Association for the study of pain)

Is highly subjective and influenced by behavioral, physiological, sensory, emotional and cultural factor for a particular person under a certain set of circumstances.

Pain Perception: (nociception) is an individuals awareness of the feelings or sensation of pain.
Pain Threshold: is the point at which an individual first acknowledge or interprets a sensation as being painful.
Pain Tolerance: individuals ability to reduce pain.

Acute Pain: short term; arises from sudden injury to the structures of the body.
Chronic Pain: slower onset and last longer than 3 months beyond the healing process.

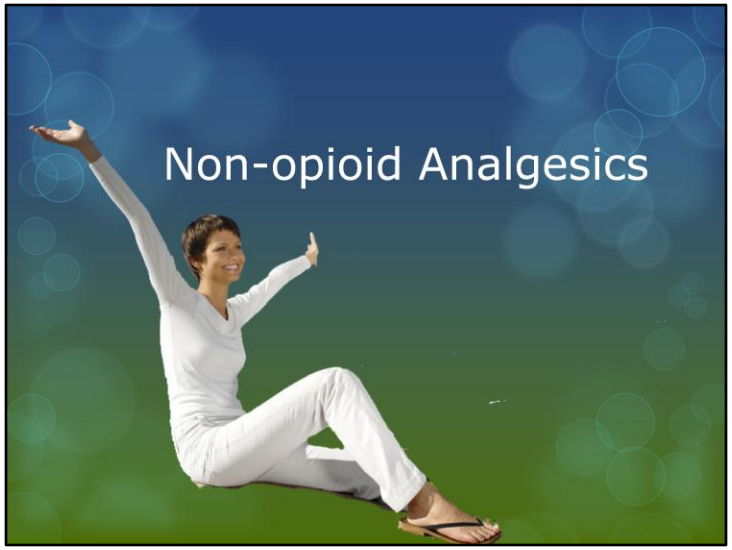
Pathological Classification of Pain
Nociceptive Pain – is the result of a stimulus to pain receptors (dull and aching)
Somatic Pain – originates from the skin, bones, joints, muscles or connective tissue (arthritis pain)
Visceral Pain – originates from the abdominal and thoracic organs

Neuropathic Pain results from injury to the peripheral or CNS (trigeminal neuralgia) (stubbing and burning) phantom limb pain is a neurophatic pain

Idiopathic Pain: nonspecific pain of unknown origin. (Anxiety, depression, and stress are often associated) (Areas: pelvis, neck, shoulders, abdomen and head.)

Analgesics: drugs that relieve pain without loss of consciousness or reflex activity

Non-opioid analgesics, antipyretics, and NSAID's are a broad group of pain medications produce antipretic ands anti-inflammatory effects.
No physical dependence is associated



Non-Opioid Analgesics

I. Drug Overview
Salicylates- widely used pain(slight to moderate) med.
- used to control pain and reduce fever & inflammation
- cheap and easy

Other: choline magnesium trisalicylate
Choline Salicylate
Diflumisal
Salsalate
Sodium Salicylate

II. Pharmacokinetics
Absorbed in the stomach, primarily absorbed in the upper part of the small intestine.
Foods & Antacids
Rectal administration: Slower absorption
Enteric coated: slowly absorbed
Found in body tissues & fluids – breast milk
May cross placenta
Liver metabolizes salicylates
Kidneys excrete metabolites

III. Pharmacodynamics
Relieve pain - Inhibits synthesis of prostaglandins
Reduce inflammation – inhibits prostaglandins synthesis and release that occurs during inflammation
Reduce fever by stimulating the hypothalamus, & producing peripheral blood vessel dilation & sweating. Promotes Heat loss through the skin.
Inhibits Prostaglandin E lowers fever.
Inhibits platelet aggregation by permanently interfering with the production of Thromboxane A2.
NSAID's effect on platelet aggregation is temporary
Aspirin used to enhance blood flow during MI - unique
PO: 8 to 1300 mg daily (325mg QID)

IV. Pharmacotherapeutics
Used to relieve pain/reduce fever
Not for visceral pain or severe trauma
Used in Rheumatic Fever, Rheumatoid arthritis and Osteoarthritis
Main guideline of salicylate is to use the lowest dose that provide relief.
Does not cause mental sluggishness, memory disturbance, hallucinations, euphoria or sedation.

V. Drug Interaction
Highly protein bound
Oral anticoagulants, heparin, methotrexate, oral antidiabetic agents & insulin have increase effects / risk of toxicity when taken with salicylates
Probenecid
Sulfinpyrazone
Spinorolactone
Corticosteroids
Alkalizing drugs and Antacids – reduce salicylate levels
ACE inhibitors & Beta – adrenergic blockers effects are reduce
Warfarin
Phenytoin

NSAID's – decreased therapuetic effects and Increase GI effects

VI. Adverse Reaction
Most common:
Gastric Distress
N/V
Bleeding Tendencies
Other:
hearing loss (prolonged use)
tinnitus
impaired vision
Reyes Syndrome

Side Effect to Expect
Gastric Irritation – administer with food, milk or antacids (1 hour later) or with large amounts of water
Side Effect to Report

Salicylism – salicylate intoxication.
Signs and Symptoms: tinnitus, impaired hearing, diminishing of vision, sweating, fever, lethargy, dizziness, mental confusion, nausea and vomiting

VII. Nursing Process

Assessment:
assess for level of pain & inflammation
Monitor for S/S of bleeding
Ophthalmic and Auditory Function
CBC
Platelet Count
PT
Hepatic and Renal Function
Bronchospasms
Therapeutic Level in a patient with arthritis is 10-30 mg/dl
Evaluate knowledge of drug therapy

Nursing Diagnoses:
- Acute pain rel. to the underlying process
- Risk for injury rel. to adverse reactions
- Deficient knowledge rel. to drug therapy

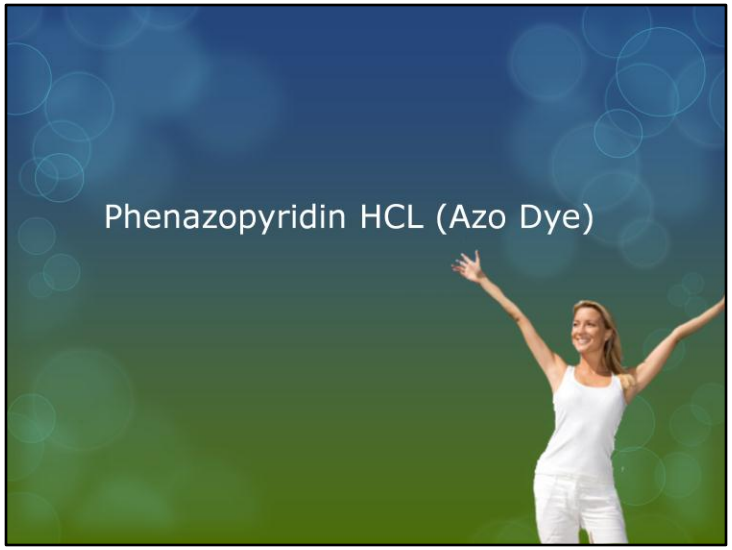
Planning:
- Acknowledge reduce pain
- no serious complication
- verbalize understanding

Intervention:

- Give aspirin with food
- crush tablets if difficult to swallow
- If bleeding, salicylism or adverse GI reaction occur please report
- stop aspirin 5-7 days pre-op

Evaluation:

- pain relieved
- free from adverse GI effects
- states understanding of Drug Therapy



Phenazopyridin HCL (Azo Dye)
Used as commercial dye
Local anesthetic effect on the urinary tract only
Used as drug for pain in patient with UTI.
Tell the client that it causes discoloration of urine
UTI must be diagnosed

Phenazopyridine HCL

I. Drug Overview
Azo Dye used in commercial coloring
Produces a local analgesic effect on UTI within 24-48 hours after the start of therapy
Relieves pain, burning urgency and frequency associated with UTI
Oral: 35% metabolized in the liver

II. Pharmacokinetics
Unknown absorption and Distribution

III. Pharmacodynamics
Local anesthetic effect on the urinary mucosa

IV. Pharmacotherapeutics
Used to relieve pain in urinary tract

VII. Nursing Process

Assessment
Assess patients condition
assess patients level of pain and inflammation
monitor hydration status
evaluate knowledge

Nursing Diagnoses:
Acute pain rel. to the underlying process
Risk for injury rel. to adverse reactions

Deficient knowledge rel. to drug therapy

Planning:

Acknowledge reduce pain
no serious complication
verbalize understanding

Implementation
admin with food to minimize nausea
drug colors urine red/orange
report drug if uneffective

Propoxyphen (Darvon) – Miscellaneous Analgesic
An effective, well tolerated synthetic opiate agonist analgesic structurally related to methadone
1/3 to ½ potent as codeine
Similar to aspirin in potency and duration analgesic effect
Relief of mild to moderate pain (muscular spasms, premenstrual cramps, bursitis, minor surgery and trauma, H/A, Labor and Delivery
Greater relief with the use of aspirin or acetaminophen
Available PO: 65 mg capsules, 100 mg tablets
Antidote, Naloxone, Naltrexone
Side Effect to Expect: Gastric Irritation, Sedation, Dizziness
Side Effect to Report: Excessive abuse, skin rashes

Acetaminophen – Miscellaneous Analgesics
Synthetic Nonopiate Analgesic

Non Steroidal
Anti-inflammatory Drugs – Aspirin like Drugs
Chemically unrelated to salicylates, but are prostaglandin inhibitors, and share many of the ssme therapeutic actions and side effects.

I. Drug Overview
Used for inflammation
Have analgesic & antipyretic effects
blocks COX – 1 & COX - 2

Includes:
indomethacin
ibuprofen
ketorolac
mefenamic acid
pyroxicam
ketoprofen

II. Pharmacokinetics
Absorbed in the GIT
Metabolized in the liver
excreted by the kidneys.

III. Pharmacodynamics
Inhibits prostaglandin synthesis & cyclooxygenase activity
COX -1 produces prostaglandins that maintain stomach lining
COX – 2 produces prostaglandins that mediate an inflammatory response

Inhibition
COX – 1 associated with NSAID induced GI toxicity
COX – 2 alleviates pain & inflammation

IV. Pharmacotherapeutics
Used to decrease inflammation, relieve pain seldom to reduce fever
Conditions that respond to NSAID:
ankylosing spondylitis
Rheumatoid, osteo, acute gouty arthritis
Dysmenorrhea
Migrains
Bursitis
Tendonitis

Mild to moderate pain

V. Drug Interaction
Interact with NSAID; Furosemide, Lithium, Aspirin
indomethacin
piroxicam
sulindac

In April 2005, the US FDA issued a warning about an increased risk of potentially fetal cardiovascular adverse effects that may be a class effect of NSAID's.

VI. Adverse Reaction
Abdominal pain & bleeding
Nausea
anorexia
ulcers
liver toxicity
Head/ache
tinnitus
HPN
pedal edema

Side Effect to expect: Gastric Irritation, Constipation, Dizziness, Drowsiness, GIT bleeding, Confusion, Hives, Pruritus Rash, Nephrotoxicity, Hepatotoxicity, Blood Dyscrasias.

