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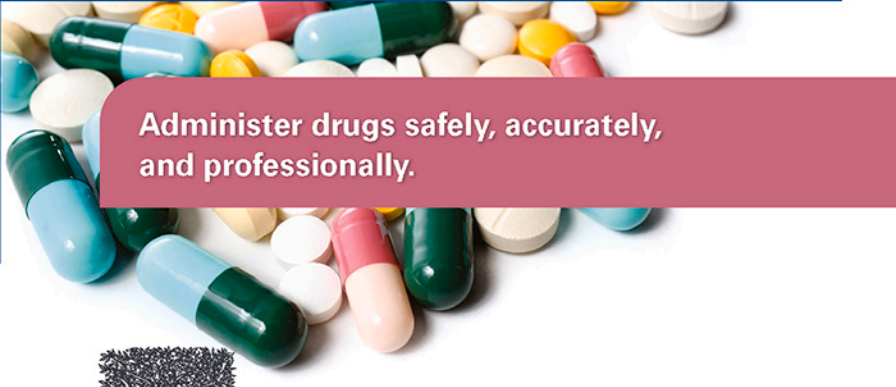
36TH EDITION



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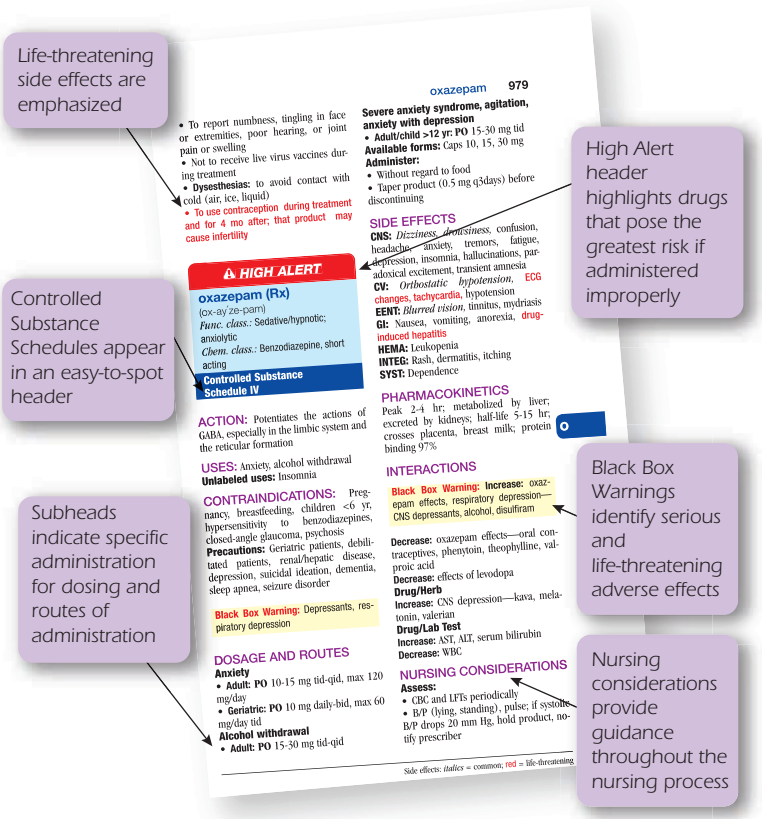

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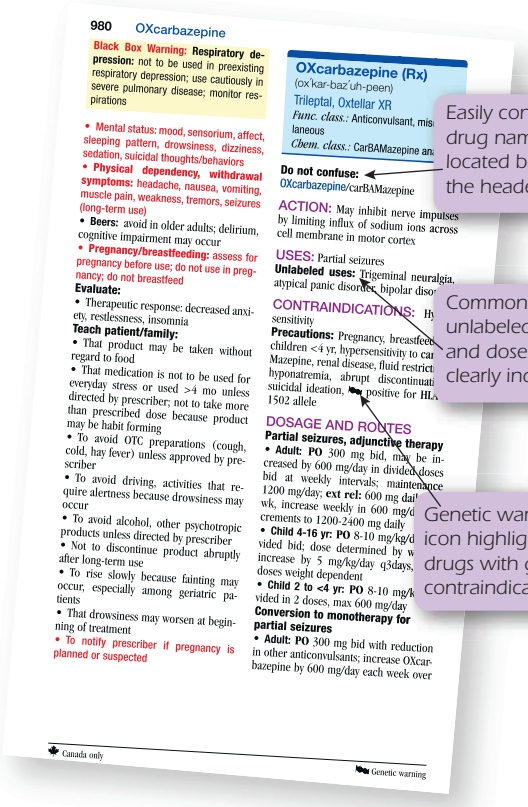

980 OXcarbazepine

Black Box Warning: Respiratory depression: not to be used in preexisting respiratory depression; use cautiously in severe pulmonary disease; monitor respirations

• Mental status: mood, sensorium, affect, sleeping pattern, drowsiness, dizziness, sedation, suicidal thoughts/behaviors
• **Physical dependency, withdrawal symptoms:** headache, nausea, vomiting, muscle pain, weakness, tremors, seizures (long-term use)
• **Beers:** avoid in older adults; delirium, cognitive impairment may occur
• **Pregnancy/breastfeeding:** assess for pregnancy before use; do not use in pregnancy; do not breastfeed

Evaluate:
• Therapeutic response: decreased anxiety, restlessness, insomnia

Teach patient/family:
• That product may be taken without regard to food
• That medication is not to be used for everyday stress or used >4 mo unless directed by prescriber; not to take more than prescribed dose because product may be habit forming
• To avoid OTC preparations (cough, cold, hay fever) unless approved by prescriber
• To avoid driving, activities that require alertness because drowsiness may occur
• To avoid alcohol, other psychotropic products unless directed by prescriber
• Not to discontinue product abruptly after long-term use
• To rise slowly because fainting may occur, especially among geriatric patients
• That drowsiness may worsen at beginning of treatment
• To notify prescriber if pregnancy is planned or suspected

OXcarbazepine (Rx)
(ox'kar-baz'uh-peen)
Trileptal, Oxtellar XR
Func. class.: Anticonvulsant, miscellaneous
Chem. class.: CarBAMazepine ana

Do not confuse:
OXcarbazepine/carBAMazepine

ACTION: May inhibit nerve impulses by limiting influx of sodium ions across cell membrane in motor cortex

USES: Partial seizures
Unlabeled uses: Trigeminal neuralgia, atypical panic disorder, bipolar diso

CONTRAINDICATIONS: Hy sensitivity
Precautions: Pregnancy, breastfeed children <4 yr, hypersensitivity to car Mazepine, renal disease, fluid restrict hyponatremia, abrupt discontinuati suicidal ideation, positive for HLA 1502 allele

DOSAGE AND ROUTES
Partial seizures, adjunctive therapy
• **Adult: PO** 300 mg bid, may be increased by 600 mg/day in divided doses bid at weekly intervals; maintenance 1200 mg/day; **ext rel:** 600 mg dai wk, increase weekly in 600 mg/d crements to 1200-2400 mg daily
• **Child 4-16 yr: PO** 8-10 mg/kg/d vided bid; dose determined by w increase by 5 mg/kg/day q3days, doses weight dependent
• **Child 2 to <4 yr: PO** 8-10 mg/k vided in 2 doses, max 600 mg/day

Conversion to monotherapy for partial seizures
• **Adult: PO** 300 mg bid with reduction in other anticonvulsants; increase OXcarbazepine by 600 mg/day each week over

Canada only

Genetic warning

Easily confused drug names are located beneath the header

Common unlabeled uses and doses are clearly indicated

Genetic warning icon highlights drugs with genetic contraindications

Mosby's®

2023 NURSING DRUG REFERENCE

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2023 NURSING DRUG REFERENCE

36TH EDITION

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Preface

Increasingly, patients are relying on nurses to know every detail of health care. More important, nurses are expected to have these answers, especially when it comes to medication. Let *Mosby's 2023 Nursing Drug Reference* be your answer. Our indispensable, yet compact, resource contains hundreds of monographs with several easy-to-use features.

