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tolvaptan
valbenazine

MOSBY'S
DENTAL DRUG REFERENCE
THIRTEENTH EDITION

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Preface

The thirteenth edition of ***Mosby's Dental Drug Reference*** represents Elsevier's commitment to providing comprehensive and current information on prescription drugs and recommendations for the care of the dental patients who take them. This book is designed to address the needs of oral health care practitioners and educators for readily accessible and up-to-date drug information and guidance for the dental management of medically compromised patients. This edition includes many features of past editions and contains expanded information on monoclonal antibodies and other biologically targeted agents, as well as many new monographs for 21st-century drugs used in the management of diabetes, cardiovascular disease, and cancer.

A DETAILED GUIDE TO *MOSBY'S DENTAL DRUG REFERENCE,* THIRTEENTH EDITION

Mosby's Dental Drug Reference provides essential drug information in a user-friendly format. The bulk of this handbook contains an alphabetical listing of drug entries by generic name. Drug entries include the following:

Generic and Brand Names. Drug entries begin with the generic drug name, followed by its pronunciation and its U.S., Canadian, and Australian brand names.

Category and Schedule. This section lists the drug's pregnancy risk category and, when appropriate, its controlled substance schedule or over-the-counter (OTC) status.

Mechanism of Action. This section clearly and concisely describes the drug's mechanism of action and therapeutic effects.

Pharmacokinetics. Under this heading, a quick-reference chart outlines the drug's route, onset, peak, and duration, when known. This information is followed by a brief description of the drug's absorption, distribution, metabolism, excretion, and half-life.

Indications and Dosages. Here, you'll find the approved indications and routes, along with age-appropriate dosage information and, for selected agents, dosage adjustments for preexisting conditions, such as liver or kidney disease.

Precautions/Contraindications. Using a practice-oriented format and written specifically for dentistry, this section presents precautions and considerations for each drug entry. Each entry lists conditions in which use of the generic drug is contraindicated.

Interactions. For drugs, herbal supplements, and food, this section supplies vital information about adverse interactions of the medical drug with drugs prescribed in dentistry.

Adverse Effects. Unlike other handbooks that mix more common adverse effects with rare, minor ones in a long, undifferentiated list, this book ranks side effects by frequency of occurrence, indicating expected, frequent, occasional, and rare.

Serious Reactions. Because serious adverse reactions can be life-threatening emergencies that require prompt intervention, this section highlights them separately from other side effects for easy identification.

Mosby's Dental Drug Reference, **Thirteenth Edition,** is an easy-to-use source of current drug information for a wide spectrum of dental care providers. When it comes to providing quality patient care, all members of the dental team can rely on ***Mosby's Dental Drug Reference*** for current, dentally relevant information presented in an easy-to-use format. As you use the book, please keep in mind the following:

- The majority of the monographs are descriptions of drugs that are utilized on an outpatient basis and are, therefore, more likely to be encountered in dental practice. Vaccines, biologicals, and medications used only intraoperatively in hospitalized patients are generally not included, and the reader is referred to other resources for this information.
- The Evolve website (http://evolve.elsevier.com/Jeske/dental/) can be consulted for updates and new information pertinent to this text.
- Several important "Dental Considerations" are relevant to all of the drugs described in the monographs, including the following:
  1. The use of a prescription medication indicates the presence of a medical condition that is being managed by one or more physicians. The physical status of the patient and his or her ability to tolerate dental treatment must be determined.
  2. In collaboration with the treating physician(s), the physician, not the dentist, should guide all decisions related to changes in the use of prescription drugs for medical conditions.
  3. Vital signs and/or other assessments should be determined at every dental treatment visit, as appropriate and as indicated; many drugs used for systemic conditions result in adverse oral conditions, such as xerostomia. Strict attention must be paid to the prevention of negative outcomes of these conditions, particularly caries and periodontal disease; education of the patient and the patient's family about his or her medications should be reinforced by the dental team, particularly as it relates to the prevention of oral complications of medication use.
  4. This text does not constitute advice about the dental management of specific patients, each of whom must be evaluated individually using all pertinent diagnostic information, and the monographs contained in this book do not constitute full prescribing information for the drugs.

In the production of the book, we have endeavored to make it as current and relevant as possible while emphasizing the busy oral health care provider's need for rapid access to concise pharmaceutical information. On behalf of the Editor-in-Chief and Elsevier, we proudly thank our reviewers and contributors for their expertise and contributions. Finally, this edition is respectfully dedicated to the teachers and practitioners of dentistry, dental hygiene, and dental assisting around the world whose application of the book for students and patients continues to inspire us.