VII. Nursing Process
Assessment

assess underlying conditions

assess level of pain
monitor S/S of bleeding
Monitor opthalmic & Auditory Fxn
Monitor CBC, Platelet count, PT, & Hepatic & renal fxn

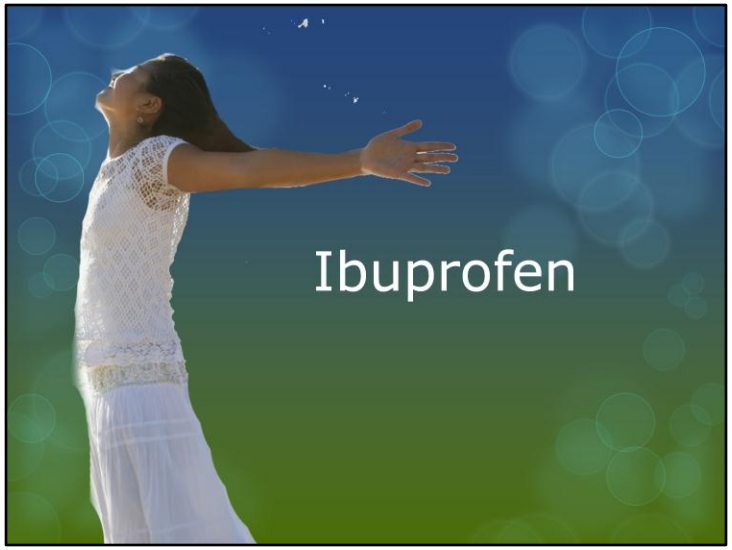
Nursing Diagnoses:
Acute pain rel. to the underlying process
Risk for injury rel. to adverse reactions
Deficient knowledge rel. to drug therapy

Planning:

Acknowledge reduce pain
no serious complication
verbalize understanding

Implementation
Administer with 8 oz of water
crush or mix with food/fluid to aid swallowing
report if ineffective
if renal/hepatic abnormalities occur stop drug and report

Evaluation:
pain relieved
free from adverse GI effects
states understanding of Drug Therapy



Prototype Pro
Ibuprofen
Aens: suppresses synthesis in the CNS

Indication: arthritis, mild to moderate pain & fever

Nsg consideration:
Monitor AE; Steven – Johnsons syndrom; hematologic D/I. aseptic meningitis
1-2 weeks full anti-inflammatory effect
masks s/s of infection

SELECTIVE NSAID's

I. Drug Overview
Block COX – 2 relieving pain & inflammation

Fewer adverse effects
Examples:

Celecoxib
Rofecoxib
Valdecoxib

II. Pharmacokinetics
Highly CHON bound
Peak levels within 3 hours
metabolized – liver
excreted in urine & feces

III. Pharmacodynamics
Inhibits Prostaglandin Synthesis
Still COX – 2 inhibition occurs

IV. Pharmacotherapeutics
Provide analgesia and decrease inflammation
treatment of osteo-rheumatoid arthritis, acute pain, dysmenorrhea and adenomatous polyposis

V. Drug Interaction
Identified for all agents
decrease clearance of lithium
decrease effects of ACE inhibitors
if taken with warfarin – increase PT levels and bleeding complications

Interact with herbal that increase risk of bleeding
Dong Quai
Feverfew, garlic
Ginger, ginkgo, horse chesnut and red clover

VI. Adverse Reaction
Dyspepsia
N/V
GI ulcers
HPN
Peripheral edema
H/A

VII. Nursing Process

Assessment
assess underlying condition
assess allergy to sulfonamides, aspirin/NSAID's
Assess level of pain & inflammation
Monitor S/S of bleeding
Monitor ophthalmic & audio fxn
monitor CBC, Platelet count, Prothrombin Count & hepatic and renal function
Closely monitor patient on Celecoxib for S/S of MI
Evaluate knowledge

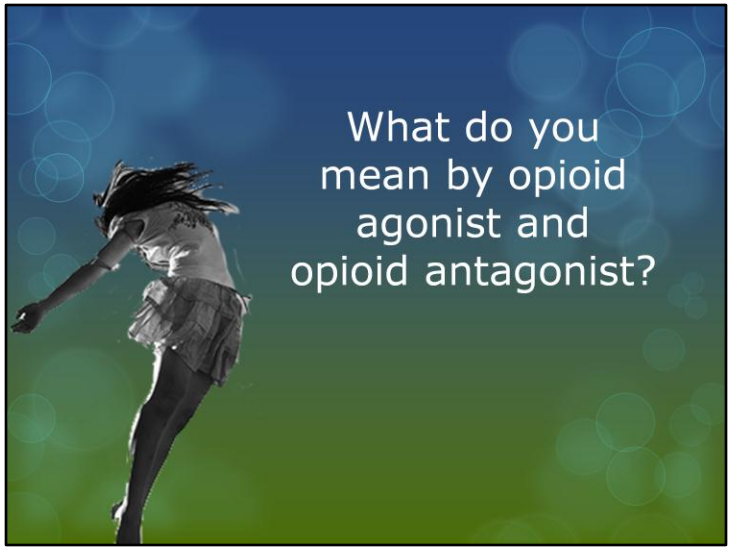
Nursing Diagnoses:
Acute pain rel. to the underlying process
Risk for injury rel. to adverse reactions
Deficient knowledge rel. to drug therapy

Planning:
Acknowledge reduce pain
no serious complication
verbalize understanding

Implementation
Give with foods to decrease GI Upset
Rehydrate patient before treatment

Combination of Aspirin increase risk of GI bleeding
Celecoxib cause fluid retention
report if drug is ineffective

Evaluation:
pain relieved
free from adverse GI effects
states understanding of Drug Therapy
Rofecoxib maybe taken without food.
Takes several days to feel consistent pain relief
increase alcohol may cause irritation and risk of bleeding
Liver toxicity S/S
nausea, fatigue, lethargy, itching, jaundice, RUQ tenderness, flu like symptoms.



Opioid Agonist and Antagonist

I. Drug Overview
Opioid – any derivative of opium plant, opiate was once used to refer to drugs derived from opium (heroin and morphine)

Narcotic – originally it referered to medications that induced a stupor or steep. In the past 80 years it has gradually come to refer to addictive morphine – like analgesics. Abandoned in echange to opiate agonist and opiate partial agonist.

Opioid Agonist – opium derivatives & synthetic drugs with similar properties
Relieve / decrease pain without loosing consciousness
Opioid Antagonist – are not pain medication. Blocks effects of opioid agonist,
Used to reverse drug reactions
May recur patients pain
Mixed Opioid Agonist – Antagonist – have agonist & antagonist properties

Agonist property – decrease pain
Antagonist property – decrease risk of toxicity & drug dependence
MOA-A - decrease risk of respi depression and Drug Abuse

Opioid Agonist

Codeine
Fentanyl Citrate
Hydrocodone
Hydromorphone HCL
Meperidine HCL
Methadone HCL
Morphine Sulfate
Remifentanil

Prototype Pro
Morphine Sulfate
Acts on Opiate Receptors in the CNS
For Pain
Monitor for adverse effects such as sedation, seizures, shock, cardiac arrest, respi deppression
Naloxone (Opioid Antagonist) & resuscitation Equipment should be Available

II. Pharmacokinetics
Any route, inhalation is uncommon
Oral: Absorbed from GIT
Transmucosal & Intrathecal opiates are fast acting
Sub-Q & IM delayed absorption
distributed throughout body tissues
Low plasma protein-binding capacity
liver lovers
excreted by the kidneys

III. Pharmacodynamics
Act by stimulation of the opiate receptors in the CNS.
Causes physical dependence (controlled)
Addiction develops after 3-6 weeks of continual use if used for recreational purposes) (Appear symptomatic)
Decrease pain by binding to opiate receptor sites in PNNS & CNS
stimulate opiate receptors, mimic the effects of endorphins
Receptor site binding produces analgesia & cough suppression
Morphine affect muscle of GI & Genito-urinary tracts causes contractions of the bladder & ureters & decrease intestinal peristalsis, resulting in constipation a common AR
Cause dilation of blood vessels in the face, head and neck, suppress cough center, antitussive effects & constriction of bronchial muscles

IV. Pharmacotherapeutics
Chronic, moderate – severe pain (Acute injury, post operative pain, renal or billiary colic, MI and cancer)
Prescribed to relieve severe pain
sometimes for controlling diarrhea & suppress coughing
Methadone is used for temporary maintenance of opioid addiction
Tramadol – new synthetic opiate agonist that acts as an analgesic by selectively binding to M-receptors and inhibiting the reuptake of norepinephrine and serotonin.

General anesthesia
Fentanyl and Remifentanil
Morphine relieves shortness of breath in AEG with pulmo edema

V. Drug Interaction
Drugs that affect opioid analgesic activity:
Amitriptyline, protease inhibitors, dilantin, diazepam and rifampin
Drugs affected by opioid analgesics are:
Carbamazepine –enhance metabolism of tramadol reducing analgesic effect
Warfarin – its anticoagulant effect may be increased by tramadol.
Beta-adrenergic blockers
Ca channel blockers

VI. Adverse Reaction
Side-effect to expect: lightheadedness, dizziness, sedation, nausea and vomiting, sweating, confusion, disorientation, orthostatic hypotension, constipation.
Side Effect to report: Respiratory Depression, urinary retention, excessive use or abuse.
Decreased rate and depth of breathing that worsens as the dose of narcotic is increased.
Respi depression
constipation

VII. Nursing Process

Assessment
assess baseline pain
evaluate respi status
monitor for abnormal reactions
monitor for tolerance / dependence
Signs of Tolerance
Shortened duration of effect

Planning:
Anitdotes, Nalmefene, naloxone, naltrexone
Acknowledge reduce pain
maintain adequate breathing fxn
verbalize understanding

Implementation
Keep resuscitative equipment and naloxone available
IV by slow injection
IM/SC cautiously to patient with decreased platelet count

Rotate injection site.
Note the strength of solution
Schedule rather than PRN – maximum effectiveness
institute safety precaution
post-op aeg to turn cough and deep breath

Early Signs of Withdrawal: restlessness, perspiration, gooseflesh, lacrimation, runny nose and mydriasis (dilation) reach a peak of 36 – 72 hours after dc and disappear over the next 5 to 14 days.

Over 24 hours: muscular spasm, severe headache in the back of the abdomen and legs, abdominal and muscle cramps; hot and cold flashes, insomnia, nausea, vomiting and diarrhea, severe sneezing and increased temperature.

Withdrawal Symptoms
Tremors
Agitation
N/V
if drug is stopped rapidly

Evaluation
Pain is relieved
maintain adequate ventilation
Understanding of DT

Mixed Opioid Agonist – Antagonis (opiaite partial agonist) – interesting drug class. Function: opiaite agonist has been administered previously and extent of physical dependence.
When used without prior administration of opiate agonist – effective analgesics.
Addicts to morphine and Meperidine will induce withdrawal signs and symptoms from the opiate agonist.
Has a ceiling effect.

I. Drug Overview
Used to relieve pain while reducing toxic effects and dependency
Buprenorphine
Butarphanol
Butarphanol HCL
Butarphanol Tartrate
Nalbuphine HCL
Pentazocine HCL
Less abuse potential
Not recommended for use in chronic pain who are taking other opioid agents

II. Pharmacokinetics
Rapid absorption in parenteral sites
Distributed to most body tissues
Crosses the placenta

III. Pharmacodynamics
Metabolized in the liver
Excreted in the kidneys
Small amounts in stool

III. Pharmacodynamics
Mechanism of action unknown
weakly antagonize the effects of Morphine, meperidine and other opiates at one of the opioid receptors
Also exert agonist effects at other opioid receptors
Buprenorphine binds receptors in the CNS, altering the emotional response to pain through an unknown mechanism
Butorphanol site of axn may be opposite opiate receptors in the limbic system
involved

IV. Pharmacotherapeutics
Used as analgesia during childbirth as well as postoperatively – maybe used for short term relief (3 weeks) of moderate to severe pain

MOAA- prescribed in place of opioid agonist.