NEW FEATURES

This edition features:

- Over 40 new drugs . . . . Included are monographs for:
  aducanumab-avwa (Aduhelm) for Alzheimer's disease
  anifrolumab-fnia (Saphnelo) for SLE
  asciminib (Scemblix) for myeloid leukemia
- **An ebook** with easy-to-use navigation for quick access to monographs of your choice

NEW FACTS

This edition features more than 2000 new drug facts, including:

- New drugs and dosage information
- Newly researched side effects and adverse reactions
- New and revised Black Box Warnings
- The latest precautions, interactions, and contraindications
- IV therapy updates
- Revised nursing considerations
- Updated patient/family teaching guidelines
- Updated BEERS information
- Additional combination products
- Content previously included in appendixes has been moved to the monograph section for easier accessibility
- The "rarely used" heading has been removed for this edition

ORGANIZATION

This reference is organized into two main sections:

- Individual drug monographs (in alphabetical order by generic name)
- Appendixes (identified by the wide thumb tabs on the edge)

The guiding principle behind this book is to provide fast, easy access to drug information and nursing considerations. Every detail—the paper, typeface, cover, binding, use of color, and appendixes—has been carefully chosen with the user in mind.

INDIVIDUAL DRUG MONOGRAPHS

This book contains monographs for more than 1300 generic and 4500 trade medications. Common trade names are given for all drugs regularly used in the United States and Canada, with drugs available only in Canada identified by a maple leaf ✻.

The following information is provided, whenever possible, for safe, effective administration of each drug:

High-alert status: Identifies high-alert drugs with a label and icon. Visit the Institute for Safe Medication Practices (ISMP) at http://www.ismp.org for a list of medications and drug classes with the greatest potential for patient harm if they are used in error.

Tall man lettering: Uses the capitalization of distinguishing letters to avoid medication errors and is required by the FDA for drug manufacturers.

Pronunciation: Helps the nurse master complex generic names.

Rx/OTC: Identifies prescription or over-the-counter drugs.

Functional and chemical classifications: Allow the nurse to see similarities and dissimilarities among drugs in the same functional but different chemical classes.

Do not confuse: Presents drug names that might easily be confused within each appropriate monograph.

Action: Describes pharmacologic properties concisely.

Uses: List the conditions the drug is used to treat.

Unlabeled uses: Describe drug uses that may be encountered in practice but are not yet FDA approved.

Dosages and routes: List all available and approved dosages and routes for adult, pediatric, and geriatric patients.

Available forms: Include tablets, capsules, extended-release, injectables (IV, IM, SUBCUT), solutions, creams, ointments, lotions, gels, shampoos, elixirs, suspensions, suppositories, sprays, aerosols, and lozenges.

Side effects: Groups these reactions by body system, with common side effects *italicized* and life-threatening reactions (those that are potentially fatal and/or permanently disabling) in red type for emphasis. *It is important to note that in some electronic versions of* Mosby's 2023 Nursing Drug Reference, *the red type may appear as* **black, bold** *print.*

Contraindications: List conditions under which the drug absolutely should not be given.

Precautions: List conditions that require special consideration when the drug is prescribed.

Black Box Warnings: Identify FDA warnings that highlight serious and life-threatening adverse effects.

Pharmacokinetics: Outline metabolism, distribution, and elimination.

Interactions: Include confirmed drug interactions, followed by the drug or nutrient causing that interaction, when applicable.

Drug/herb: Highlights potential interactions between herbal products and prescription or OTC drugs.

Drug/food: Identifies many common drug interactions with foods.

Drug/lab test: Identifies how the drug may affect lab test results.

Nursing considerations: Identify key nursing considerations for each step of the nursing process: Assess, Administer, Evaluate, and Teach Patient/Family. Instructions for giving drugs by various routes (e.g., PO, IM, IV) are included, with route subheadings in bold.

Compatibilities: List syringe, Y-site, additive compatibilities, and solution compatibilities if applicable and incompatibilities. If no compatibilities are listed for a drug, the necessary compatibility testing has not been done and that compatibility information is unknown. To ensure safety, assume that the drug may not be mixed with other drugs unless specifically stated.

Genetic icon : Highlights drugs with genetic contraindications.

Treatment of overdose: Provides drugs and treatment for overdoses where appropriate.

APPENDIXES

Selected New Drugs: Includes comprehensive information on over 30 key drugs approved by the FDA during the past 12 months.

Ophthalmic, Otic, Nasal, and Topical Products: Provides essential information for more than 80 ophthalmic, otic, nasal, and topical products commonly used today, grouped by chemical drug class.
Vaccines and Toxoids: Features an easy-to-use table with generic and trade names, uses, dosages and routes, and contraindications for over 40 key vaccines and toxoids.
Recently Approved Drugs: Highlights the most recently approved drugs for the market.

I am indebted to the nursing and pharmacology consultants who reviewed the manuscript and thank them for their criticism and encouragement. I would also like to thank Luke Held and Sarah Vora, my editors, whose active encouragement and enthusiasm have made this book better than it might otherwise have been. I am likewise grateful to Jodi Willard for the coordination of the production process and assistance with the development of the new edition. A special "thank-you" to my son, Craig Roth, for completing the electronic files.

Linda Skidmore-Roth

Contents

INDIVIDUAL DRUG MONOGRAPHS, 1

APPENDIXES, 1382

A. Selected New Drugs, 1382
abametapir
aducanumab-avwa
afamelanotide
anifrolumab-fnia
asciminib
atogepant
avacopan
avapritinib
belumosudil
belzutifan
bempedoic acid
brolucizumab-dbll
difelikefalin
dostarlimab-gxly
eculizumab
efavirenz/emtricitabine/tenofovir
elapegademase-ivir
elbasvir/grazoprevir
elexacaftor/tezacaftor/ivacaftor and ivacaftor
emtricitabine/rilpivirine/tenofovir alafenamide
enalapril/hydrochlorothiazide
ephedrine
factor IX complex
factor IX, human
factor IX, recombinant
finerenone
fluocinolone
fluocinonide
lonapegsomatropin-tcgd
loncastuximab tesirine-lpyl
maribavir
mobocertinib
odevixibat
ropeginterferon alfa-2b
tisotumab vedotin-tftv
vosoritide
B. Ophthalmic, Nasal, Topical, and Otic Products, 1401
C. Vaccines and Toxoids, 1414
D. Recent FDA Drug Approvals, 1419

INDEX, 1420

EVOLVE WEBSITE

- Additional Monographs
- Drug Categories

⚠ HIGH ALERT

abacavir (Rx)

(ah-bak′ah-veer)

Ziagen

Func. class.: Antiretroviral

Chem. class.: Nucleoside reverse transcriptase inhibitor (NRTI)

Do not confuse:

abacavir/amprenavir

ACTION: Inhibitory action against HIV-1; inhibits replication of the virus by incorporating into cellular DNA by viral reverse transcriptase, thereby terminating the cellular DNA chain

USES: In combination with other antiretroviral agents for HIV-1 infection

Unlabeled uses: HIV prophylaxis following occupational exposure

CONTRAINDICATIONS

Black Box Warning: Hypersensitivity, moderate/severe hepatic disease, lactic acidosis

Precautions: Pregnancy, breastfeeding, children <3 mo, granulocyte count <1000/mm^3 or HB <9.5 g/dL, severe renal disease, impaired hepatic function, HLA B5701+ (black, Caucasian, Asian patients), abrupt discontinuation; Guillain-Barré syndrome, immune reconstitution syndrome, MI, obesity, polymyositis