Internet References for Additional Drug Information and Professional Guidelines

1. ADA Center for Evidence-Based Dentistry: http://ebd.ada.org/ (library of oral health systematic reviews and critical summaries of systematic reviews of dental topics)
2. Cochrane Library Oral Health Group: http://www.ohg.cochrane.org/ (library of systematic reviews of randomized controlled trials only)
3. American Heart Association: http://circ.ahajournals.org/cgi/content/full/116/15/1736 (complete publication on antibiotic prophylaxis to prevent infective endocarditis)
4. Global RPh: http://www.globalrph.com/corticocalc.htm (calculator to convert corticosteroid supplemental dosages to equivalents of various drugs)
5. Food and Drug Administration: http://www.fda.gov/ (comprehensive information on drugs, drug safety, drug approvals, etc.)
6. American Association of Oral & Maxillofacial Surgeons (AAOMS), medication-related osteonecrosis of the jaw: http://www.aaoms.org/docs/govt_affairs/advocacy_white_papers/mronj_position_paper.pdf (AAOMS guidelines for managing medication-related osteonecrosis of the jaw)
7. University of Washington Oral Health Fact Sheets: http://www.dental.washington.edu/departments/omed/decod/special_needs_facts.php (concise information on dental care of patients with a variety of childhood and adult medical conditions)
8. American Association of Endodontists: http://www.aae.org/colleagues/ (archives of "Colleagues for Excellence" publications, guidelines on the management of endodontic patients, including antibiotic use and local anesthesia)
9. American Academy of Pediatric Dentistry: http://aapd.org/policies/ (guidelines on fluorides, local anesthesia, antibiotics, and more in pediatric dental patients, updated every 3 yrs)
10. Guide to Diagnosis and Management of Common Oral Conditions: http://www.intechopen.com/books/diagnosis-and-management-of-oral-lesions-and-conditions-a-resource-handbook-for-the-clinician/ (open-access oral medicine reference text)

Medication-Related Osteonecrosis of the Jaw

In 2014, the American Association of Oral and Maxillofacial Surgeons (AAOMS) updated its *Position Paper on Medication-Related Osteonecrosis of the Jaw* (MRONJ), formerly termed *bisphosphonate-related osteonecrosis of the jaw* (BRONJ). This update expanded the list of drugs known to increase the risk for MRONJ to include antiangiogenic drugs (e.g., denosumab, Prolia) and corticosteroids. The updated document provides estimates of risk for MRONJ, comparisons of the risks and benefits of medications related to osteonecrosis of the jaw, guidance for clinicians on the differential diagnosis of MRONJ, and prevention measures and management strategies for patients with disease-stage MRONJ. The complete document can be accessed at: http://www.aaoms.org/docs/govt_affairs/advocacy_white_papers/mronj_position_paper.pdf

According to this AAOMS document, medication-related risk for MRONJ is increased in cancer patients who have been exposed to zoledronate (Zometa, Reclast) and antiangiogenic monoclonal antibodies (e.g., denosumab) and tyrosine kinase inhibitors (e.g., sunitinib), but it is not as frequent in osteoporotic patients exposed to the same agents.

Local factors for risk of MRONJ include the following:

- Operative treatment (e.g., tooth extraction)
- Anatomic factors (e.g., mandible, denture use)
- Concomitant oral disease (e.g., inflammatory dental disease)

The position paper also provides information on genetic, demographic, and systemic factors in MRONJ and a summary of the dental management strategies for patients at risk for MRONJ, including the following:

- Extraction of nonrestorable teeth and those with a poor prognosis prior to initiation of antiresorptive/antiangiogenic therapy
- Elimination of mucosal trauma by removable prostheses
- Consultation with the patient's physician(s) to follow osteonecrosis-prevention protocols
- Maintenance of good oral hygiene and dental care
- Avoidance of dental implant placement in oncology patients receiving intravenous antiresorptive therapy or antiangiogenic medications

For patients taking *oral* bisphosphonates (e.g., alendronate, Fosamax), specific guidance for cases based on length of exposure to medications includes the following:

- For individuals who have taken an oral bisphosphonate for less than 4 years and have no clinical risk factors, no alteration or delay in planned oral surgery is necessary (this includes any and all procedures common to oral and maxillofacial surgeons, periodontists, and other dental providers).
- For those patients who have taken an oral bisphosphonate for less than 4 years and have also taken corticosteroids or antiangiogenic medications concomitantly, the prescribing physician should be contacted to consider discontinuation of the oral bisphosphonate (drug holiday) for at least 2 months prior to oral surgery if systemic conditions permit.
- For those patients who have taken an oral bisphosphonate for more than 4 years with or without any concomitant medical therapy, the prescribing physician should be contacted to consider discontinuation of the antiresorptive for 2 months prior to oral surgery if systemic conditions permit.

The complete AAOMS position paper should be consulted for detailed patient-care information, including management of patients with established MRONJ.

Contents

abacavir

ah-**bah′**-cah-veer
(Ziagen)

Drug Class: Antiviral, nucleoside analog

MECHANISM OF ACTION

An antiretroviral that inhibits the activity of HIV-1 reverse transcriptase by competing with the natural substrate deoxyguanosine-5′-triphosphate (dGTP) and by its incorporation into viral DNA. ***Therapeutic Effect:*** Inhibits viral DNA growth.

USES

Used in combination with other antiviral drugs for treatment of HIV-1 infection

PHARMACOKINETICS

Rapidly and extensively absorbed after PO administration. Protein binding: 50%. Widely distributed, including to CSF and erythrocytes. Metabolized in the liver to inactive metabolites. Primarily excreted in urine. Unknown if removed by hemodialysis. ***Half-life:*** 1.5 hr.

INDICATIONS AND DOSAGES

▸ HIV Infection (in combination with other antiretrovirals)

PO

Adults. 300 mg twice a day.