V. Drug Interaction
Increase CNS depression and decrease RR and depth results if mixed with CNS depressants such as barbiturates and alcohol. Opiate Agonist

VI. Adverse Reaction
Side effect to expect : clamsiness, dizziness, sedation, nausea and vomiting, dry mouth, sweating, constipation

Side effect to report: confusion, disorientation, hallucinations, respiratory depression, excessive use or abuse.
N/V
light – headedness
sedation
euphoria

VII. Nursing Process

Assessment
Check prior use of opiate agonist.
assess baseline pain
evaluate respi status
monitor for tolerance
Acute Pain related to underlying
Ineffective breathing pattern related to depressive effect on respi status
Deficient knowledge related to DT

Planning:
Acknowledge reduce pain
no serious complication
verbalize understanding

Implementation
Keep resuscitative equipment and naloxone available
IV slow injection
institute safety precaution
encourage post-op to turn, cough and breath every 2 hours

Evaluation:
pain relieved
maintain adequate ventilation
states understanding of Drug Therapy

Opioid Antagonist

I. Drug Overview
Attach to opiate receptors but don't stimulate them
it prevent opioid drugs, enkephalins and endorphins from producing their effects

Nalmefene (Revex) pure opiate antagonist related to naltrexone. It has no effect on its own other than its ability to reverse the respiratory depression, sedation and hypotension. Has longer duration of action than naloxone. If administered to a person addicted with agonist or partial agonist withdrawal symptoms may occure. DOC to treatment of respiratory depression when excessive doses of opiate agonist or opiate partial agonist have been administered or when causative agent is unknown.

Naloxone HCL – pure opiate antagonist reverse CNS depressant effects of opiate agonist. It is not effective in CNS depression induced by tranquilizers or sedative hypnotics.
Naltrexone HCL

II. Pharmacokinetics
Naloxone – IVTT, SC, IV
Naltrexone – orally, tablet/liquid
Metabolized – liver
excreted – kidneys

III. Pharmacodynamics
Competitive process blocks the effects of opioids by occupying receptor sites, displacing opioids attached to opiate receptors and blocking further binding

IV. Pharmacotherapeutics
Naloxone – DOC for managing opioid overdose.

Naltrexone – used in psychotherapy or counseling to treat drug abuse. C/I for patient who is not detoxified. Prevents craving.

V. Drug Interaction
Naloxone produces no significant DI
Naltrexone produce withdrawal symptoms

VI. Adverse Reaction
Naltrexone;

Edema
HPN
SOB
Anxiety
H/A. N/V
liver toxicity

Naloxone
Side effects to expect: Mental Depression, apathy, Nausea, vomiting

VII. Nursing Process

Assessment
assess opioid use before surgery
assess drug effectiveness
monitor RR
Monitor hydration status
Evaluate hydration status
Naltrexone: manufacturer recommends a minimum of 7 to 10 days of abstinence from all opiates.

Diagnoses
Ineffective health maintainance related to opioid use
risk for deficient fluid volume related to drug induced AR, GI Rxns
Deficient knowledge related to DT

Planning
Demonstrate improved health
maintain adequate hydration

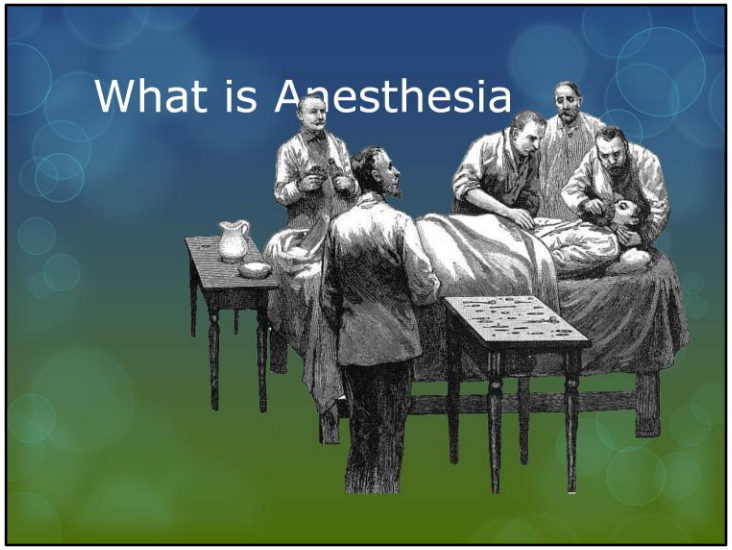
Verbalize understanding of DT

Planning
Demonstrate improved health
maintain adequate hydration
Verbalize understanding of DT

Implementation
proveide O2 ventilation and other resuscitation measures
be prepared to give continuous IV naloxone infusion to control AE of epidural morphine

Evaluation
Responds well to Dt
maintains adequate ventilation
state understanding of DT


Anesthetics
General, Local, Topical

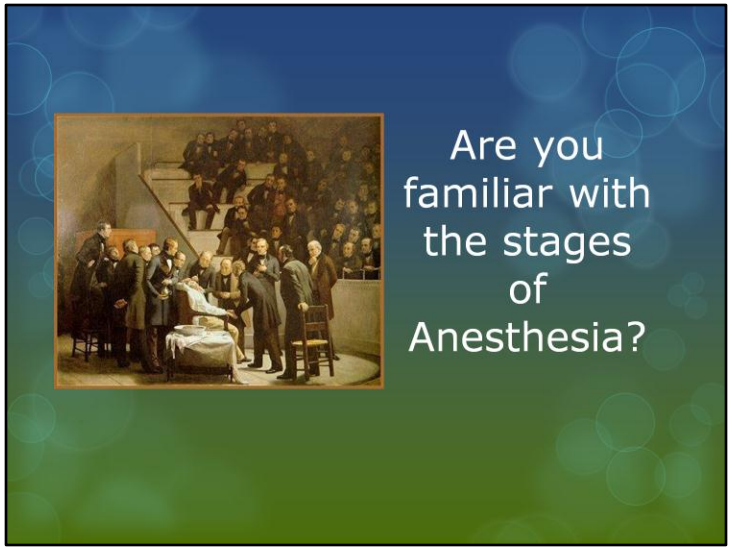


Anesthesia – is an artificially induced state of partial or total loss of sensation with or without loss of consciousness.

Anesthetic Agents can produce muscle relaxation, block transmission of pain nerve impulses and suppress reflexes. It can also temporarily decrease momory and retrieval and recall.
Anesthesiologist – patients internist in the perioperative period as well as to provide anesthesia safely during the surgical procedure

1 death per 10,000 death due to anesthesia.

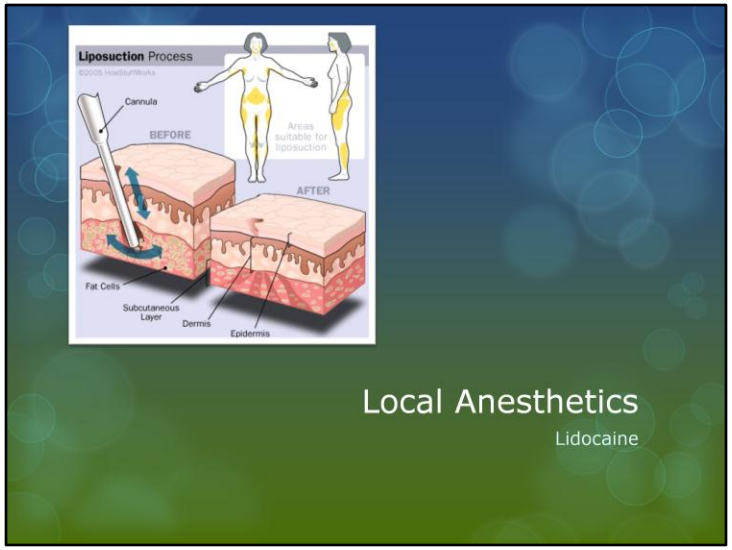
Sleep is a state of unconsciousness from which the patient can be aroused by appropriate stimulus.



4 Stages of Anesthesia

Onset – Anesthetics administration – loss of consciousness
Drossy / dizzy, possible auditory / visual hallucinations
Close OR doors, keep room quiet, standby to assist client
Excitement – loss of consciousness – loss of eyelid reflexes
Increase in autonomic activity
Rapid breathing
May struggle
Remain quiet, assist anaesthesiologist.
Surgical Anesthesia – loss of eyelid reflexes – loss of most reflexes, depression of vital functions.
Unconscious, muscles are relaxed
No blinking / gag reflex
Begin skin preparation
Danger (Death) functions excessively depressed – respiratory and circulatory failure
Not breathing, absent heart beat

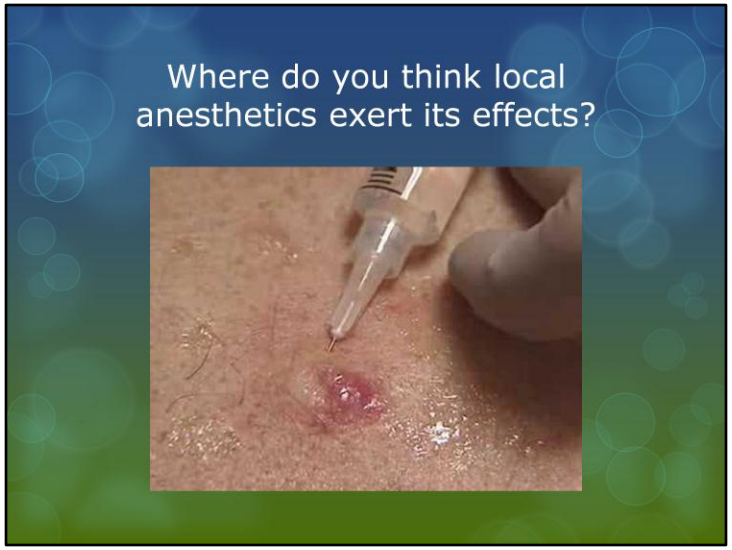
Establish airway, provide e-cart, drugs, syringes etc.



Administered to prevent or relieve pain in a specific area of the body. Used as alternative for GA in elderly patients.

Classification

Amide Drugs: with nitrogen in the molecular chain, such as Bupivacaine, Ropivacaine, lidocaine, levobupivacaine, mepivacaine, prilocaine
Ester Drugs: with oxygen in the molecular chain, such as procaine, chloroprocaine, tetracaine.



Pharmacokinetics

- Absorption varies but absorbed throughout the body. Amides and Esters undergo different types of metabolism but yield metabolites that excreted in the urine.

Pharmacodynamics

Block nerve impulses at the point of contact in all kinds of nerves. (membranes expands, cell losses ability to depolarize – necessary for impulse transmission.

Pharmacotherapeutics

Used to prevent and relieve pain caused by medical procedures, diseases or injuries.
Used for severe pain that is uncontrolled by topical anesthetics and analgesics
Combined with epinephrine, that constricts blood vessels. Controls bleeding and reduces absorption of anesthetics. Reduce absorption means prolonged effect.

Drug Interactions

Produces few significant interactions with other drugs.

Adverse Reactions

Dose related CNS reactions: Anxiety, apprehension, restlessness, nervousness etc.
Dose related Cardio reactions: myocardial depression, bradycardia, arrythmias, hypotension, cardiac arrest.

Nursing Process

ASSESMENT

Assess patients use of medication (herbal) especially within the past 3 days.
Assess drug allergies and risk for complications of anesthesia and surgery (Cigarette smoking, obesity, limited exercises, cardio, respi, renal and other disease process.)
Assess the VS, Lab data, and his physical condition for baseline and monitoring changes.

Nursing Diagnosis

Risk for injury related to impaired sensory perception from anesthetic or sedative drugs.
Risk for ineffective breathing pattern related to respiratory depression.
Deficient knowledge related to drug therapy.