DOSAGE AND ROUTES

- **Adult and adolescent ≥16 yr: PO** 300 mg bid or 600 mg/day with other antiretrovirals
- **Adolescent <16 yr and child ≥3 mo: PO** (oral solution) 8 mg/kg bid or 16 mg/kg daily, max 300 mg bid with other antiretrovirals; tablets 14-19 kg 150 mg bid or 300 mg daily; 20-24 kg 150 mg AM and 300 mg PM or 450 mg daily; ≥25 kg 300 mg bid or 600 mg daily

Hepatic dose

- **Adult: PO** (Child-Pugh A [5-6 points]) (oral sol) 200 mg bid; moderate to severe hepatic disease, do not use

HIV prophylaxis (unlabeled)

- **Adult: PO** 600 mg daily as an alternative

Available forms: Tabs 300 mg; oral sol 20 mg/mL

Administer:

- Give in combination with other antiretrovirals
- May give without regard to food q12hr around the clock
- Reduce dose in hepatic disease, use oral sol
- Storage at room temperature; protect from light; oral sol stored at room temperature; do not freeze

SIDE EFFECTS

CNS: *Fever, headache, malaise, insomnia, lethargy*

GI: *Nausea, vomiting, diarrhea, anorexia,* increase AST/ALT, hepatotoxicity, hepatomegaly with steatosis

INTEG: *Rash,* urticaria, hypersensitivity reactions

META: Lactic acidosis

OTHER: Fatal hypersensitivity reactions, MI, fat redistribution, immune reconstitution

PHARMACOKINETICS

Rapid/extensive absorption, distributed to extravascular space, then erythrocytes; 50% protein binding; extensively metabolized to inactive metabolites by the liver; half-life 1½ hr; excreted in urine, feces (unchanged); onset, peak, 1-1.5 hr, duration unknown

INTERACTIONS

- Do not coadminister with abacavir-containing products, ribavirin, interferon
- **Increase:** possible lactic acidosis—ribavirin

Increase: abacavir levels—alcohol

Decrease: levels of—methadone, may require higher dose of methadone

Drug/Lab Test

Increase: serum glucose, triglycerides, ALT, AST, amylase, CK

NURSING CONSIDERATIONS

Assess:

- Symptoms of HIV and possible infections; increased temperature baseline and throughout treatment

Black Box Warning: Lactic acidosis (elevated lactate levels, increased LFTs), severe hepatomegaly with steatosis, discontinue and do not restart; may have enlarged liver, elevated AST, ALT, lactate levels; women and the obese may be at greater risk; monitor serum lactate levels, LFTs, palpate liver for enlargement

Black Box Warning: Fatal hypersensitivity reactions: fever, rash, nausea, vomiting, fatigue, cough, dyspnea, diarrhea, abdominal discomfort; treatment should be discontinued and not restarted; those with HLA-B5701 are at great risk for hypersensitivity; obtain testing for HLA-B 5701 before starting treatment, register at the Abacavir Hypersensitivity Registry (1-800-270-0425)

- Renal studies: BUN; serum uric acid; CCr before, during therapy; these may be elevated

Black Box Warning: Hepatotoxicity: monitor hepatic studies before and monthly during therapy: bilirubin, AST, ALT, amylase, alk phos, creatine phosphokinase, creatinine

- **Blood counts:** monitor viral load and CD4 counts during treatment; watch for decreasing granulocytes, HB; if low, therapy may have to be discontinued and restarted after recovery; blood transfusions may be required; perform hepatitis B virus (HBr) screening to confirm correct treatment
- **Resistance:** do not use triple antiretrovirals (abacavir, lamivudine, tenofovir) in treatment-naive persons
- **Immune reconstitution syndrome:** may occur anytime during treatment and is a response to CMV, *Mycobacterium avium* infection
- **Fat redistribution:** may occur anytime during treatment; buffalo hump, breast growth, moon face, facial wasting, trunk obesity

Evaluate:

- Therapeutic response: increased CD4 count, decreased viral load, decreased disease progression

Teach patient/family:

- That product is not a cure but will control symptoms; that patient is still infective, may pass HIV virus on to others, not to have sexual contact without condom, needles should not be shared, blood from infected individual should not come in contact with another's mucous membranes
- To carry emergency ID with condition, products taken; not to take other products that contain abacavir
- That body fat redistribution may occur; not to share product
- **Hypersensitivity:** to notify prescriber of sore throat, swollen lymph nodes, malaise, fever; other infections may occur; stop product and to notify prescriber immediately if skin rash, fever, cough, shortness of breath, GI symptoms occur; to advise all health care providers that allergic reaction has occurred with abacavir
- That follow-up visits must be continued because serious toxicity may occur; blood counts must be done
- To review and discuss points outlined on Medication Guide and Warning Card
- That other products may be necessary to prevent other infections and that drug is taken with other antiretrovirals
- Not to drink alcohol while taking this product
- To use exactly as prescribed, not to stop product or change dose, not to use with other products unless approved by prescriber
- **Pregnancy/breastfeeding:** to consider the use of contraception during treatment; identify if pregnancy is planned or suspected; use only if benefits outweigh risk; pregnant patients should enroll in Antiretroviral Pregnancy Registry at 800-258-4263; avoid breastfeeding

abaloparatide (Rx)

(a-bal-oh-PAR-a-tide)

Tymlos

Func. class.: Parathyroid hormone analog and modifier

ACTION: A synthetic peptide analog of a parathyroid hormone–related protein, which acts as an agonist at the PTH receptors

USES: For the treatment of postmenopausal women with osteoporosis at high risk for fracture

CONTRAINDICATIONS:

Hypersensitivity

Precautions: Breastfeeding, children, pregnancy, radiation, hypercalcemia, hypercalciuria, hyperuricemia, hyperparathyroidism, renal disease, orthostatic hypotension

Black Box Warning: Osteogenic sarcoma, new primary malignancy

DOSAGE AND ROUTES

Postmenopausal women with osteoporosis at high risk for fracture

- **Adult postmenopausal female: SUBCUT** 80 mcg daily

Available forms: Solution for injection 80 mcg/dose

Administer:

SUBCUT route

- Visually inspect for particulate matter and discoloration before use
- Do not use IV/IM
- Needles are not included with the pen; a separate prescription for needles is needed. Use 8-mm, 31-gauge Clickfine needles such as ReliOn, Smart Sense, or TopCare brands
- Prime before first use to remove air bubbles
- Do not inject into areas where skin is tender, bruised, red, scaly, or hard. Avoid areas with scars or stretch marks
- Rotate site daily and give at the same time
- The first several doses should be given with the patient lying down in case of orthostatic hypotension
- **Storage:** Before first use, store pen in refrigerator (do not freeze). After first use, store for up to 30 days at room temperature (68°F-77°F or 20°C-25°C); do not freeze or expose to heat. Keep cap on when not in use. Do not store with a needle attached. Use pen only for 30 days. Dispose of properly

SIDE EFFECTS

CNS: Dizziness

META: Hypercalcemia, hyperuricemia

INTEG: Injection site reactions

CV: Orthostatic hypotension

PHARMACOKINETICS

Protein binding approximately 70%; half-life 0.7 hr

INTERACTIONS

None known

NURSING CONSIDERATIONS

Assess:

- **Osteoporosis:** before and during treatment
- **Blood studies:** serum calcium, uric acid baseline and periodically
- **Urolithiasis:** product may increase the risk of urolithiasis in those with recent or current urolithiasis

Black Box Warning: Osteosarcoma: increased risk; use product for <2 yr

- **Pregnancy/breastfeeding:** not indicated for women of reproductive potential

Evaluate:

- Therapeutic response: increased bone mineral density

Teach patient/family:

- Not to try to inject until patient or caregiver receives training
- To receive the first several injections near a place to sit or lie down, until the effect of the injection is known; blood pressure may drop

• To inject 1 time each day into lower stomach area (abdomen) just under the skin (SUBCUT); to avoid giving the injection within the 2-inch area around the navel; to rotate injection sites daily
• That periodic lab test will be done
• To take at same time each day; that if the dose is forgotten or cannot be taken at the usual time, to take drug as soon as remembered on that day
• Not to share pen or pen needles with others even if the needle has been changed
• **Urolithiasis:** to report painful urination

abatacept (Rx)