Children (3 mo–16 yr). 8 mg/kg twice a day. Maximum: 300 mg twice a day.

▸ Dosage in Hepatic Impairment

Mild Impairment. 200 mg twice a day.

Moderate to Severe Impairment. Not recommended.

SIDE EFFECTS/ADVERSE REACTIONS

Adults

Frequent

Nausea, nausea with vomiting, diarrhea, decreased appetite

Occasional

Insomnia

Children

Frequent

Nausea with vomiting, fever, headache, diarrhea, rash

Occasional

Decreased appetite

PRECAUTIONS AND CONTRAINDICATIONS

Hypersensitivity to abacavir or its components

Caution:

Breast-feeding, bone marrow depression, renal or hepatic impairment, use with other antivirals to avoid emergence of resistant viruses, avoid alcohol use

DRUG INTERACTIONS OF CONCERN TO DENTISTRY

- None reported

SERIOUS REACTIONS

! A hypersensitivity reaction may be life threatening. Signs and symptoms include fever, rash, fatigue, intractable nausea and vomiting, severe diarrhea, abdominal pain, cough, pharyngitis, and dyspnea.

! Life-threatening hypotension may occur.

! Lactic acidosis and severe hepatomegaly may occur.

DENTAL CONSIDERATIONS

General:

- Examine for oral manifestation of opportunistic infection.

• Patient on chronic drug therapy may rarely have symptoms of blood dyscrasias, which include infection, bleeding, and poor healing.
• Avoid dental light in patient's eyes; offer dark glasses for patient comfort.
• Place on frequent recall because of oral side effects.
• Consider semisupine chair position for patient comfort if GI side effects occur.

Consultations:
• In a patient with symptoms of blood dyscrasias, request a medical consultation for blood studies and postpone treatment until normal values are reestablished.
• Medical consultation may be required to assess disease control.

Teach Patient/Family to:
• Encourage effective oral hygiene to prevent soft tissue inflammation.
• Prevent trauma when using oral hygiene aids.
• Be alert for the possibility of secondary oral infection and the need to see dentist immediately if signs of infection occur.

abarelix

ah-**bar′**-eh-lix
(Plenaxis)

Drug Class: Antineoplastic

MECHANISM OF ACTION

A luteinizing hormone-releasing hormone (LHRH) antagonist that inhibits gonadotropin and androgen production by blocking gonadotropin releasing-hormone receptors in the pituitary.

Therapeutic Effect: Suppresses luteinizing hormone, follicle-stimulating hormone secretion, reducing the secretion of testosterone by the testes.

USES

Treatment of breast cancer, endometrium, and prostate

PHARMACOKINETICS

Slowly absorbed following intramuscular administration. Distributed extensively. Protein binding: 96%–99%. ***Half-life:*** 13.2 days.

INDICATIONS AND DOSAGES

▸ Prostate Cancer

IM

Adults, Elderly. 100 mg on days 1, 15, and 29 and every 4 wk thereafter. Treatment failure can be detected by obtaining serum testosterone concentration prior to abarelix administration, day 19 and every 8 wk thereafter.

SIDE EFFECTS/ADVERSE REACTIONS

Frequent

Hot flashes, sleep disturbances, breast enlargement

Occasional

Breast pain, nipple tenderness, back pain, constipation, peripheral edema, dizziness, upper respiratory tract infection, diarrhea

Rare

Fatigue, nausea, dysuria, micturition frequency, urinary retention, UTI

PRECAUTIONS AND CONTRAINDICATIONS

This drug should not be used in women and children.

DRUG INTERACTIONS OF CONCERN TO DENTISTRY

• None reported.

SERIOUS REACTIONS

! Immediate-onset systemic allergic reaction characterized by hypotension, urticaria, pruritus, periorbital and/or circumoral edema, shortness of breath, wheezing, and syncope may occur.
! Prolongation of the QT interval may occur. Tightening of throat, tongue swelling, wheezing, shortness of breath, and low blood pressure occur rarely.

DENTAL CONSIDERATIONS

General:
• If additional analgesia is required for dental pain, consider alternative analgesics (NSAIDs) in patients taking opioids for acute or chronic pain.
• This drug may be used in the hospital or on an outpatient basis. Confirm the patient's disease and treatment status.
Consultations:
• Medical consultation may be required to assess disease control and patient's ability to tolerate stress.
Teach Patient/Family to:
• Encourage effective oral hygiene to prevent soft tissue inflammation.
• Prevent trauma when using oral hygiene aids.
• Update health and medication history if physician makes any changes in evaluation or drug regimens; include OTC, herbal, and nonherbal remedies in the update.

abatacept

ah-**bat′**-ah-cept
(Orencia)

Drug Class: Antirheumatic, disease modifying

MECHANISM OF ACTION

Selective costimulation modulator; inhibits T-cell activation by binding to CD80 and CD86 on antigen presenting cells, thus blocking the required CD28 interaction and inhibiting autoimmune T-cell activation.

USES

Rheumatoid arthritis (RA), second-line reduction of signs and symptoms of moderate-to-severe active RA, monotherapy or in combination with other disease-modifying antirheumatic drugs (DMARDs) (e.g., methotrexate). Juvenile idiopathic arthritis, moderate-to-severe active.