Planning

Risk for injury will be minimized

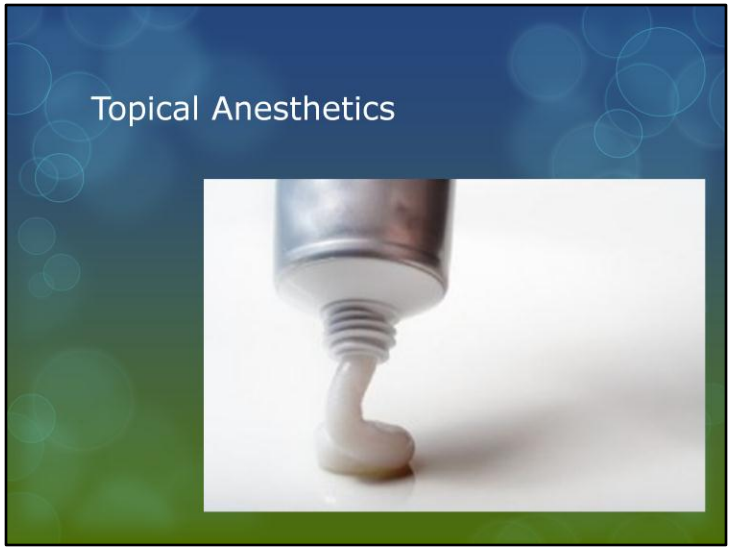
Maintain adequate ventilation and breathing pattern
Verbalize understanding of the purpose and intended effect of drug therapy.

Interventions

Explain the preoperative and expected postoperative phases of recovery period.
Review, deep breathing, coughing, leg exercises, early ambulation, maintaining fluid balance and urine output.
Monitor VS, LOC, Respi and Cardio Status, Lab results as indicated.

Evaluation

Remains free from major complications
Maintains adequate ventilation
Understand the use of anesthetic drugs



Applied directly to intact skin or mucus membranes. Lidocaine and tetracaine are effective topicaly.

Pharmacokinetics

Produce systemic Absorption except for the application of procaine to mucous membranes.
Tetracaine and other esters are metabolized in the blood and to a lesser extent to the liver. Dibucaine, lidocaine, and other amides are metabolized primarily in the liver. Both types of anesthetics are excreted in the urine.

Pharmacodynamics

Benzocaine, butacaine, butamben, procaine, dyclonine and pramoxine produce topical anesthesia by blocking nerve impulse transmission.
Dibucaine, lidocaine, and tetracaine block impulse transmission across nerve cell membranes.
Benzyl Alcohol and clove oil stimulate nerve endings causes counterirritation that interferes with pain perception.
Ethyl Chloride spray superficially freezes the tissue, stimulating the cold sensation receptors and blocking the nerve endings in the frozen area.

Pharmacotherapeutics

Relieve or prevent pain
Relieve itching and irritation
Anesthetize an area before an injection is given
Numb mucosal surfaces before a tube. (Urinary Catheter)
Alleviate sore throat or mouth pain.
Tetracaine is also used as topical anesthetics for the eye

Drug Interactions

They aren't absorbed well into the systemic circulation therefore few interactions with other drugs may occur.

Adverse Reactions

Hypersensitivity reaction: rash, itching, hives, swelling of the mouth and throat, and breathing difficulty.
Benzyl alcohol can cause topical reactions such as skin irritations
Refrigerants, such as ethyl chloride, may produce frostbite at the application site.

ASSESMENT
Assess underlying condition.
Assess the VS, Lab data, and his physical condition for baseline and monitoring changes.

Nursing Diagnosis
Risk for injury related to impaired sensory perception from drug therapy
Acute Pain related to underlying process

Deficient knowledge related to drug therapy.

Planning
Verbalize understanding of the purpose and intended effect of drug
Risk for injury will be minimized
Patient will acknowledge reduction of pain
Interventions
Explain purpose of therapy
Monitor VS, level of pain, respi and cardio status, lab results.
Monitor patients response to pain
Evaluation
Remains free from major complications
Understand the use of anesthetic drugs
Pain lessened with drug therapy

Major Conduction Anesthesia

Epidural – Epidural space cannulation and subsequent infusion of local anesthetic agents / opioids (Fentanyl, Morphine, Meperidine, Hydromorphone)

Spinal – placemet of anesthetic drugs into the subarachnoid space via puncture of the dura matter.

Major Nerve Block

Brachial plexus block – arm and shoulder

Cervical Plexus Block – neck and carotid

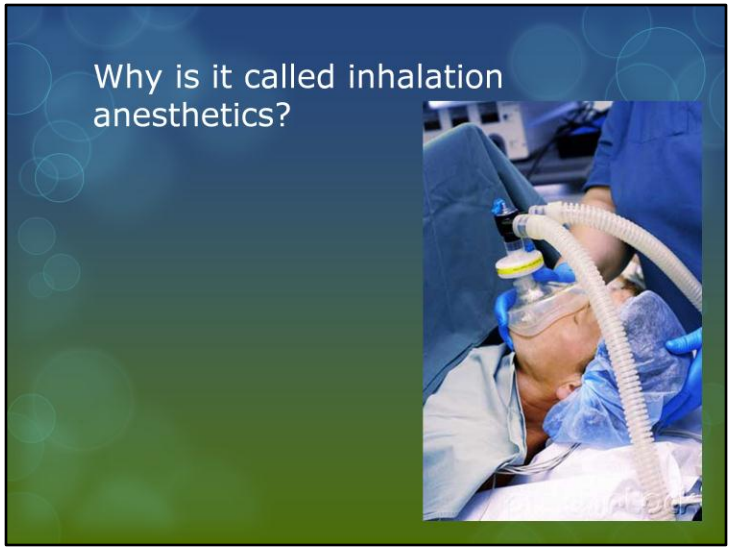
Femoral – sciatic nerve block – upper and lower leg procedure

3 in 1 nerve block (femoral, obturator, lateral femoral cutaenous nerve) blocks for upper leg procedures, popliteal fossa nerve blocks for lower leg procedures and ankle for foot procedure.

Paravertebral blocks – upper abdominal and thoracic procedures and retrobulbar blocks and used for eye procedures.

General Anesthesia – inducing a state of unconsciousness with analgesia, amnesia, and immobility.

General Anesthetics – Inhalation and IV



Inhalation Anesthetics

Halothane
Isoflourane
Nitrous Oxide
Desflurane
Sevoflurane

Pharmacokinetics

Inhalation Anesthetics – from the lungs to the blood and are distributed to other tissues. Distribution is good to organs with high blood flow – brain, liver, kidneys, and heart. Eliminated by the lungs; enflurane, halothane, and sevoflurane are also eliminated by the liver. Metabolites are excreted in the urine.

Pharmacodynamics

Depresses the CNS, producing loss of consciousness, loss of responsiveness to sensory stimulation, and muscle relaxation. Also affect other organ system.

Pharmacotherapeutics

Used for surgery- offer more precise and rapid control of depth of anesthesia. Desflurane, isoflurane, and nitrous oxide are most commonly used.

Contraindication

Hypersensitivity
Liver disorder
Malignant hyperthermia
Caution in predgnant women

Drug Interactions

CNS Depression
Cardiac Arrythmias
Respiratory depression

Adverse Reactions
Occurs within 30 minutes of induction / several hours post-operative
Genetic disorder characterized by uncontrolled skeletal muscle contractions leading to potentially fatal hyperthermia (Halothane)
Malignant hyperthermia
Depression of breathing and circulation
Confusion
Sedation
Nausea
Vomiting
Ataxia
Hypothermia

- Rarely liver necrosis develops several days after halothane use and most commonly with multiple drug exposures. (Symptoms: rash, fever, jaundice, nausea, vomiting, eosinophilia, and altered liver function.
Nursing Process

ASSESMENT

Assess patients use of medication (herbal) especially within the past 3 days.
Assess drug allergies and risk for complications of anesthesia and surgery (Cigarette smoking, obesity, limited exercises, cardio, respi, renal and other disease process.)
Assess the VS, Lab data, and his physical condition for baseline and monitoring changes.

Nursing Diagnosis

Risk for injury related to impaired sensory perception from anesthetic or sedative drugs.
Risk for ineffective breathing pattern related to respiratory depression.
Deficient knowledge related to drug therapy.

Planning

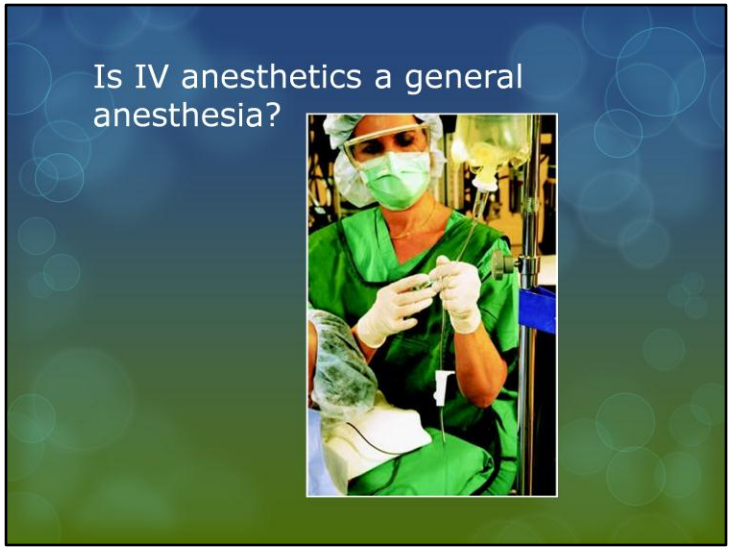
Risk for injury will be minimized
Maintain adequate ventilation and breathing pattern
Verbalize understanding of the purpose and intended effect of drug therapy.

Interventions

Explain the preoperative and expected postoperative phases of recovery period.
Review, deep breathing, coughing, leg exercises, early ambulation, maintaining fluid balance and urine output.
Monitor VS, LOC, Respi and Cardio Statu, Lab results as indicated.
Ventilation, circulation, ocygenation and temperature be evaluated continually during all anesthetics
Monitor precordial and esophageal stethoscopes, intermittent blood pressure monitors, continuous electrocardiograph, pulse oximetry and temperature probes.

Evaluation

Remains free from major complications
Maintains adequate ventilation
Understand the use of anesthetic drugs



IV Anesthetics

- Usually used as GA when anesthesia is needed for only a short period. Also used to promote rapid inductionof anesthesia or to supplement inhalation anesthetics.

Examples:

Barbiturates: thiopental, methohexital (sedative hypnotics) produces relaxation and rest
Benzodiazepine: Midazolam
Dissociatives: Ketamine
Hypnotics: Propofol, etomidate a drug that produces sleep
A good hypnotics: restful natural sleep duration of action that allows a patient to awaken at the usual time natural awakening with no hangover effects.
No danger of habit formation.
Opiates: Fentanyl, sufentail.

Pharmacokinetics

Lipid soluble and distributed throughout the body
Cross placenta and breast milk
Metabolized in the liver and excreted in urine.

Pharmacodynamics

Opiates work by occupying sites on specialized receptors scattered throughout the CNS and modifying the release of neurotransmitters from the sensory nerve entering the CNS. Ketamine acts directly on the cortex and limbic system of the brain to induce profound sense of dissociation.
Barbiturates, benzodiazepines and etomidate seem to enhance responses to the CNS neurotransmitter gamma-aminobuteric acid thus inhibiting brains alert responses. Barbiturates depresses the excitability of CNS neurons.

Pharmacotherapeutics

Shorter surgical procedures
Barbiturates are used in surgeries that isn't expected to be painful and as adjuncts in more extensive procedures.
Benzodiazepines produce sedation and anesthesia but not pain relief.
Etomidate used to induce anesthesia and to supplement low-potency inhalation anesthetics (Nitrous Oxide)
Opiates provide pain relief and supplement other anesthetic drugs

Drug Interactions

Verapamil enhances the effects of etomidate – respi depression and apnea.
Ketamine with halothane increases the risk of HypoTN and reduces cardiac output.
Ketamine with barbiturates or opioids prolong recovery time.
Ketamine with thyroid drugs causes HPN and tachycardia.