(ab-a-ta′sept)

Orencia, Orencia ClickJet

Func. class.: Antirheumatic agent (disease modifying)

Chem. class.: Immunomodulator

Do not confuse:
Orencia/Oracea

ACTION: A selective costimulation modulator; inhibits T-lymphocytes, inhibits production of tumor necrosis factor (TNF-α), interferon-γ, interleukin-2, which are involved in immune and inflammatory reactions

USES: Polyarticular juvenile rheumatoid arthritis; moderate to severe rheumatoid arthritis; acute, chronic rheumatoid arthritis that has not responded to other disease-modifying agents; may use in combination with DMARDs; do not use with TNF antagonists (adalimumab, etanercept, inFLIXimab), anakinra

CONTRAINDICATIONS: Hypersensitivity
Precautions: Pregnancy, breastfeeding, children, geriatric patients, recurrent infections, COPD, TB, viral hepatitis, immunosuppression, neoplastic disease, respiratory infection

DOSAGE AND ROUTES

Rheumatoid arthritis/psoriatic arthritis

• **Adult: SUBCUT** 125 mg within 1 day after single IV loading dose, then 125 mg weekly; weekly subcut dose may be initiated without an IV loading dose for those unable to receive an infusion
• **Adult >100 kg (220 lb): IV INFUSION** 1 g over 30 min, give at 2, 4 wk after first infusion, then q4wk
• **Adult 60-100 kg (132-220 lb): IV INFUSION** 750 mg over 30 min, give at 2, 4 wk after first infusion, then q4wk
• **Adult <60 kg (132 lb): IV INFUSION** 500 mg over 30 min, give at 2, 4 wk after first infusion, then q4wk

Juvenile rheumatoid arthritis (JRA)/juvenile idiopathic arthritis (JIA)

• **Adolescent and child ≥6 yr and >100 kg: IV INFUSION** 1 g given over 30 min q2wk × 3 doses, then 1 g given over 30 min q4wk starting at wk 8
• **Adolescent and child ≥6 yr and 75-100 kg: IV INFUSION** 750 mg over 30 min q2wk × 2 doses, then 750 mg given over 30 min q4wk starting at wk 8
• **Adolescent and child ≥6 yr and <75 kg: IV INFUSION** 10 mg/kg given over 30 min q2wk × 3 doses, then 10 mg/kg q4wk starting at wk 8

Moderate/severe polyarticular juvenile idiopathic arthritis as monotherapy with or without methotrexate

• **Child/adolescent ≥2 yr and ≥50 kg: SUBCUT** 125 mg q1wk
• **Child/adolescent ≥2 yr and 25-50 kg: SUBCUT** 87.5 mg q1wk
• **Child/adolescent ≥2 yr and 10-25 kg: SUBCUT** 50 mg q1wk

Available forms: Lyophilized powder, single-use vials 250 mg; sol for subcut inj 125 mg/mL
Administer:
• Storage in refrigerator; do not use expired vials, protect from light, do not freeze

Intermittent IV INFUSION route

• **To reconstitute,** use 10 mL sterile water for injection; insert syringe needle into vial and direct stream of sterile water for inj on the wall of vial; rotate vial until mixed; vent with needle (25 mg/mL); **further dilute** in 100 mL NS from a 100-mL infusion bag/bottle; withdraw the needed volume (2 vials remove 20 mL, 3 vials remove 30 mL, 4 vials remove 40 mL); slowly add the reconstituted sol from each vial into the infusion bag/bottle using the same disposable syringe supplied; mix gently; discard unused portions of vials; do not use if particulate is present or discolored; **give** over 30 min; use non–protein-binding filter (0.2-1.2 microns); protect from light

• Do not admix with other sol or medications

SUBCUT route

• Use prefilled syringe for subcut only (do not use for IV); allow to warm to room temperature (30-60 min); inject into fronts of thighs, outer area of upper arm, or abdomen except for 2-inch area around the navel; do not inject into tender, bruised area

• Rotate injection sites

• Use ClickJet for subcut only; let warm for 30 min after removal from refrigerator, do not use if damaged or past expiration date

SIDE EFFECTS

CNS: Headache, asthenia, dizziness
CV: *Hypo/hypertension*
GI: Abdominal pain, dyspepsia, nausea, diarrhea, diverticulitis
GU: UTI, pyelonephritis
MS: Back pain
INTEG: Rash, *inj site reaction,* flushing, urticaria, pruritus
RESP: *Pharyngitis, cough, URI,* non-URI, *rhinitis,* wheezing
SYST: Anaphylaxis, malignancies, serious infections, antibody development

PHARMACOKINETICS

Half-life IV 13 days, subcut 14.3 days, steady state 60 days; clearance increases with increased body weight

INTERACTIONS

• Do not give concurrently with live virus vaccines; immunizations should be brought up to date before treatment

• Do not use with TNF antagonists: adalimumab, etanercept, inFLIXimab; anakinra; infection may occur

• Avoid use with corticosteroids, immunosuppressives, atropine, scopolamine, halothane, nitrous oxide

NURSING CONSIDERATIONS

Assess:

• **RA:** pain, stiffness, ROM, swelling of joints during treatment baseline and periodically

• **HBV reactivation:** Screen patient at risk before starting treatment

• **TB:** for latent/active TB, viral hepatitis before beginning treatment

• For inj site pain, swelling

• Patient's overall health at each visit; product should not be given with active infections; parenteral product contains maltose, glucose monitoring must be done with glucose-specific testing

• **Infection:** sinusitis, urinary tract infection, influenza, bronchitis; serious infections have occurred; notify prescriber, therapy may need to be changed

• **Pregnancy/breastfeeding:** assess whether pregnancy is planned or suspected; if pregnant, register by calling 877-311-8972; use only if benefits outweigh fetal risk; do not breastfeed

Evaluate:

• Therapeutic response: decreased inflammation, pain in joints

Teach patient/family:

• That product must be continued for prescribed time to be effective, not to use with alcohol

• To use caution when driving; dizziness may occur

• Not to have live virus vaccinations while taking this product or use alcohol, TNF antagonists, other immunosuppressants; bring vaccinations up to date before use of this product
• About patient information included in packaging, including "do not shake"
• How to inject and rotate inj sites
• To immediately report signs of infection: temperature, flu-like symptoms, urinary burning/stinging, sinusitis
• To avoid those with known infections
• That product contains maltrose and may lead to elevated glucose levels in some glucose testing methods
• To inform all prescribers that this product is being used

abemaciclib (Rx)

(uh-beh′-muh-sy′-klib)

Verzenio

Func. class.: Antineoplastic

Chem. class.: kinase inhibitors

ACTION: It is an inhibitor of the cyclin-dependent kinases 4 and 6, a protein kinase inhibitor

USES: For the treatment of HR-positive, HER2-negative advanced or metastatic breast cancer with disease progression following endocrine therapy and prior chemotherapy, as monotherapy, or in combination with fulvestrant

CONTRAINDICATIONS: Hypersensitivity

Precautions: Breastfeeding, contraception requirements, hepatic disease, hepatotoxicity, infertility, neutropenia, pregnancy, pregnancy testing, reproductive risk, thromboembolic disease

DOSAGE AND ROUTES

HR-positive, HER2-negative advanced or metastatic breast cancer disease progression following endocrine therapy and prior chemotherapy, as monotherapy

• **Adult: PO** 200 mg bid until disease progression or unacceptable toxicity

HR-positive, HER2-negative advanced or metastatic breast cancer with disease progression following endocrine therapy, in combination with fulvestrant

• **Adult: PO** 150 mg bid with fulvestrant (500 mg **IM** as two 250-mg [5 mL] injections, 1 injection in each buttock, on days 1, 15, 29, and monthly thereafter) until disease progression or unacceptable toxicity. Pre- and perimenopausal women should also be treated with a gonadotropin-releasing hormone agonist