PHARMACOKINETICS

Absorbed completely following parenteral administration. Distribution: 0.02–0.13 L/kg. ***Half-life***: 13 days (8–25 days).

INDICATIONS AND DOSAGES

▸ RA (moderate to severe) in patients who have had an inadequate response to one or more disease-modifying antirheumatic drugs

IV

Adults. Dose is according to body weight. Administer over a 30-min

A

infusion. Repeat dose at 2 and 4 wk after initial dose, and every 4 wk thereafter:
- <60 kg: 500 mg
- 60–100 kg: 750 mg
- >100 kg: 1000 mg

Children. Juvenile idiopathic arthritis (moderate to severe), active, polyarticular.
IV Infusion
Children (6 yr and older; weighing less than 75 kg). 10 mg/kg given by IV infusion over 30 min; repeat doses at 2 and 4 wk after first infusion and every 4 wk thereafter.

▸ Juvenile Idiopathic Arthritis (moderate to severe), active, polyarticular
IV Infusion
Children (6 yr and older; weighing 75–100 kg). 750 mg given by IV infusion over 30 min; repeat doses at 2 and 4 wk after first infusion and every 4 wk thereafter (MAX dose, 1000 mg).

▸ Juvenile Idiopathic Arthritis (moderate to severe), active, polyarticular
IV Infusion
Children (6 yr and older; weighing more than 100 kg). 1000 mg given by IV infusion over 30 min; repeat doses at 2 and 4 wk after first infusion and every 4 wk thereafter (MAX dose, 1000 mg).
Safety and efficacy not established in children less than 6 yr of age.
Screen for TB and hepatitis before initiating therapy.

SIDE EFFECTS/ADVERSE REACTIONS

Frequent
Infection, antibody formation, headache, dizziness, nasopharyngitis
Occasional
Nausea, hypertension, fever, urinary tract infection, cough, back pain

PRECAUTIONS AND CONTRAINDICATIONS

Hypersensitivity to abatacept or any component of the formulation.
TB, active or latent; initiate treatment for TB prior to initiating abatacept therapy.
Hepatitis B reactivation has been associated with abatacept therapy; screen for viral hepatitis before initiating abatacept therapy.
Use with caution in patients with chronic obstructive pulmonary disease (COPD) because of worsening of breathing, COPD exacerbations, cough, and dyspnea.

DRUG INTERACTIONS OF CONCERN TO DENTISTRY

- None reported

SERIOUS REACTIONS

! Infections: should be cautious when considering the use of abatacept in patients with a history of recurrent infection, underlying conditions that may increase risks of infections, or chronic, localized infections. These patients should be monitored closely. If a patient develops a serious infection, the treatment should be discontinued.
! Anaphylaxis/hypersensitivity reaction may occur.

DENTAL CONSIDERATIONS

General:
- Examine for oral manifestation of opportunistic infection.
- Monitor vital signs at every appointment because of cardiovascular side effects.
- Consider semisupine chair position for patients with respiratory disease.

Consultations:
- Consult physician to assess disease control and ability of patient to tolerate dental treatment.

Teach Patient/Family to:
- Encourage effective atraumatic oral hygiene measures to prevent soft-tissue inflammation.
- Use soft toothbrush to reduce risk of bleeding.
- Immediately report any sign of infection to the dentist.
- Use powered toothbrush if patient has difficulty holding conventional devices.

absorbable gelatin sponge

(Gelfoam)

CATEGORY AND SCHEDULE

Hemostatic

Drug Class: Hemostatic, purified gelatin sponge

MECHANISM OF ACTION

Absorbs blood, provides area for clot formation

USES

Hemostasis adjunct in dental surgery

PHARMACOKINETICS

IMPLANT: Absorbed in 4–6 wk

INDICATIONS AND DOSAGES

▸ Dental Use

Adult. Top can be applied dry or moistened with normal saline solution; blot on sterile gauze to remove excess solution, shape to fit with light finger compression; hold pressure until dry. Apply to bleeding surfaces. Material may be cut to appropriate size or secured in extraction sites with sutures.

SIDE EFFECTS/ADVERSE REACTIONS

None reported

PRECAUTIONS AND CONTRAINDICATIONS

Hypersensitivity, frank infection

Caution:

Avoid use in presence of infection, potential nidus of infection, do not resterilize product.

DENTAL CONSIDERATIONS

Teach Patient/Family to:
- Immediately report any sign of infection to the dentist.

acamprosate calcium

ah-kam′-**proe**-sate

(Campral)

Drug Class: Alcohol-abuse deterrent

MECHANISM OF ACTIONS

Actual mechanism unknown; may facilitate balance between GABA and glutamate neurotransmitter systems in the CNS to decrease alcohol craving.

USES

Alcohol-abuse deterrent

PHARMACOKINETICS

Partially absorbed from GI tract, steady-state levels reached within 5 days of dosing. Protein binding negligible. ***Half-life:*** 20–33 hr. Does not undergo metabolism; excreted unchanged in urine.

INDICATIONS AND DOSAGES

▸ Maintenance of Alcohol Abstinence

PO

Adult. 666 mg 3 times a day with or without food.