Adverse Reactions
Ketamine: irrational behavior, excessive salivation, tearing, HPN, prolonged recovery, shivering, seizures etc.

Propofol: respi depression, hiccups, muscle twitching and coughing.

Thiopental: Respi depression, hiccups, muscle twitching and depressed cardiac function and peripheral dilation.

Etomidate: Hiccups, coughing, muscle twitching

Fentanyl: CNS and respi depression, hypoventilation, arrythmias

Midazolam: CNS and respi depression, hypoTN, dizziness

Nursing Process
ASSESMENT

Assess patients use of medication (herbal) especially within the past 3 days.
Assess drug allergies and risk for complications of anesthesia and surgery (Cigarette smoking, obesity, limited exercises, cardio, respi, renal and other disease process.)
Assess the VS, Lab data, and his physical condition for baseline and monitoring changes.

Nursing Diagnosis

Risk for injury related to impaired sensory perception from anesthetic or sedative drugs.
Risk for ineffective breathing pattern related to respiratory depression.
Deficient knowledge related to drug therapy.

Planning

Risk for injury will be minimized
Maintain adequate ventilation and breathing pattern
Verbalize understanding of the purpose and intended effect of drug therapy.

Interventions

Explain the preoperative and expected postoperative phases of recovery period.
Review, deep breathing, coughing, leg exercises, early ambulation, maintaining fluid balance and urine output.
Monitor VS, LOC, Respi and Cardio Statu, Lab results as indicated.
Monitor patients response to pain medication

Evaluation

Remains free from major complications
Maintains adequate ventilation
Understand the use of anesthetic drugs

Michael J. Fox

Anti-Parkinsonian Agents

Pharmacodynamics

Antiparkinsonian agents are anticholinergic and dopaminergic drugs used to control the symptoms of Parkinson's Disease by changing the neurotransmitters produced in the brain.

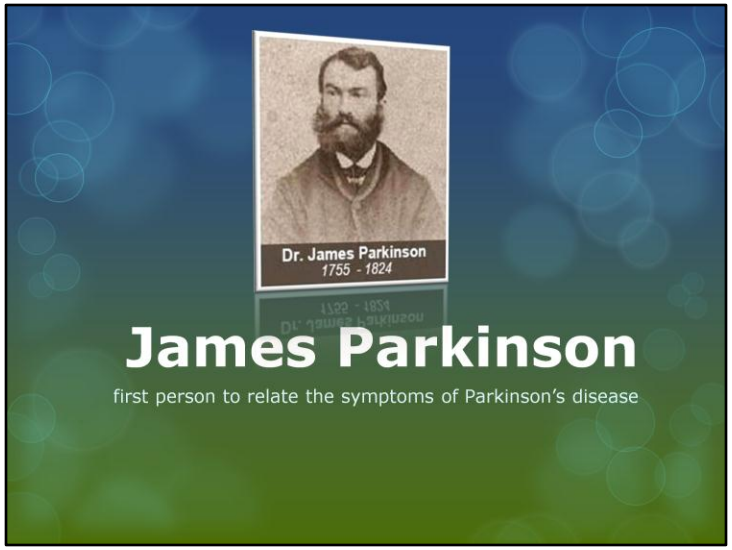
The two main action of antiparkinsonian agents are
1. To block the uptake of acetylcholine at postsynaptic muscarinic cholinergic receptor sites. (Anticholinergic)
Only anticholinergic drugs that are centrally active (ie, those that penetrate the blood–brain barrier) are useful in treating parkinsonism.
Atropine and scopolamine are centrally active but are not used because of a high incidence of adverse reactions. In addition to the primary anticholinergic drugs, an antihistamine (diphenhydramine) is used for parkinsonism because of its strong anticholinergic effects.
Anticholinergic drugs decrease the effects of acetylcholine. This decreases the apparent excess of acetylcholine in relation to the amount of dopamine.

2. To elevate the functional levels of dopamine in motor regulatory centers. (Dopaminergic)
Levodopa, carbidopa, amantadine, bromocriptine, pergolide, pramipexole, ropinirole, selegiline, entacapone, and tolcapone increase dopamine concentrations in the brain and exert dopaminergic activity, directly or indirectly. **Levodopa is the** mainstay of drug therapy for idiopathic parkinsonism. Carbidopa is used only in conjunction with levodopa. The other drugs are used as adjunctive agents, usually with levodopa.
Levodopa is a precursor substance that is converted to dopamine.

Drugs used in Parkinson's disease increase levels of dopamine (levodopa, dopamine agonists, monoamine oxidase [MAO] inhibitors, catechol-*O-methyltransferase [COMT] inhibitors)* or inhibit the actions of acetylcholine (anticholinergic agents) in the brain. Thus, the drugs help adjust the balance of neurotransmitters. These drug wide range of effects on all the tissue affected by the autonomic nervous system, including the eyes, respiratory tract, heart, GIT, urinary bladder, nonvascular smooth muscle, exocrine glands and CNS.

Antiparkinsonian agents reduce muscle tremors and rigidity and improve mobility, muscular coordination and performance.

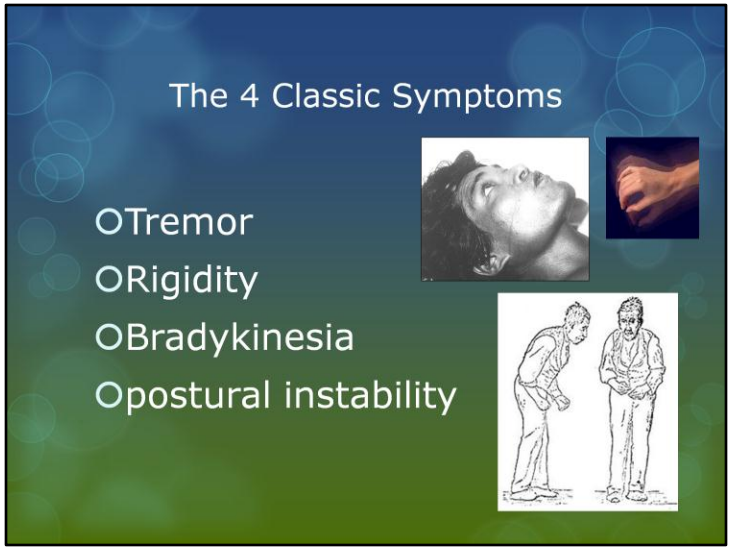
Classic parkinsonism probably results from destruction or degenerative changes in dopamineproducing nerve cells. The cause of the nerve cell damage is unknown; age-related degeneration, genetics, and exposure to toxins (eg, carbon monoxide, organophosphate pesticides) are possible etiologic factors. Early-onset parkinsonism (before 45 years) is thought to have a genetic component.



James Parkinson: the first person to relate the symptoms of Parkinson's disease (Shaking Palsy) in 1817.

Parkinson Disease: a progressive chronic, neurologic illness that affects the neurons in the substancia nigra of the brain where dopamine is produced.

This in turn causes an imbalance of neurotransmitters, dopamine, and acetylcholine.



The 4 Classic Symptoms: Tremor, rigidity, bradykinesia (slow movement), and postural instability.

Drug Therapy: main treatment for Parkinson's disease. No cure.

Stavelo: carbidopa, levodopa, and entacapone (tablet form)

Biperiden (Akineton): Anticholinergics
Levodopa (Dopar): Dopaminergics
Tolcapone (Tasmar): Catechol-o-methyl transferase (COMT) inhibitor


Anti Parkinson's Drugs
Client Teaching

Anticholinergics

- Do not breast-feed
- Suck on hard candy and perform frequent mouth care if you experience dry mouth
- No activities requiring concentration until effects of drug are known
- Drug dose may be increased as you develop tolerance to the drug over time
- Urinate before taking the drug if urinary retention is a problem

COMT Inhibitor

- No hazardous activities until drug response is known
- No alcohol or sedative drugs
- Change positions slowly
- Drug must be stopped abruptly
- Do not breast-feed
- Notify physician of : fainting, hallucination, severe diarrhea, increased loss of muscle control, or yellow eyes or skin.

Dopaminergics

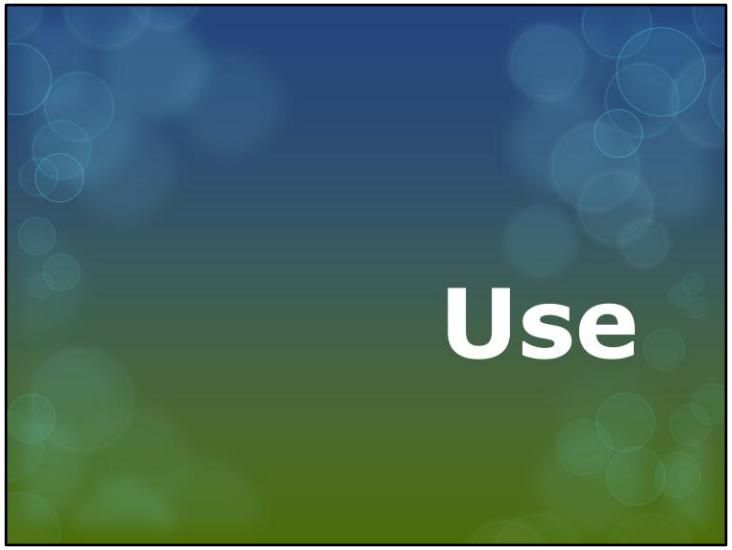
- Do not breast-feed
- Drugs benefit may not be seen for weeks or months
- Avoid foods high in protein and pyridoxine (Vitamin B6)
- Check with physician before taking any OTC drugs
- Urine and perspiration may turn dark in color
- Drug must not be stopped abruptly
- Change positions slowly


Action

Inhhibit the action of acytelcholine in the CNS, which assists in keeping the ratio of acetylcholine to dopamine in proportion.

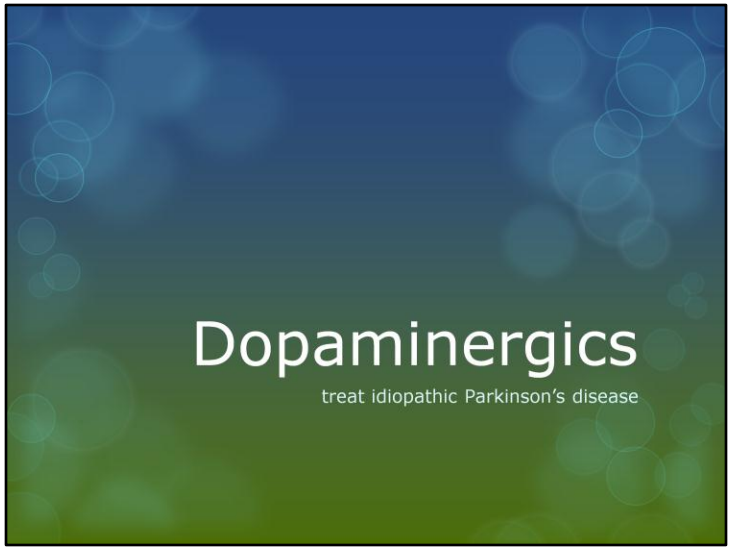
Elevate the level of dopamine in the substantia nigra, as well as excite the dopamine receptors located there

Inhibits enzyme COMT, which metabolizes levodopa. This leads to increased in the brain.