Therapeutic drug monitoring: dosage adjustments for treatment-related toxicities

Interrupt therapy per specific instructions. Restart as appropriate at the following reduced doses:

• **Starting dose:** Monotherapy, 200 mg bid; combination with fulvestrant, 150 mg bid
• **First occurrence:** Monotherapy, 150 mg bid; combination with fulvestrant, 100 mg bid
• **Second occurrence:** Monotherapy, 100 mg bid; combination with fulvestrant, 50 mg bid
• **Third occurrence:** Monotherapy, 50 mg bid; combination with fulvestrant, not applicable

Diarrhea

• **Grade 1:** Begin antidiarrheals, increase oral fluid intake. No change needed
• **Grade 2, first occurrence:** Begin antidiarrheals, increase oral fluid intake. If diarrhea does not resolve to grade ≤1 within 24 hr, hold until resolution. No change needed unless grade 2 diarrhea persists; upon resolution to grade ≤1, resume at next lower dose level
• **Grade 2, recurrent despite maximal supportive measures:** Begin antidiarrheals, increase oral fluid intake. When diarrhea resolves to grade ≤1, resume at next lower dose level
• **Grade 3 or 4, or requires hospitalization:** Begin antidiarrheals, increase oral fluid intake. When diarrhea resolves to grade ≤1, resume at next lower dose level

Hepatic dose

• Adult: PO

Child-Pugh A or B: no change; **Child-Pugh C:** reduce dosing to once per day; **grade 1 (AST/ALT 1.1-3× the upper limit of normal [ULN]), without an increase in total bilirubin above 2× ULN:** no change; **grade 2, first occurrence (AST/ALT 3.1-5× ULN), without an increase in total bilirubin above 2× ULN:** no change; if grade 2 persists, hold; after resolution to baseline or grade 1, resume at the next lower dose level; **grade 2, recurrent (AST/ALT 3.1-5× ULN), without an increase in total bilirubin above 2× ULN:** hold; after resolution to baseline or grade 1, resume at the next lower dose level; **grade 2 or 3 (AST/ALT 3.1-20× ULN) with total bilirubin greater than 2× ULN, in the absence of cholestasis:** discontinue; **grade 4 (AST/ALT >20× ULN):** discontinue

Available forms

Tabs 50, 100, 150, 200 mg

Administer

• With food at the same time every day

• Swallow tablets whole; do not chew, crush, or split. Do not take if broken, cracked

• If a dose is missed, do not replace missed dose; resume with the next scheduled daily dose

SIDE EFFECTS

GI: Diarrhea, abdominal pain, anorexia, nausea, vomiting, constipation, stomatitis, weight loss

CNS: Dizziness, drowsiness, fatigue, fever

MS: Arthralgia

INTEG: Rash, alopecia

GU: Renal failure (rare)

HEMA: Anemia, leukemia, neutropenia, thrombocytopenia

MISC: Infection

PHARMACOKINETICS

Protein binding 96.3%; half-life 18.3 hr; fecal excretion 97.1%; metabolized in liver by CYP3A4

INTERACTIONS

• **Increase:** abemaciclib effect—strong or moderate CYP3A4 inhibitors; avoid concomitant use

• **Decrease:** abemaciclib effect—strong or moderate CYP3A4 inducers; avoid concomitant use

NURSING CONSIDERATIONS

Assess:

• **Diarrhea:** at the first sign of loose stools, start antidiarrheal therapy, increase oral fluids

• **Neutropenia:** CBC baseline then q2wk for the first 2 mo, then monthly for the next 2 mo, and as needed

• **Venous thromboembolism:** monitor for signs, symptoms of thrombosis, pulmonary embolism; treat as needed

• **PE:** chest pain worse when breathing deeply or coughing, coughing up blood, dizziness, fainting, tachypnea, rapid heartbeat, irregular heartbeat, shortness of breath

• **Infection:** assess for urinary tract infection, lung infection, pharyngitis, conjunctivitis, sinusitis, vaginal infection, sepsis

• **Hepatotoxicity:** monitor LFTs baseline, then q2wk × 2 mo, monthly × next 2 mo, and then as needed; interruption in therapy or delay in treatment may be needed

• **Pregnancy/breastfeeding:** Avoid in females of reproductive potential during treatment and for at least 3 wk after last dose; can cause fetal harm or death; discontinue breastfeeding during treatment and for 3 wk after final dose. Presence in breast milk unknown. Obtain pregnancy test before treatment

Evaluate:

• Therapeutic outcome: decrease in size of cancerous tumor

Teach patient/family:

• **Infection:** to report the following to health care provider: increased temperature, fever, shaking, chills, cough, sore throat

• **Diarrhea:** to start antidiarrheal therapy at the first sign of loose stools, increase fluids, and notify health care provider

• **Thromboembolism:** to report immediately chest pain, worse when breathing deeply or coughing, coughing up blood, dizziness, fainting, tachypnea, rapid heartbeat, irregular heartbeat, shortness of breath, pain, swelling of the extremity with redness and warmth, discoloration including a bluish color

• **Pregnancy/breastfeeding:** not to use in pregnancy, breastfeeding; to use contraception during treatment and for at least 3 wk after last dose

⚠ HIGH ALERT

abiraterone (Rx)

(a′bir-a′ter-one)

Zytiga

Func. class.: Antineoplastic

Chem. class.: Androgen biosynthesis inhibitor

ACTION: Converted to abiraterone, which inhibits CYP17, the enzyme required for androgen biosynthesis; androgen-sensitive prostate cancer responds to treatment that decreases androgens

USES: Metastatic, castration-resistant prostate cancer in combination with predniSONE

CONTRAINDICATIONS: Pregnancy, women, children, breastfeeding

Precautions: Adrenal insufficiency, cardiac disease, MI, heart failure, hepatic disease, hypertension, hypokalemia, infection, surgery, ventricular dysrhythmia, stress, trauma

DOSAGE AND ROUTES

• **Adult males: PO** 1000 mg/day with predniSONE 5 mg bid and with GnRH (gonadotropin-releasing hormone analog) or bilateral orchiectomy; with strong CYP3A4 inducers 1000 mg bid

Hepatic dose

• **Adult males (Child-Pugh B, 7-9): PO** 250 mg/day with predniSONE; permanently discontinue if AST/ALT >5 × the upper limit of normal (ULN) or total bilirubin >3 × ULN; Child-Pugh C >10, do not use

Available forms: Tabs 250 mg

Administer:

PO route

• Give whole on empty stomach 2 hr before or 1 hr after meals with full glass of water; do not crush, break, chew

• **Pregnancy:** women who are pregnant or who may become pregnant should not touch tabs without gloves

• Store tabs at room temperature

SIDE EFFECTS

CV: Angina, dysrhythmia exacerbation, atrial flutter/fibrillation/tachycardia, AV block, chest pain, edema, heart failure, MI, hypertension, QT prolongation, sinus tachycardia, supraventricular tachycardia, ventricular tachycardia

ENDO: Hot flashes, adrenocortical insufficiency

GI: Diarrhea, dyspepsia, hepatotoxicity

GU: Increased urinary frequency, nocturia, urinary tract infection

META: Adrenocortical insufficiency, hyperbilirubinemia, hypertriglyceridemia, hypokalemia, hypophosphatemia

MS: Arthralgia, myalgia, fracture

RESP: Cough, upper respiratory infection

SYST: Infection

PHARMACOKINETICS

Onset rapid, peak 2 hr, duration unknown; 99% protein binding, converted to abiraterone (active metabolite), half-life 7%-17% hr; excreted 88% (feces), 5% (urine); high-fat food increases effect, give on empty stomach; increased effect in hepatic disease

INTERACTIONS

• **Decrease:** abiraterone effect—CYP3A4 inducers (carBAMazepine, phenytoin, rifAMPin, rifabutin, rifapentine, PHENobarbital); dose may need to be increased