SIDE EFFECTS/ADVERSE REACTIONS

Oral: Dry mouth
CNS: Headache, somnolence, decreased libido, amnesia, abnormal thinking, tremor
CV: Palpitation, syncope, vasodilation, changes in B/P
GI: Vomiting, dyspepsia, constipation, increased appetite
RESP: Rhinitis, cough, dyspnea, pharyngitis, bronchitis
GU: Impotence
EENT: Abnormal vision, taste alterations
INTEG: Rash
MS: Myalgia, arthralgia
SYST: Back pain, infection, flu syndrome, chest pain, chills, attempts at suicide (see Precautions)

PRECAUTIONS AND CONTRAINDICATIONS

Hypersensitivity, severe renal impairment

Caution:

Renal impairment, depression/suicidal tendency

DRUG INTERACTIONS OF CONCERN TO DENTISTRY

- None reported

DENTAL CONSIDERATIONS

General:

- Assess salivary flow as a factor in caries, periodontal disease, and candidiasis.
- After supine positioning, allow patient to sit upright for 2 min to avoid orthostatic hypotension.
- Avoid alcohol-containing products (elixirs, mouth rinses) to assist maintenance of alcohol abstinence.

Consultations:

- Consult physician to assess disease control.

Teach Patient/Family to:

- Encourage effective oral hygiene to prevent caries and periodontal disease.
- When chronic dry mouth occurs, advise patient to:
  - Use sugarless gum, frequent sips of water, and saliva substitutes.
  - Use home fluoride products for anticaries effect.
  - Avoid mouth rinses with high alcohol content because of drying effects.

acarbose

ah-**car′**-bose
(Glucobay[AUS], Prandase[CAN], Precose)
Do not confuse Precose with PreCare.

Drug Class: Oral antidiabetic

MECHANISM OF ACTION

An alpha-glucosidase inhibitor that delays glucose absorption and digestion of carbohydrates, resulting in a smaller rise in blood glucose concentration after meals.
Therapeutic Effect: Lowers postprandial hyperglycemia.

USES

Use as single drug or in combination with insulin or oral hypoglycemics (sulfonylureas, metformin) in type 2 diabetes (non–insulin-dependent diabetes mellitus [NIDDM]) when

diet control is ineffective in controlling blood glucose levels.

PHARMACOKINETICS

PO
Limited oral absorption, absorbed dose excreted in urine, metabolized in the GI tract, and major portion of dose excreted in feces.

INDICATIONS AND DOSAGES

▸ Diabetes Mellitus

PO
Adults, Elderly. Initially, 25 mg 3 times a day with first bite of each main meal. Increase at 4- to 8-wk intervals. Maximum: For patients weighing more than 60 kg, 100 mg 3 times a day; for patients weighing 60 kg or less, 50 mg 3 times a day.

SIDE EFFECTS/ADVERSE REACTIONS

Side effects diminish in frequency and intensity over time.

Frequent

Transient GI disturbances: flatulence, diarrhea, abdominal pain

PRECAUTIONS AND CONTRAINDICATIONS

Chronic intestinal diseases associated with marked disorders of digestion or absorption, cirrhosis, colonic ulceration, conditions that may deteriorate as a result of increased gas formation in the intestine, diabetic ketoacidosis, hypersensitivity to acarbose, inflammatory bowel disease, partial intestinal obstruction or predisposition to intestinal obstruction, significant renal dysfunction (serum creatinine level greater than 2 mg/dl)

Caution:

Use glucose for hypoglycemia, monitor blood glucose levels, pregnancy category B, avoid use in lactation, children.

DRUG INTERACTIONS OF CONCERN TO DENTISTRY

- None reported

SERIOUS REACTIONS

! None known

DENTAL CONSIDERATIONS

General:

- Ensure that patient is following prescribed diet and takes medication regularly.
- Type 2 patients may also be using insulin. If symptomatic hypoglycemia occurs while taking this drug, use dextrose rather than sucrose because of interference with sucrose metabolism.
- Place on frequent recall to evaluate healing response.
- Patients with diabetes may be more susceptible to infection and have delayed wound healing.
- Question the patient about self-monitoring the drug's antidiabetic effect.
- Consider semisupine chair position for patient comfort if GI side effects occur.

Consultations:

- Medical consultation may be required to assess disease control and patient's ability to tolerate stress.

Teach Patient/Family to:

- Encourage effective oral hygiene to prevent soft tissue inflammation.
- Prevent injury when using oral hygiene aids.
- Avoid mouth rinses with high alcohol content.

acebutolol

a-se-**byoo-**toe-lole
(Sectral)
Do not confused Sectral with Factrel, Septra, or Seconal.

Drug Class: Beta-adrenergic blocker (cardioselective); antiarrhythmics, class II

MECHANISM OF ACTION

A beta$_1$-adrenergic blocker that competitively blocks β_1-adrenergic receptors in cardiac tissue; high doses may competitively block both β_1- and β_2-adrenergic receptors. Reduces the rate of spontaneous firing of the sinus pacemaker and delays AV conduction. Exhibits mild intrinsic sympathomimetic activity (ISA) (partial beta-agonist activity). ***Therapeutic Effect:*** Slows heart rate, decreases cardiac output, decreases B/P, and exhibits antiarrhythmic activity.