Use

Parkinson's disease with minor symptoms who are unable to take dopaminergics or given with other anti-Parkinson's drugs

Also for, clients experiencing symptoms of Parkinson's disease from the use of antipsychotic drugs



Given to treat idiopathic Parkinson's disease in clients with working dopamine receptors

Adjunct to levodopa / carbidopa


Adverse Effects

PRC C
CNS: Muscle weakness, dizziness, drowsiness, agitation, hallucinations, delusions, confusion, depression
CV: Increased HR, postural hypotension
EENT: Photophobia, blurred vision
GI: constipation, nausea, vomiting, dry mouth

PRC C, except for pergolide (Permax) PRC B

CNS: Bradykinetics episodes, abnormal movements, bruxism, ballismus, fatigue, H/A, confusion, agitation, insomnia, psychosis with hallucinations, delusions, and depression

CV: Elevated HR, OH, HPN, edema

Derm: hairloss, flushing, increased perspiration

EENT: blurred vision, diplopia, blepharospasm

GI: Liver toxicity, dry mouth, nausea, vomiting, anorexia, flatulence, diarrhea, or constipation

GU: urinary incontinence or retention, priapism, postmenopausal bleeding, dark urine

Resp: Abnormal breathing patterns, rhinorrhea

Other: Dark urine or perspiration, weight loss or gain.

PRC C
CNS: Dizziness, dyskinesia, daytime sleepiness, dystonia, hallucinations
CV: OH
GI: Nausea, diarrhea, liver failure


Contraindications

Genitourinary or GI obstruction
Myasthenia gravis
Narrow-angle glaucoma
Lactation
Pregnancy
Cautious use in cardiac arrhythmias, liver disease, HPO or HPN
Allergy

Allergy
History of melanoma
Closed-angle glaucoma
History of psychosis
Pregnancy
Lactation
Children under 2 years of age
Cautious use in respiratory disease, cardiac disease, diabetes mellitus, peptic ulcer disease

Pregnancy
Known hypersensitivity

Nursing Implications

Anticholinergics

- Give PO, IM, IV
- Given with food
- Slow IM in large mass
- Slow IV: 2.0mg / min
- Assess for euphoria, postural hypotension, and abnormal coordination after IC administration
- Assess swallowing
- Mouth care
- Hot temperature require decreased dosing
- Assess I&O

Dopaminergics

- Give PO
- Can give with foods except for foods high in CHON and pyridoxine (Vit. B6)
- Tablets can be crushed
- Assess for any untoward reactions and report immediately as dose is dependent on clients response to drug
- Assess bowel function
- Assess I&O
- Monitor the following lab test: hepatic and renal function, CBC, serum K, and glucose

COMT Inhibitors

- Give Po
- Nausea very common at initial stages therapy
- Assess liver function studies
- Assess International Normalized Ratio and Prothrombin Time when drug given with warfarin (Coumadin)
- Assess for signs of liver failure (yellow skin and eyes, dark urine

A newer classification of antiparkinson drugs is the catechol-*O-methyltransferase (COMT) inhibitors.* Examples of the COMT inhibitors are entacapone (Comtan) and tolcapone (Tasmar).

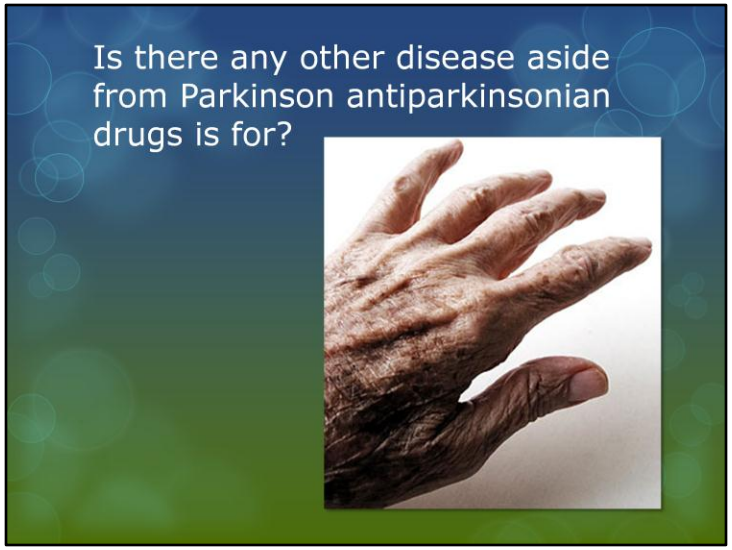
ACTIONS
These drugs are thought to prolong the effect of levodopa by blocking an enzyme, catechol-*O-methyltransferase* (COMT), which eliminates dopamine. When given with levodopa, the COMT inhibitors increase the plasma concentrations and duration of action of levodopa.

USES
used as adjuncts to levodopa/carbidopa in Parkinson's disease.
Tolcapone is a potent COMT inhibitor that easily crosses the blood–brain barrier.

ADVERSE REACTIONS
disorientation, confusion, light-headedness, dizziness, dyskinesias, hyperkinesias, nausea, vomiting, hallucinations, and fever.

CONTRAINDICATIONS, PRECAUTIONS, AND INTERACTIONS
during pregnancy (Category C) and lactation

The COMT inhibitors should not be administered with the monoamine oxidase (MAO) inhibitors because there is an increased risk of toxicity.



Pharmacotherapeutics

Paralysis agitants, or Parkinson's Disease, is a chronic disorder of the CNS. The cause is unknown (too much acetylcholine and not enough dopamine is present in the basal ganglia. Treatment goals are designed to relieve symptoms and to maintain movement and activity of the patient (fine muscle tremors, slowness of movement, rigidity, muscle weakness, a characteristic shuffling, forward-pitched gait, and resulting changes in posture and balance.

Entacapone, levodopa, pergolide, pramipexole, ropinirole, selegiline, and tolcapone are indicated for the treatment of idiopathic or acquired parkinsonism; carbidopa is used only to decrease peripheral breakdown of levodopa.

Anticholinergic drugs are used in idiopathic parkinsonism to decrease salivation, spasticity, and tremors. They are used primarily for people who have minimal symptoms or who cannot tolerate levodopa, or in combination with other antiparkinson drugs. If used for this purpose, a course of
therapy of approximately 3 months is recommended because symptoms usually subside by then even if the antipsychotic drug is continued.

Adverse Reactions

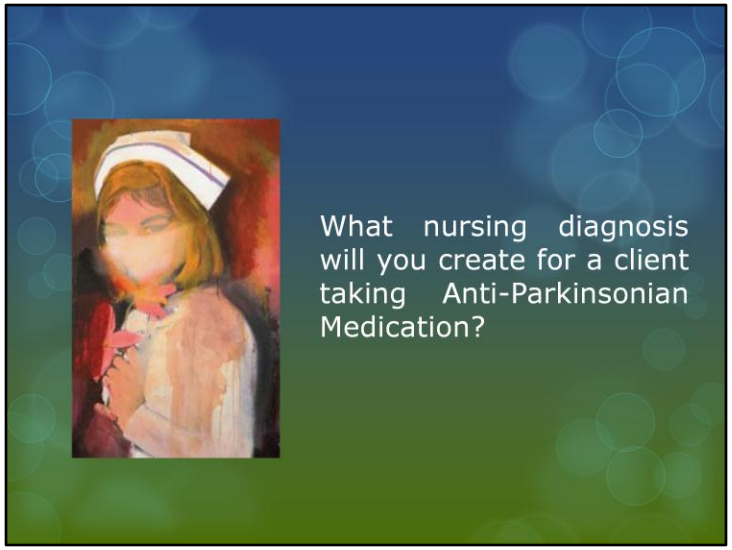
Produce dysrrhythmias (irregular hearbets), muscle twitching, psychotic reactions, rigidity, diarrhea, epigastric distress, GI bleeding, blurred vision, alopecia, bitter taste, hot flashes, rash, and urinary retention.

Anticholinergic agents may cause postural hypotension, tachycrdia, agitation, confusion, depression, headache, memory loss, muscle cramping, constipation, diplopia, increased intraocular pressure, decreased sweating, flushing, and skin rash.

Early signs of toxicity muscle twitching and blepharospasm.

Overdosage: patient experiences a sudden onset of progressively worsening parkinsonian symptoms.

Many types of medication



Assessment
Learn health history of the patient including hypersennsitivity.
The patient may have a history of Parkinson's Disease, drooling , or difficulty with coordination and walking.
Is taking also antipsychotic drug.
The patient may be middle aged or elderly and may have tremors at rest.
Patient is unable to perform ADL.

Diagnosis
Imbalanced Nutrition: Less than Body Requirements related to adverse drug effects (nausea, vomiting)
Risk for Injury related to parkinsonism, adverse drug reactions (dizziness, light-headedness, orthostatic hypotension, loss of balance)
Impaired Physical Mobility related to alterations in balance, unsteady gait, dizziness
Imbalanced Nutrition: Less than Body Requirements related to adverse drug effects (nausea, vomiting)
Constipation related to adverse drug reactions

Planning

The expected outcomes for the patient may include an optimal response to drug therapy, management of common adverse drug reactions, absence of injury, and an understanding of and compliance with the prescribed therapeutic regimen.


IMPLEMENTATION

Effective management of the patient with parkinsonism requires that the nurse carefully monitor the drug therapy, provide psychological support, and place a strong emphasis on patient and family teaching.

The drugs used to treat parkinsonism also may be used to treat the symptoms of parkinsonism that occur with the administration of some of the psychotherapeutic drugs (see Chap. 32).

When used for this purpose, the antiparkinsonism drugs may exacerbate mental symptoms and precipitate a psychosis. The nurse must observe the patient's behavior at frequent intervals. If sudden behavioral changes are noted, the nurse withholds the next dose of the drug and immediately notifies the primary health care provider.

The nurse observes the patient daily for the development of adverse reactions.

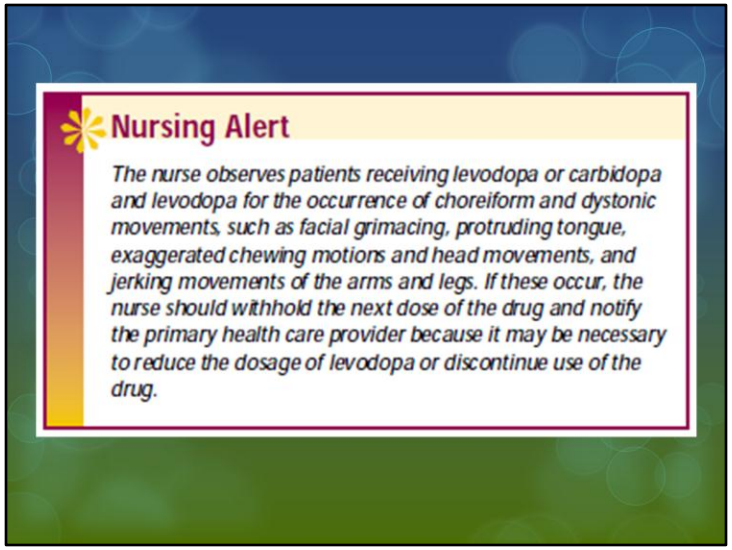
All adverse reactions are reported to the primary health care provider because a dosage adjustment or change to a different antiparkinsonism drug may be necessary with the occurrence of the more serious adverse reactions.

An example of a less serious but uncomfortable adverse reaction is dryness of the mouth. The nurse can help relieve dry mouth by offering frequent sips of water, ice chips, or hard candy (if allowed).

The nurse carefully evaluates any sudden changes in the patient's behavior or activity and reports them to the primary health care provider. The patient with visual difficulties may need assistance with ambulation. The room should be kept well lighted, the use of scatter or throw rugs should be avoided, and any small pieces of furniture or objects that might increase the risk of falling should be removed. The nurse carefully assesses the environment and makes the necessary adjustments to ensure the patient's safety.