• **Increase:** action of CYP2D6/CYP2C8 substrates—dextromethorphan, thioridazine, pioglitazone; doses of these products should be reduced; avoid concurrent use if possible

Drug/Food

Increase: abiraterone action—must be taken on an empty stomach

Drug/Lab

Increase: ALT, AST, bilirubin, triglycerides, cholesterol, alk phos

Decrease: potassium, phosphate, testosterone, lymphocytes

NURSING CONSIDERATIONS

Assess:

- **Prostate cancer:** monitor prostate-specific antigen (PSA), serum potassium, serum bilirubin baseline and periodically
- **Hepatotoxicity:** monitor liver function tests (AST/ALT) at baseline, every 2 wk for 3 mo, monthly thereafter in no known hepatic disease; interrupt treatment in patients without known hepatic disease at baseline who develop ALT/AST >5 × ULN or total bilirubin >3 × ULN; patients with moderate hepatic disease at baseline, measure ALT, AST, bilirubin before the start of treatment, every wk for 1 mo, every 2 wk for the following 2 mo, monthly thereafter; if elevations in ALT and/or AST >5 × ULN or total bilirubin >3 × ULN occur in patients with moderate hepatic impairment at baseline, discontinue and do NOT restart; obtain serum total bilirubin, AST/ALT if hepatotoxicity is suspected; elevations of AST, ALT, bilirubin from baseline provide more frequent monitoring
- Monitor B/P, pulse, edema, if hypertensive, control symptoms
- **Musculoskeletal pain, joint swelling, discomfort:** arthritis, arthralgia, joint swelling, and joint stiffness, some severe; muscle discomfort that includes muscle spasms, musculoskeletal pain, myalgia, musculoskeletal discomfort, and musculoskeletal stiffness may be relieved with analgesics
- Signs, symptoms of adrenocorticoid insufficiency (anorexia, nausea, vomiting, fatigue, weight loss); corticosteroids may need to be prescribed during stress, trauma, surgery; assess monthly for hypertension, hypokalemia, fluid retention
- **QT prolongation:** monitor ECG for QT prolongation, ejection fraction in patients with cardiac disease; small increases in the QTc interval such as <10 ms have occurred; monitor for arrhythmia exacerbation

Evaluate:

- Therapeutic response: Decreasing spread, progression of prostate cancer

Teach patient/family:

- **Pregnancy:** that women must not come into contact with tabs; to wear gloves if product needs to be handled; that males should wear condoms and use another form of contraception if partner is pregnant during use of product and for 1 wk after discontinuing treatment
- To report chest pain, swelling of joints, burning/pain when urinating
- Not to use with other medications, herbs without prescriber approval
- To take 2 hr before or 1 hr after meals; to swallow tab whole, take with water
- That this product, predniSONE, and a GnRH need to be used together
- Not to stop abruptly without prescriber consent
- That B/P, potassium, and possible fluid retention will be monitored at least monthly
- To immediately report jaundice of skin, eyes, clay-colored stools, dark urine; that lab work will be needed during at least first 3 mo
- To discuss all other products taken with all prescribers
- If dose is missed, skip and take next regularly scheduled dose

⚠ HIGH ALERT

acalabrutinib (Rx)

(a-Kal′abrootinib)

Calquence

Func. class.: Antineoplastic

Chem. class.: Kinase inhibitor

ACTION: Second-generation kinase inhibitor, decreases proliferation of cancer cells

USES: For the treatment of mantle cell lymphoma (MCL) in patients who have received at least 1 prior therapy

CONTRAINDICATIONS:

Hypersensitivity

Precautions: Serious infections, secondary malignancies, children, pregnancy, breastfeeding

Toxicity-related dosage changes

Refer to manufacturer's information

Available forms. Capsules 100 mg

Administer:

PO route

- Give whole, do not crush, chew, or break tablets
- Give without regard to food
- If dose is missed by >3 hr, skip and continue with regular schedule, do not take a double dose
- Store at room temperature

DOSAGE AND ROUTES

- **Adult: PO** 100 mg bid (approximately 12 hr apart) until disease progression

SIDE EFFECTS

CNS: Headache, fatigue

EENT: Epistaxis

CV: Atrial fibrillation/flutter

GI: Anorexia, constipation, diarrhea, nausea, vomiting

HEMA: Thrombocytopenia, neutropenia, anemia

MS: Myalgia

RESP: Dyspnea, cough

INTEG: Rash

MISC: Infections, secondary malignancies

Pharmacokinetics: Onset rapid, peak 45 min, duration unknown, half-life 0.9 hr, active metabolite 6 hr, 97.5% protein binding

INTERACTIONS

Increase: Risk of bleeding: anticoagulants, antiplatelet, monitor for bleeding

Increase: Acalabrutinib level: CYP3A4 inhibitors (diltiazem, erythromycin, verapamil), avoid using together

Decrease: Acalabrutinib level: H2-receptor antagonists (ranitidine), separate by 2 hr

Decrease: Acalabrutinib level: PPIs, avoid concurrent use

Decrease: Acalabrutinib level: Calcium antacids, separate by 2 hr

Decrease: Acalabrutinib level: CYP3A4 inducers, reduce dose, or avoid use

NURSING CONSIDERATIONS

Assess:

- For secondary malignancies (skin cancers)
- For atrial fibrillation/flutter
- For myelosuppression, obtain CBC monthly or more often
- For severe bleeding/hemorrhage, interruption for major surgeries may be needed
- For serious infection, fever, chills, flulike symptoms antibiotics may be needed

Teach patient/family:

- If dose is missed, give when remembered if less than 3 hr, if more than 3 hr, skip and take the next dose at the regularly scheduled time, do not double, to swallow whole with a whole glass of water
- To notify prescriber of severe bleeding (blood in stool or urine; prolonged or uncontrolled), that product may be interrupted for surgery (fever, chills, flulike symptoms), antibiotics may be needed
- That lab tests and follow-up exams will be needed
- Teach patient to notify prescriber of second malignancy (skin cancer), to use sunscreen, protective clothing
- To report palpitations, lightheadedness, dizziness, fainting, shortness of breath, or chest discomfort
- To report if pregnancy is planned or suspected, not to breastfeed during or for 2 wk following last dose
- To notify other clinicians of prescription OTC drugs and dietary or herbal supplements

acamprosate (Rx)

(a-kam-pro´sate)

Func. class.: Alcohol deterrent

Chem. class.: Synthetic amino acid neurotransmitter analog

ACTION: Not completely understood; in vitro data suggest it has affinity for type A and type B GABA receptors, lowers neuronal excitability, centrally mediated

USES: Alcohol abstinence management

CONTRAINDICATIONS

Hypersensitivity to this product or sulfites, creatinine clearance ≤30 mL/min

Precautions: Pregnancy, breastfeeding, infants, children, ethanol intoxication, renal impairment, depression, suicidal ideation, driving or operating machinery, geriatric patients

DOSAGE AND ROUTES

- **Adult: PO** 666 mg tid

Renal dosage

- **Adult: PO** CCr 30-50 mL/min 333 mg tid; CCr <30 mL/min do not use

Available forms: Del-rel tabs 333 mg

Administer:

- Without regard to food; do not crush, chew, break del-rel tab
- Use only after alcohol is stopped
- Store at room temperature

SIDE EFFECTS

CNS: Anxiety, depression, dizziness, headache, insomnia, paresthesias, suicidal ideation, tremors, abnormal dreams, chills, drowsiness

CV: Palpitations, hypertension, peripheral edema

EENT: Rhinitis, pharyngitis, abnormal vision

GI: Anorexia, constipation, diarrhea, dry mouth, abdominal pain, flatulence, nausea, vomiting, taste change, weight gain