USES

Mild-to-moderate hypertension
Ventricular arrhythmias

PHARMACOKINETICS

Route	Onset	Peak	Duration
PO (hypertension)	1–1.5 hr	2–8 hr	24 hr
PO (antiarrhythmic)	1 hr	4–6 hr	10 hr

Well absorbed from the GI tract. Bioavailability: approximately 40%. Protein binding: 26%. Undergoes extensive first-pass metabolism to active metabolite. Eliminated via bile and excretion into GI tract through intestinal wall, as well as partly excreted in urine. Removed by hemodialysis. ***Half-life:*** 3–4 hr (parent drug); 8–13 hr (metabolite).

INDICATIONS AND DOSAGES

▸ Mild-to-Moderate Hypertension

PO

Adults. Initially, 400 mg/day in 2 divided doses. Maintenance 400–800 mg/day. Maximum: 1200 mg/day in 2 divided doses.

▸ Ventricular Arrhythmias

PO

Adults. Initially, 200 mg twice a day. Increase gradually to 600–1200 mg/day in 2 divided doses.

Elderly. Initially, 200–400 mg/day. Maximum: 800 mg/day.

▸ Dosage in Renal Impairment

Dosage is modified based on creatinine clearance.

Creatinine Clearance	% of Usual Dosage
Less than 50 ml/min	50
Less than 25 ml/min	25

SIDE EFFECTS/ADVERSE REACTIONS

Frequent

Hypotension manifested as dizziness, nausea, diaphoresis, headache, cold extremities, fatigue, constipation, or diarrhea

Occasional

Insomnia, urinary frequency, impotence or decreased libido

Rare

Rash, arthralgia, myalgia, confusion (especially in the elderly), altered taste

PRECAUTIONS AND CONTRAINDICATIONS

Hypersensitivity to acebutolol or any component of the formulation

Caution:

Cardiogenic shock
Heart block greater than first degree
Overt heart failure

Severe bradycardia
Caution use in patients with bronchospastic disease, diabetes, hyperthyroidism, impaired renal or hepatic function, inadequate cardiac function, or peripheral vascular disease.

DRUG INTERACTIONS OF CONCERN TO DENTISTRY

- Diuretics, other antihypertensives: May increase hypotensive effect of acebutolol.
- Sympathomimetics, xanthines: May antagonize the effects and reduce bronchodilation.
- Oral hypoglycemics and insulin: May mask symptoms of hypoglycemia and prolong hypoglycemic effect of insulin and oral hypoglycemics.
- Catecholamine-depleting drugs (e.g., reserpine): May have additive effect. Monitor for bradycardia or hypotension.
- NSAIDs: May reduce the antihypertensive effect of acebutolol.
- Digoxin: May cause serious bradycardia.
- Calcium channel blockers (verapamil, diltiazem): May cause hypotension and bradycardia.
- Class I antiarrhythmic drugs: May increase atrial conduction time and negative inotropic effects.

SERIOUS REACTIONS

! Overdose may produce profound bradycardia and hypotension.
! Abrupt withdrawal may result in diaphoresis, palpitations, headache, rebound hypertension, and tremors.
! Acebutolol administration may precipitate CHF or MI in patients with heart disease; thyroid storm in those with thyrotoxicosis; or peripheral ischemia in those with existing peripheral vascular disease.
! Hypoglycemia may occur in patients with previously controlled diabetes.
! Signs of thrombocytopenia, such as unusual bleeding or bruising, occur rarely.

DENTAL CONSIDERATIONS

General:

- Monitor vital signs at every appointment because of cardiovascular side effects.
- After supine positioning, have patient sit upright for at least 2 min before standing to avoid orthostatic hypotension.
- Assess salivary flow as a factor in caries, periodontal disease, and candidiasis.
- Limit use of sodium-containing products, such as saline IV fluids, for those patients with dietary salt restriction.
- Stress from dental procedures may compromise cardiovascular function; determine patient risk.

Consultations:

- Medical consultation may be required to assess disease control.

Teach Patient/Family to:

- Report oral lesions, soreness, or bleeding to dentist.
- When chronic dry mouth occurs, advise patient to:
  - Avoid mouth rinses with high alcohol content because of drying effects.
  - Use daily home fluoride products for anticaries effect.
  - Use sugarless gum, frequent sips of water, or saliva substitutes.

acetaminophen

ah-seet-ah-**min′**-oh-fen
(Abenol[CAN], Apo-Acetaminophen[CAN], Atasol[CAN], Dymadon[AUS], Feverall, Panadol[AUS], Panamax[AUS], Paralgin[AUS], Setamol[AUS], Tempra, Tylenol)
Do not confuse with Fiorinal, Hycodan, Indocin, Percodan, or Tuinal.

Drug Class: Nonnarcotic analgesic

MECHANISM OF ACTION

A central analgesic whose exact mechanism is unknown but appears to inhibit prostaglandin synthesis in the CNS and, to a lesser extent, block pain impulses through peripheral action. Acetaminophen acts centrally on hypothalamic heat-regulating center, producing peripheral vasodilation (heat loss, skin erythema, sweating).
Therapeutic Effect: Results in antipyresis. Produces analgesic effect.

USES

Mild-to-moderate pain, fever; also used in combination with other ingredients, including opioids.