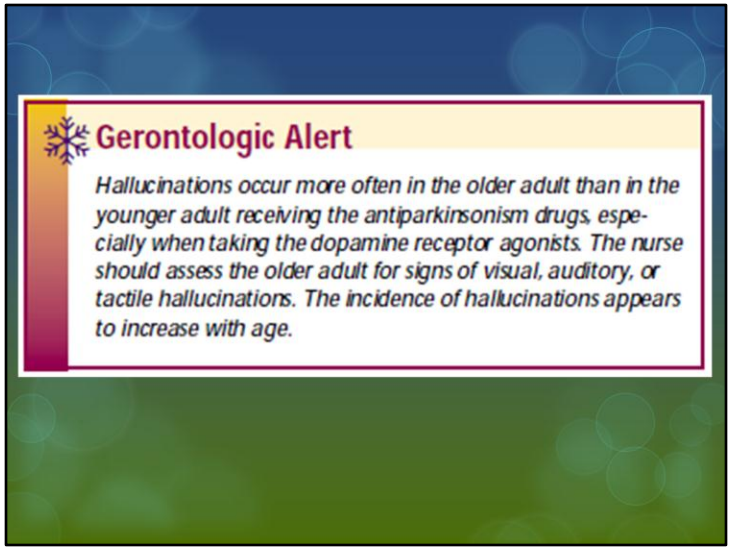
Some patients taking the antiparkinsonism drugs experience gastrointestinal disturbances such as nausea, vomiting, or constipation. It is a good idea for the nurse to create a calm environment, serve small frequent meals,

and serve foods the patient prefers to help improve nutrition. The nurse also may monitor the patient's weight daily. Take food with meals.


Nursing Alert
The nurse observes patients receiving levodopa or carbidopa and levodopa for the occurrence of choreiform and dystonic movements, such as facial grimacing, protruding tongue, exaggerated chewing motions and head movements, and jerking movements of the arms and legs. If these occur, the nurse should withhold the next dose of the drug and notify the primary health care provider because it may be necessary to reduce the dosage of levodopa or discontinue use of the drug.

Nursing Alert

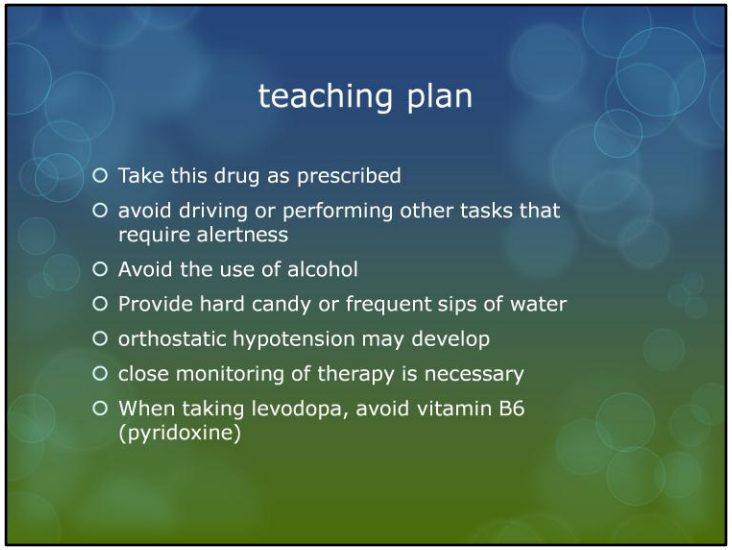
A serious and potentially fatal adverse reaction to tolcapone is hepatic injury. Regular blood testing to monitor liver function is usually prescribed. The physician may order testing of serum transaminase levels at frequent intervals (eg, every 2 weeks for the first year and every 8 weeks thereafter). Treatment is discontinued if the ALT (SGPT) exceeds the upper normal limit or signs or symptoms of liver failure develop. The patient is observed for persistent nausea, fatigue, lethargy, anorexia, jaundice, dark urine, pruritus, and right upper quadrant tenderness.


Gerontologic Alert
Hallucinations occur more often in the older adult than in the younger adult receiving the antiparkinsonism drugs, especially when taking the dopamine receptor agonists. The nurse should assess the older adult for signs of visual, auditory, or tactile hallucinations. The incidence of hallucinations appears to increase with age.


Monitoring and Managing
Adverse Drug Reactions

The nurse evaluates the patient's ability to understand the therapeutic drug regimen, ability to care for himself or herself in the home environment, and ability to comply with the prescribed drug therapy.

the nurse encourages the family to create a home environment that is least likely to result in accidents or falls. Changes such as removing throw rugs, installing a handrail next to the toilet, and moving obstacles that can result in tripping or falling can be made at little or no expense to the family.



Take this drug as prescribed. Do not increase, decrease, or omit a dose or stop taking the drug unless advised to do so by the primary health care provider. If gastrointestinal upset occurs, take the drug with food.

If dizziness, drowsiness, or blurred vision occurs, avoid driving or performing other tasks that require alertness.

Avoid the use of alcohol unless use has been approved by the primary health care provider.

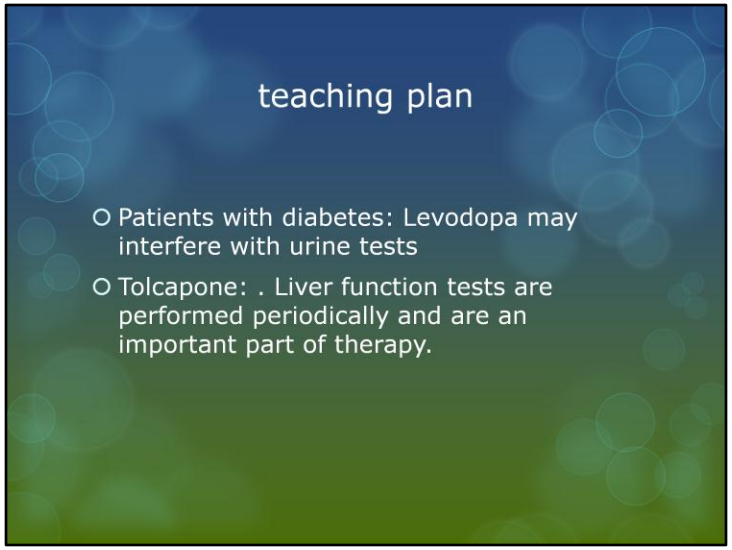
Relieve dry mouth by sucking on hard candy (unless the patient has diabetes) or frequent sips of water. Consult a dentist if dryness of the mouth interferes with wearing, inserting, or removing dentures or causes other dental problems.

Inform patients that orthostatic hypotension may develop with or without symptoms of dizziness, nausea, fainting, and sweating. Caution the patient against rising rapidly after sitting or lying down.

Notify the primary health care provider if any of these problems occur: severe dry mouth, inability to chew or swallow food, inability to urinate, feelings of depression, severe dizziness or drowsiness, rapid or irregular heartbeat, abdominal pain, mood changes, and unusual movements of the head, eyes, tongue, neck, arms, legs, feet, mouth, or tongue.

Keep all appointments with the primary health care provider or clinic personnel because close monitoring of therapy is necessary.

When taking levodopa, avoid vitamin B6 (pyridoxine) because this vitamin may interfere with the action of levodopa (see Home Care Checklist: Avoiding Certain Foods While Taking Levodopa).



Patients with diabetes: Levodopa may interfere with urine tests for glucose or ketones. Report any abnormal result to the primary care provider before adjusting the dosage of the antidiabetic medication.

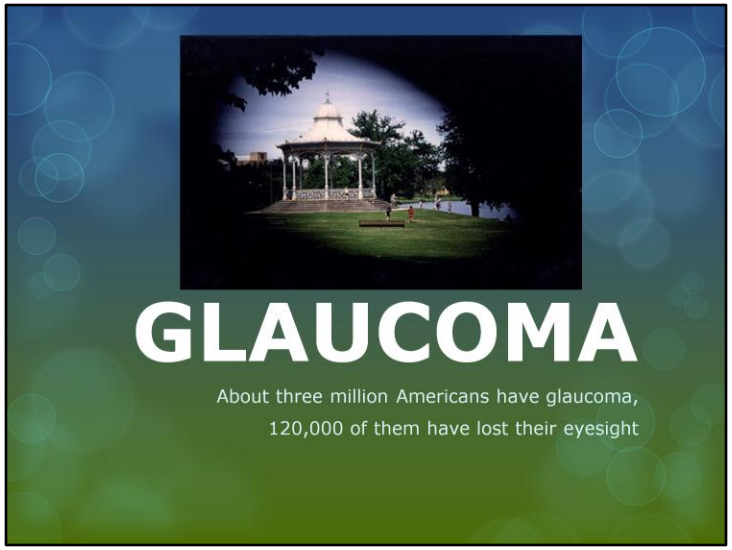
Tolcapone: Keep all appointments with the primary care provider. Liver function tests are performed periodically and are an important part of therapy. Report any signs of liver failure, such as persistent nausea, fatigue, lethargy, anorexia, jaundice, dark urine, pruritus, and right upper quadrant tenderness.


Home Care Checklist
AVOIDING CERTAIN FOODS WHILE TAKING LEVODOPA
If your patient with parkinsonism is taking levodopa, he must be careful to avoid vitamin B_6 (pyridoxine) because it may interfere with the therapeutic effects of the drug. Most multivitamin supplements contain vitamin B_6. Therefore, be sure to instruct your patient to check with his health care provider before taking any vitamin supplements.
Vitamin B_6 is also found in a wide variety of food sources. It may be impossible to ask the patient to avoid these food sources entirely, but your patient may need to limit or decrease such intake to enhance or maintain the drug's effectiveness. Use the list below to teach your patient about possible food sources of vitamin B_6.
Organ meats
Chicken
Fish
Peanuts
Walnuts
Oats
Yeast
Wheat germ
Pork
Egg yolk
Whole grain cereals
Corn
Potatoes
Bananas
Raisins
Molasses

The therapeutic effect is achieved and the symptoms of parkinsonism are controlled.
• Adverse reactions are identified, reported to the primary health care provider, and managed successfully through appropriate nursing interventions.
• No evidence of injury is seen.
• The patient verbalizes an understanding of the treatment modalities, adverse reactions, and importance of continued follow-up care.
• The patient and family demonstrate an understanding of the drug regimen.

The eye has three layers. The first layer contains the cornea and sclera. The second layer contains the choroid, iris, and ancillary body.The third layer contains the retina that connects to the brain through the optic nerve. There are three common disorders of the eye: glaucoma, conjunctivitis, and corneal abrasion.


Review on Eye Diseases
GLAUCOMA, Chronic open-angle glaucoma and Angle-closure glaucoma

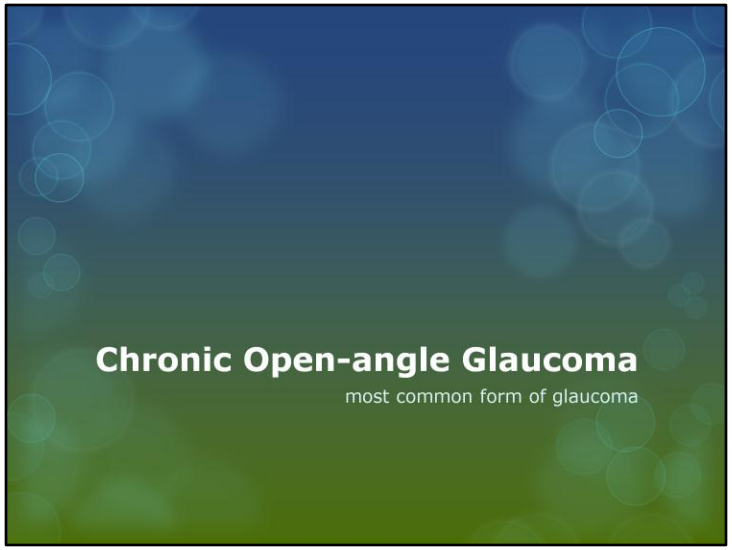


The eye is under constant intraocular pressure (IOP) that increases in patients who have glaucoma.
This increased pressure damages the optic nerve resulting in decreased peripheral vision and eventually blindness.