GU: Impotence

INTEG: Rash, pruritus, increased sweating

MISC: Infection, flulike symptoms

MS: Back pain, myalgias, arthralgia

RESP: Dyspnea, bronchitis

PHARMACOKINETICS

Onset unknown, peak 3-8 hr, duration unknown, half-life 20-33 hr

INTERACTIONS

Drug/Lab

Increase: LFTs, blood glucose, bilirubin, uric acid

Decrease: HB/Hct, platelets

NURSING CONSIDERATIONS

Assess:

- **Mental status:** depression, abnormal dreams, suicidal thoughts/behaviors, length of alcohol use, date of discontinuing alcohol use
- B/P baseline and periodically
- **Pregnancy/breastfeeding:** use only if benefits outweigh fetal risk; cautious use in breastfeeding, excretion unknown

Evaluate:

- Therapeutic response: continued alcohol abstinence

Teach patient/family:

- To notify prescriber of depression, abnormal thoughts, suicidal thoughts/behaviors
- To take without regard to food; not to break, crush, chew del-rel tabs
- Not to engage in hazardous activities until effect is known; may impair thinking; monitor skills
- Not to use alcohol, to continue treatment for alcohol addiction
- **Pregnancy/breastfeeding:** to notify prescriber if pregnancy is planned or suspected; to use effective contraception; breastfeeding effects are unknown

⚠ HIGH ALERT

acarbose (Rx)

(ay-car′bose)

Glucobay ✱, Prandase ✱, Precose

Func. class.: Oral antidiabetic

USES: Type 2 diabetes mellitus, alone or in combination with a sulfonylurea, metformin, insulin

CONTRAINDICATIONS: Breastfeeding, hypersensitivity, diabetic ketoacidosis, cirrhosis, inflammatory bowel disease, ileus, colonic ulceration, partial

intestinal obstruction, chronic intestinal disease, serum creatinine >2 mg/dL, CCr <25 mL/min

DOSAGE AND ROUTES

• **Adult: PO** 25 mg tid initially, with 1st bite of meal; maintenance dose may be increased to 50-100 mg tid; dosage adjustment at 4- to 8-wk intervals, individualized

acetaminophen (Rx, OTC) (Paracetamol)

(a-seat-a-mee'noe-fen)

222AF, Abenol, Acephen, Acephen Infant Feverall, ACET, Acetab, Apacet, APAP, Apra, Atasol, Children's FeverAll, Fortolin, Genapap, Infantaire, Mapap, NeoPAP, Novo-Gesic, Pediaphen, Pediatrix, Q-Pap, Q-Pap Children's, Rapid Action Relief, Redutemp, Ridenol, Robigesic, Rounox, Silapap, Taminol, Tempra, T-Painol, Tylenol, XS pain reliever

acetaminophen (IV) (Rx)

Ofirmive

Func. class.: Nonopioid analgesic, antipyretic

Chem. class.: Nonsalicylate, paraaminophenol derivative

Do not confuse:

Acephen/Anacin/Aspirin 3/Anacin-3

ACTION: May block pain impulses peripherally that occur in response to inhibition of prostaglandin synthesis; does not possess antiinflammatory properties; antipyretic action results from inhibition of prostaglandins in the CNS (hypothalamic heat-regulating center)

USES: Mild to moderate pain or fever, arthralgia, dental pain, dysmenorrhea, headache, myalgia, osteoarthritis

Unlabeled uses: Migraine

CONTRAINDICATIONS: Hypersensitivity to this product, phenacetin aspartame, saccharin, tartrazine

Precautions: Pregnancy, breastfeeding, geriatric patients, anemia, renal/hepatic disease, chronic alcoholism

Black Box Warning: Hepatotoxicity

DOSAGE AND ROUTES

• **Adult/child >12 yr: PO/RECT** 325-650 mg q4-6hr prn, max 4 g/day; **weight ≥50 kg IV** 1000 mg q6hr or 650 mg q4hr prn, max single dose 1000 mg, min dosing interval 4 hr; **weight <50 kg IV** 15 mg/kg/dose q6hr or 12.5 mg/kg/dose q4hr, max single dose 15 mg/kg, min dosing interval 4 hr, max 75 mg/kg/day from all sources; **EXT REL** 650-1300 mg q8hr as needed, max 4 g/day

• **Child ≥2 yr and <50 kg: IV** 15 mg/kg/dose q6hr or 12.5 mg/kg/dose q4hr, max single dose 15 mg/kg, min dosing interval 4 hr, max 75 mg/kg/day from all sources

Renal dose

• **Adult: IV** CCr <30 mL/min reduce dose and prolong interval, CCr <10 mL/min **PO/RECT/IV** minimum interval of q8hr

Migraine (unlabeled)

• **Adult and adolescent: PO/RECT** 500-1000 mg, max 1 g/dose or max 4 g/day

Available forms: Rect supp 120, 325, 650 mg; soft chew tabs 80, 160 mg; caps 500 mg; elix 120, 160, 325 mg/5 mL; oral disintegrating tab 80, 160 mg; oral drops 80 mg/0.8 mL, liquid 500 mg/5 mL, 160/5 mL, 1000/30 mL; ext rel 650 mg, 80 mg/mL; tabs 325, 500, 650 mg; sol for inj 1000 mg/100 mL

Administer:

PO route

• Do not confuse 2 × 325 (650 mg), with 650-mg ext rel tab

• Crushed or whole, do not crush ext rel product; chewable tabs may be chewed; give with full glass of water
• With food or milk to decrease gastric symptoms if needed
• Susp after shaken well; check elixir, liquid, suspension concentration carefully; susp and caps are bioequivalent

Rectal route

• Store suppositories <80°F (27°C)

Intermittent IV INFUSION route

• No further dilution needed; do not add other medications to vial or infusion device
• For doses equal to single vial, a vented IV set may be used to deliver directly from vial; for doses less than a single vial, withdraw dose and place in an empty sterile syringe, plastic IV container, or glass bottle; infuse over 15 min
• Discard unused portion; if seal is broken, vial penetrated, or drug transferred to another container, give within 6 hr

Y-site compatibilities: Do not admix

SIDE EFFECTS

CNS: Agitation (child) (IV); headache, fatigue, anxiety (IV)
Resp: Dyspnea (IV), atelectasis (child) (IV)
CV: Hyper- and hypotension (IV)
GI: Nausea, vomiting, abdominal pain; hepatotoxicity, hepatic seizure (overdose), GI bleeding
GU: Renal failure (high, prolonged doses)
HEMA: Leukopenia, neutropenia, hemolytic anemia (long-term use), thrombocytopenia, pancytopenia
INTEG: Rash, urticaria, inj site pain
SYST: Stevens-Johnson syndrome, toxic epidermal necrolysis
TOXICITY: Cyanosis, anemia, neutropenia, jaundice, pancytopenia, CNS stimulation, delirium followed by vascular collapse, seizures, coma, death

PHARMACOKINETICS

85%-90% metabolized by liver, excreted by kidneys; metabolites may be toxic if overdose occurs; widely distributed; crosses placenta in low concentrations; excreted in breast milk; half-life 1-4 hr

PO: Onset 10-30 min, peak ½-2 hr, duration 4-6 hr, well absorbed
IV: Onset rapid, peak 30-120 min, duration 3-4 hr
RECT: Onset slow, peak 1-2 hr, duration 4-6 hr, absorption varies

INTERACTIONS

Increase: renal adverse reactions—NSAIDs, salicylates; consider lower dose
Increase: methemoglobinemia—nitric oxide, prilocaine; avoid concurrent use
Increase: hypoprothrombinemia—warfarin, long-term use, high doses of acetaminophen
Increase: hepatotoxicity—barbiturates, alcohol, carBAMazepine, hydantoins, rifAMPin, rifabutin, isoniazid, diflunisal, zidovudine, lamoTRIgine, imatinib, dasatinib, mipomersen; monitor for hepatotoxicity
Decrease: absorption—colestipol, cholestyramine
Decrease: zidovudine, lamoTRIgine effect