PHARMACOKINETICS

Route	Onset	Peak	Duration
PO	15–30 min	1.5 hr	4–6 hr

Rapidly, completely absorbed from GI tract; rectal absorption variable. Protein binding: 20%–50%. Widely distributed to most body tissues. Metabolized in liver; excreted in urine. Removed by hemodialysis.
Half-life: 1–4 hr (half-life is increased in those with liver disease, elderly, neonates; decreased in children).

INDICATIONS AND DOSAGES

▸ Analgesia and Antipyresis

PO
Adults, Elderly. 325–650 mg q4–6h or 1 g 3–4 times a day. Maximum: 4 g/day.
Children. 10–15 mg/kg/dose q4–6h as needed. Maximum: 5 doses/24 hr.
Neonates. 10–15 mg/kg/dose q6–8h as needed.
Rectal
Adults. 650 mg q4–6h. Maximum: 6 doses/24 hr.
Children. 10–20 mg/kg/dose q4–6h as needed.
Neonates. 10–15 mg/kg/dose q6–8h as needed.

▸ Dosage in Renal Impairment

Creatinine Clearance	Frequency
10–15 ml/min	q6h
Less than 10 ml/min	q8h

SIDE EFFECTS/ADVERSE REACTIONS

Rare
Hypersensitivity reaction

PRECAUTIONS AND CONTRAINDICATIONS

Active alcoholism, liver disease, or viral hepatitis, all of which increase the risk of hepatotoxicity
Caution:
Anemia, hepatic disease, renal disease, chronic alcoholism

DRUG INTERACTIONS OF CONCERN TO DENTISTRY

- Decreased effects: barbiturates, loop diuretics
- Nephrotoxicity: NSAIDs, salicylates (chronic, high-dose, concurrent use)

• Liver toxicity: chronic use of hydantoins, chronic alcohol use, high-dose carbamazepine
• Possible increased effects of zidovudine
• Possible increased effects of acetaminophen: β-blockers, probenecid
• Increased bleeding: warfarin
• Risk of acetaminophen toxicity when used in combination with OTC products

SERIOUS REACTIONS

! Acetaminophen toxicity is the primary serious reaction.
! Early signs and symptoms of acetaminophen toxicity include anorexia, nausea, diaphoresis, and generalized weakness within the first 12–24 hr.
! Later signs of acetaminophen toxicity include vomiting, right upper quadrant tenderness, and elevated liver function tests within 48–72 hr after ingestion.
! The antidote to acetaminophen toxicity is acetylcysteine (Mucomyst), but it should be administered as soon as possible following toxic dose.

DENTAL CONSIDERATIONS

General:
• Reports regarding the concomitant use of acetaminophen and warfarin seem to suggest a possible increase in anticoagulant effects, especially in patients with other diseases or contributing factors, diarrhea, age, debilitation, etc. Patients taking warfarin should be questioned about recent use of acetaminophen and current international normalized ratio (INR) values. Acetaminophen has been shown to increase the INR depending on the amount and duration of acetaminophen use. A new PT or INR value may be required if surgical procedures are planned. Data from one study (*JAMA* 279:657–662, 1998) indicated that use of four regular-strength acetaminophen tablets (325 mg) qd for 1 wk can increase the INR values. It is important to closely monitor INR values with use of acetaminophen over a long duration and in higher doses.
• Avoid prolonged use with aspirin-containing products or NSAIDs.
• Determine why the patient is taking the drug.
• Patients on chronic drug therapy may rarely have symptoms of blood dyscrasias, which can include infection, bleeding, and poor healing.
• Question patient about the use of other drug products, including OTC products, that contain acetaminophen because of risk of acetaminophen overdose.
• Severe liver injury can occur when more than 4 g of all products that include acetaminophen are taken in a 24-hr period. Warn patient of detrimental effects.

Consultations:
• For a patient with symptoms of blood dyscrasias, request a medical consult for blood studies and postpone dental treatment until normal values are reestablished.

Teach Patient/Family to:
• Question patient concerning other drugs being taken that include acetaminophen. Caution patient to be aware of products that might include acetaminophen.
• Emphasize the potential risks to liver when consuming alcohol and taking acetaminophen.

acetazolamide

ah-seet-ah-**zole′**-ah-mide
(Apo-Acetazolamide[CAN], Dazamide, Diamox, Diamox Sequels)
Do not confuse with acetohexamide.

Drug Class: Diuretic, carbonic anhydrase inhibitor

MECHANISM OF ACTION

A carbonic anhydrase inhibitor that reduces formation of hydrogen and bicarbonate ions from carbon dioxide and water by inhibiting, in proximal renal tubule, the enzyme carbonic anhydrase, thereby promoting renal excretion of sodium, potassium, bicarbonate, water. Ocular: Reduces rate of aqueous humor formation, lowers intraocular pressure.
Therapeutic Effect: Produces anticonvulsant activity.

USES

Treatment of open-angle glaucoma, narrow-angle glaucoma (preoperatively, if surgery delayed), epilepsy (petit mal, grand mal, mixed), edema in CHF, drug-induced edema, acute mountain sickness in climbers, drug-induced edema

PHARMACOKINETICS

Rapidly absorbed. Protein binding: 95%. Widely distributed throughout body tissues including erythrocytes, kidneys, and blood-brain barrier. Not metabolized. Excreted unchanged in urine. Removed by hemodialysis. ***Half-life:*** 2.4–5.8 hr.