About three million Americans have glaucoma, 120,000 of them have lost their eyesight.

Glaucoma is the leading cause of blindness.

There are two types of glaucoma: chronic (primary) open-angle glaucoma (POAG) and acute closedangle glaucoma.

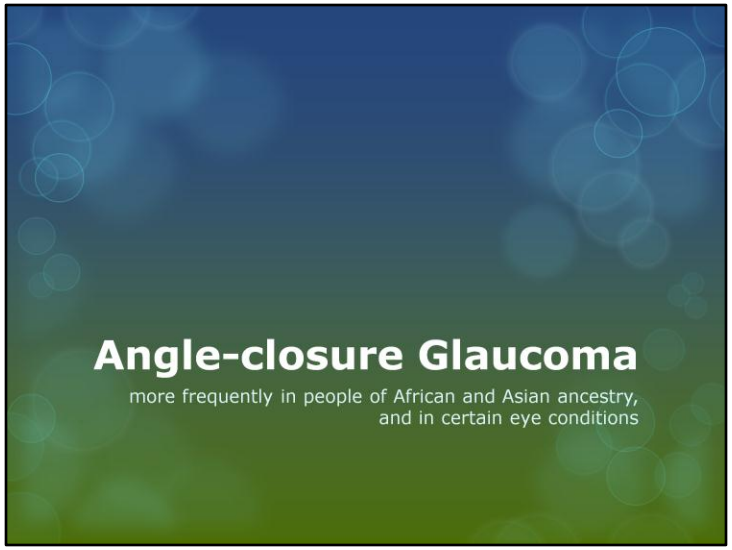


Chronic open-angle glaucoma is the most common form of glaucoma.

The “open” drainage angle of the eye can become blocked leading to a gradual increase in eye pressure.

If this increased pressure results in optic nerve damage, it is known as chronic open-angle glaucoma.

The optic nerve damage and vision loss usually occurs so gradually and painlessly that you are not aware of trouble until the optic nerve is already badly damaged.



Angle-closure glaucoma results when the drainage angle of the eye narrows and becomes completely blocked.

In the eye, the iris may close off the drainage angle and cause a dangerously high eye pressure. When the drainage angle of the eye suddenly becomes completely blocked, pressure builds up rapidly, and this is called acute angle-closure glaucoma.

The symptoms include severe eye pain, blurred vision, headache, rainbow haloes around lights, nausea, and vomiting. Unless an ophthalmologist treats acute angle-closure glaucoma quickly, blindness can result.

When the drainage angle of the eye gradually becomes completely blocked, pressure builds up gradually, and this is called chronic angle-closure glaucoma. This form of glaucoma occurs more frequently in people of African and Asian ancestry, and in certain eye conditions.

Acute angle-closure glaucoma is a medical emergency. If IOP is not reduced within hours of onset, the patient's vision can be permanently damaged

Eye disorders are treated by using one of a variety of medications

Topical anesthetics are used to anesthetize the eye for comprehensive eye examinations and for removal of foreign bodies from the eye.

Onset occurs in about 1 minute and lasts for 15 minutes.

During this time, the blink reflex is temporarily lost and the corneal epithelium is temporarily dried.

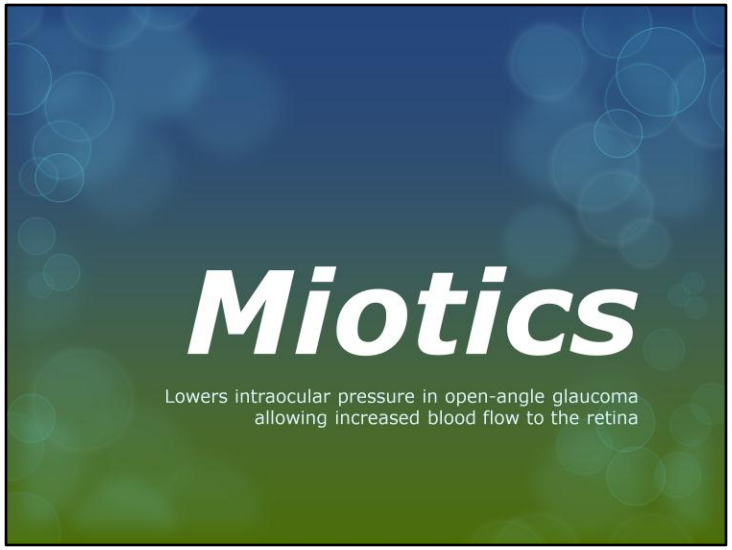
The patient is required to wear a protective eye patch until the effects of the drug wear off.

Anti-infectives and antimicrobials are administered for eye infections such as conjunctivitis.

These drugs can cause local skin and eye irritation. You learned about anti-infective and antimicrobial medication in Chapter 12 and Chapter 13.

Lubricants are used to alleviate the discomfort that is associated with dry eyes and to moisten contact lenses and artificial eyes.

Lubricants are also used to maintain the integrity of the epithelial surface and to moisten the eye during anesthesia and unconsciousness.



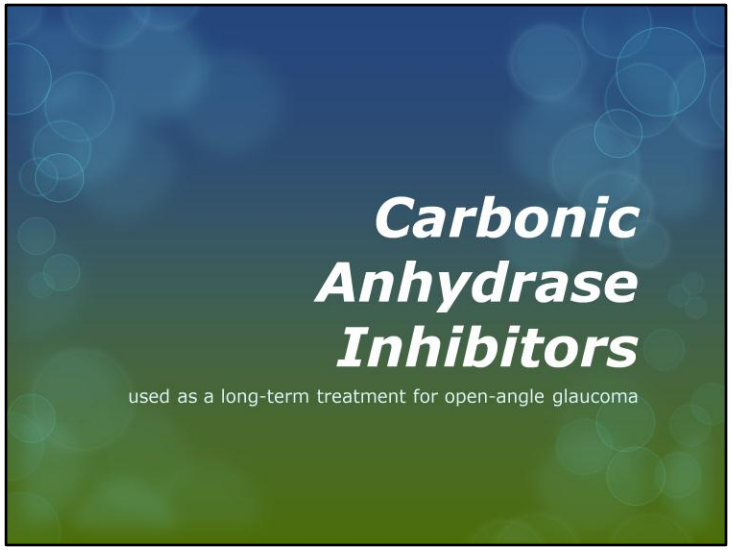
Miotics lower intraocular pressure in open-angle glaucoma allowing increased bloodflow to the retina. This results in less retinal damage and prevents the loss of vision.

There are two types of miotics: direct-acting cholinergics and cholinesterase inhibitors.

Direct-acting cholinergics pupillary constrict and cholinesterase inhibitors pupillary constrict.

Patients who take miotics might experience headache, eye pain, decreased vision, brow pain, and less frequently hyperaemia of the conjunctivia (red eye).

Miotics can be systemically absorbed resulting in the patient experiencing nausea, vomiting, diarrhea, frequent urination, precipitation of asthma attacks, increased salivation, diaphoresis, muscle weakness, and respiratory difficulty.



Carbonic anhydrase inhibitors are used as a long-term treatment for open-angle glaucoma by decreasing intraocular pressure by interfering with the production of aqueous humor.

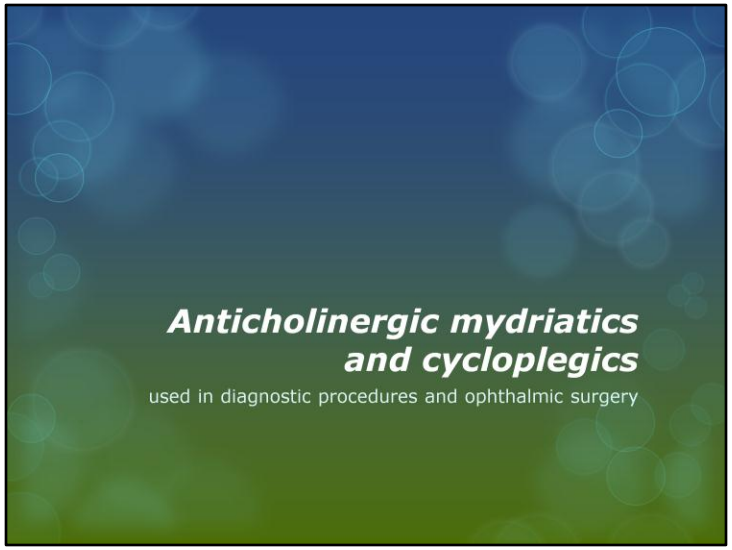
Patients who take carbonic anhydrase inhibitors can experience lethargy, anorexia, drowsiness, paresthesia, depression, polyuria, nausea, vomiting, hypokalemia, and renal calculi.

It is because of these adverse side effects that patients frequently discontinue taking carbonic anhydrase inhibitors.

Carbonic anhydrase inhibitors are contraindicated in the first trimester of pregnancy and for patients who are allergic to sulfonamides.

Osmotics are preoperative and postoperative medications used to reduce intraocular pressure by decreasing vitreous humor volume.

They are also used in the emergency treatment of closed-angle glaucoma. Patients who are administered osmotics can experience headache, nausea, vomiting, and diarrhea. Elderly patients can become disoriented.

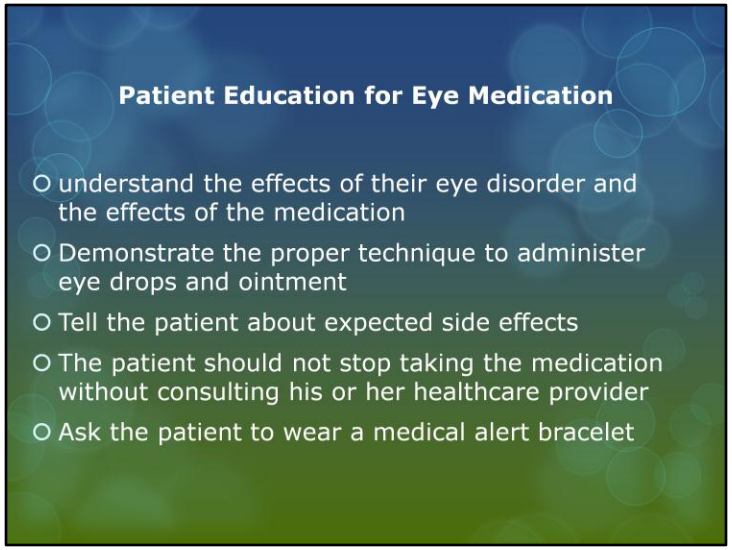


Anticholinergic mydriatics and cycloplegics are used in diagnostic procedures and ophthalmic surgery.

Anticholinergic mydriatics dilate the pupils. Cycloplegics paralyze eye muscles.

Patients who are treated with these medications experience tachycardia, photophobia, dryness of the mouth, edema, conjunctivitis, and derematitis. You learned about anticholinergics in Chapter 15. Alist of eye disorder drugs is provided in the Appendix.

Detailed tables show doses, recommendations, expectations, side effects, contraindications, and more; available on the book's Web site (see URL in Appendix).



It is important that patients understand the effects of their eye disorder and the effects of the medication treating the condition. Patients are anxious about eye disorders fearing that they could lose their vision.

Demonstrate the proper technique to administer eye drops and ointment. Be sure that the patient knows how to maintain a sterile technique so the eyedropper does not become contaminated.

Tell the patient about expected side effects such as blurry vision and that administering the medication at bedtime can avoid problems that could arise from temporary loss of vision. The patient should record each time they administer the medication. This is especially important for patients who are confused or forgetful and could accidentally receive an overdose of the medication.

The patient should not stop taking the medication without consulting his or her healthcare provider.

Ask the patient to wear a medical alert bracelet if they are taking glaucoma medications or if they are allergic to any medication.

Nursing Care for Patients Receiving Medications that Affects Perception and Coordination

Domino B. Puson