Drug/Herb

Increase: hepatotoxicity—St. John's wort, due to acetaminophen metabolism

Drug/Lab Test

Increase: LFTs, potassium, bilirubin, LDH, pro-time
Decrease: HB/Hct, WBC, RBC, platelets; albumin, magnesium, phosphate (pediatrics)

NURSING CONSIDERATIONS

Assess:

• **For fever and pain:** Type of pain, location, intensity, duration, aggravating/alleviating factors; assess for diaphoresis, fever, baseline and periodically
• **Hepatic studies:** AST, ALT, bilirubin, creatinine before therapy if long-term therapy is anticipated; may cause hepatic toxicity at doses >4 g/day with chronic use
• **Renal studies:** BUN, urine creatinine, occult blood, albumin, if patient is on long-term therapy; presence of blood or albumin indicates nephritis, I&O ratio; decreasing output may indicate renal failure (long-term therapy)

• **Blood studies:** CBC, PT if patient is on long-term therapy
• **Chronic poisoning:** rapid, weak pulse; dyspnea; cold, clammy extremities; report immediately to prescriber

Black Box Warning: Hepatotoxicity: occurs with high doses (>4 g/day); dark urine; clay-colored stools; yellowing of skin, sclera; itching; abdominal pain; fever; diarrhea if patient is on long-term therapy; may require liver transplant, those malnourished or using alcohol chronically are at higher chance of hepatotoxicity

• **Potentially fatal hypersensitivity, allergic reactions:** rash, urticaria; if these occur, product may have to be discontinued
• Stevens-Johnson syndrome, toxic epidermal necrolysis may occur during beginning treatment or any other dose
• **Pregnancy/breastfeeding:** cautious use in pregnancy, breastfeeding (PO), use only if clearly needed (IV)

Evaluate:
• Therapeutic response: absence of pain using pain scoring; absence of fever

Teach patient/family:

Black Box Warning: Hepatotoxicity: not to exceed recommended dosage; the elixir, liquid, suspension come in several concentrations, read label carefully; acute poisoning with liver damage may result; tell parents of children to check products carefully; that acute toxicity includes nausea, vomiting, abdominal pain; prescriber should be notified immediately; that toxicity may occur with other combination products

• Not to use with excessive alcohol, herbals, OTC products without approval of prescriber
• **To recognize signs of chronic overdose:** bleeding, bruising, malaise, fever, sore throat
• That those with diabetes may notice blood glucose monitoring changes
• To notify prescriber of pain or fever lasting more than 3 days
• Not to be used in patients <2 yr unless approved by prescriber
• **Hypersensitivity:** to stop product, call prescriber if rash occurs
• **Pregnancy/breastfeeding:** May be used when breastfeeding, short-term

TREATMENT OF OVERDOSE:
Product level, gastric lavage; administer oral acetylcysteine to prevent hepatic damage *(see acetylcysteine monograph)*; monitor for bleeding

acetaZOLAMIDE (Rx)
(a-set-a-zole'a-mide)
Diamox
Func. class.: Diuretic, carbonic anhydrase inhibitor, antiglaucoma agent, antiepileptic
Chem. class.: Sulfonamide derivative

USES:
Open-angle glaucoma, angle-closure glaucoma (preoperatively, if surgery delayed), mixed, tonic-clonic, myoclonic, refractory seizures, epilepsy (petit mal, grand mal, absence), edema in HF, product-induced edema, acute altitude sickness

CONTRAINDICATIONS:
Hypersensitivity to sulfonamides, severe renal/hepatic disease, electrolyte imbalances (hyponatremia, hypokalemia), hyperchloremic acidosis, Addison's disease, long-term use for closed-angle glaucoma, adrenocortical insufficiency, metabolic acidosis, acidemia, anuria

DOSAGE AND ROUTES
Angle-closure glaucoma
• **Adult: PO/IV** 250 mg q4hr or 250 mg bid for short-term therapy

Chronic open-angle glaucoma
• **Adult: PO/IV** 250 mg 1-4 times per day or 500 mg **EXT REL** bid, max 1 g/day

• **Child (Unlabeled): PO** 8-30 mg/kg/day in divided doses tid or qid, or 300-900 mg/m^2/day, max 1 g/day; **IV** 5-10 mg q6hr, max 1 g/day

Edema in heart failure, drug-induced edema

• **Adult: PO/IV** 250-375 mg/day

• **Child (unlabeled): PO/IV** 5 mg/kg/day or 150 mg/m^2 in AM

Adjunct for epilepsy and myoclonic, refractory, generalized tonic-clonic, absence or mixed seizures

• **Adult: PO/IV** 8-30 mg/kg/day in 1-4 divided doses, usual range 375-1000 mg/day; **EXT REL** not recommended with seizures

Altitude sickness

• **Adult: PO** 125 mg bid, start therapy 24-48 hr before ascent and give for ≥48 hr after arrival at high altitude

Renal dose

• **Adult: PO/IV** CCr 50-80 mL/min give dose ≥q6hr regular release or IV; CCr 10-50 mL/min give dose q12hr; CCr <10 mL/min, avoid use

acetylcholine ophthalmic

See Appendix B

acetylcysteine (Rx)

(a-se-teel-sis'tay-een)

Acetadote, Mucomyst

Func. class.: Mucolytic; antidote—acetaminophen

Chem. class.: Amino acid L-cysteine

ACTION: Decreases viscosity of secretions by breaking disulfide links of mucoproteins; serves as a substrate in place of glutathione, which is necessary to inactivate toxic metabolites with acetaminophen overdose

USES: Acetaminophen toxicity; bronchitis; cystic fibrosis; COPD; atelectasis

Unlabeled uses: Prevention of contrast medium nephrotoxicity

CONTRAINDICATIONS: Hypersensitivity

Precautions: Pregnancy, breastfeeding, hypothyroidism, Addison's disease, CNS depression, brain tumor, asthma, renal/hepatic disease, COPD, psychosis, alcoholism, seizure disorders, bronchospasms, anaphylactoid reactions, fluid restriction, weight <40 kg, increased intracranial pressure, status asthmaticus

DOSAGE AND ROUTES

Acetaminophen toxicity

• **Adult and child: PO** 140 mg/kg, then 70 mg/kg q4hr × 17 doses to total of 1330 mg/kg; **≥41-100 kg IV** loading dose 150 mg/kg over 60 min (dilution 150 mg/kg in 200 mL of D_5W); then 50 mg/kg over 4 hr (dilution 50 mg/kg in 500 mL D_5W); then 100 mg/kg over 16 hr (dilution 100 mg/kg in 1000 D_5W)

• **Adult/child 21-40 kg: IV** 150 mg/kg in 100 mL diluent over 1 hr, then 50 mg/kg in 250 mL over 4 hr, then 100 mg/kg in 500 mg over 16 hr

• **Infant/child 5-20 kg: IV** 150 mg/kg in 3 mL/kg diluent over 1 hr, then 50 mg/kg in 7 mL/kg diluent over 4 hr, then 100 mg/kg in 14 mL/kg diluent over 16 hr

Mucolytic

• **Adult and child 1-12 yr: INSTILL** 1-2 mL (10%-20% sol) q6-8hr prn or 3-5 mL (20% sol) or 6-10 mL (10% sol) tid or qid; **NEBULIZER** (face mask, mouthpiece, tracheostomy) 1-10 mL of a 20% sol, or 2-20 mL of a 10% sol, q2-8hr; **NEBULIZER** (tent, croupette) may require large dose, up to 300 mL/treatment

Tracheostomy care

• **Adult/child: INSTILL** 1-2 mL (10%-20% sol) q1-4hr directly into tracheostomy

Diagnostic bronchial lab studies

• **Adult/child: NEBULIZER** 2-3 uses of 1-2 mL of 20% sol or 2-4 mL of 10% sol

Prevention of radiocontrast-induced renal reactions (unlabeled)

• **Adult: PO** 600 mg bid × 2 days before radiocontrast