INDICATIONS AND DOSAGES

▸ Glaucoma
PO
Adults. 250 mg 1–4 times a day. Extended-Release: 500 mg 1–2 times a day usually given in morning and evening.

▸ Secondary Glaucoma, Preoperative Treatment of Acute Congestive Glaucoma
PO/IV
Adults. 250 mg q4h, 250 mg q12h; or 500 mg, then 125–250 mg q4h.
PO
Children. 10–15 mg/kg/day in divided doses.
IV
Children. 5–10 mg/kg q6h.

▸ Edema
IV
Adults. 25–375 mg once daily.
Children. 5 mg/kg or 150 mg/m^2 once daily.

▸ Epilepsy
PO
Adults, Children. 375–1000 mg/day in 1–4 divided doses.

▸ Acute Mountain Sickness
PO
Adults. 500–1000 mg/day in divided doses. If possible, begin 24–48 hr before ascent; continue at least 48 hr at high altitude.

▸ Usual Elderly Dosage
PO
Initially, 250 mg 2 times a day; use lowest effective dose.

▸ Dosage in Renal Impairment

Creatinine Clearance	Dosage Interval
10–50 ml/min	q12h
Less than 10 ml/min	Avoid use

SIDE EFFECTS/ADVERSE REACTIONS

Frequent
Unusually tired/weak, diarrhea, increased urination/frequency, decreased appetite/weight, altered taste (metallic), nausea, vomiting, numbness in extremities, lips, mouth

Occasional
Depression, drowsiness
Rare
Headache, photosensitivity, confusion, tinnitus, severe muscle weakness, loss of taste

PRECAUTIONS AND CONTRAINDICATIONS

Severe renal disease, adrenal insufficiency, hypochloremic acidosis, hypersensitivity to acetazolamide, to any component of the formulation, or to sulfonamides
Caution:
Hypercalciuria, chronic use of oral sulfonylureas has been associated with increased risk of cardiovascular mortality; risk is controversial.

DRUG INTERACTIONS OF CONCERN TO DENTISTRY

- Toxicity: salicylates (large doses)
- Hypokalemia: corticosteroids (systemic use)
- Crystalluria: ciprofloxacin

SERIOUS REACTIONS

! Long-term therapy may result in acidotic state.
! Nephrotoxicity/hepatotoxicity occurs occasionally, manifested as dark urine/stools, pain in lower back, jaundice, dysuria, crystalluria, renal colic/calculi.
! Bone marrow depression may be manifested as aplastic anemia, thrombocytopenia, thrombocytopenic purpura, leukopenia, agranulocytosis, hemolytic anemia.

DENTAL CONSIDERATIONS

General:
- Patients on chronic drug therapy may rarely have symptoms of blood dyscrasias, which can include infection, bleeding, and poor healing.
- Assess salivary flow as a factor in caries, periodontal disease, and candidiasis.
- Avoid drugs that may exacerbate glaucoma (e.g., anticholinergics).

Consultations:
- In a patient with symptoms of blood dyscrasias, request a medical consultation for blood studies and postpone dental treatment until normal values are reestablished.
- Consultation may be required to assess disease control.

Teach Patient/Family to:
- Encourage effective oral hygiene to prevent soft tissue inflammation.
- Prevent injury when using oral hygiene aids.
- When chronic dry mouth occurs, advise patient to:
  - Avoid mouth rinses with high alcohol content because of drying effects.
  - Use daily home fluoride products for anticaries effect.
  - Use sugarless gum, frequent sips of water, or saliva substitutes.

acetohexamide

ah-seet-oh-**hex′**-ah-mide
(Dymelor)
Do not confuse with acetazolamide.

Drug Class: Sulfonylurea (first generation), antidiabetic

MECHANISM OF ACTION

An intermediate-acting sulfonylurea that promotes the release of insulin from beta cells of pancreas, increases insulin sensitivity at peripheral sites.

Therapeutic Effect: Lowers blood glucose concentration.

USES

Treatment of stable adult-onset diabetes mellitus (type 2)

PHARMACOKINETICS

Well absorbed from the GI tract. Protein binding: 65%–90%. Metabolized in liver. Excreted in urine. Not removed by hemodialysis. ***Half-life:*** 1.3 hr.

INDICATIONS AND DOSAGES

▸ Diabetes Mellitus

PO

Adults, Elderly. Initially, 250 mg/day. Adjust dosage in 250- to 500-mg increments at intervals of 5–7 days. Maximum daily dose: 1.5 g. Elderly patients may be more sensitive and should be started at a lower dosage initially.

SIDE EFFECTS/ADVERSE REACTIONS

Frequent

Altered taste sensation, dizziness, drowsiness, weight gain, constipation, diarrhea, heartburn, nausea, vomiting, stomach fullness, headache

Occasional

Increased sensitivity of skin to sunlight, peeling of skin, itching, rash

PRECAUTIONS AND CONTRAINDICATIONS

Diabetic ketoacidosis with or without coma, type 1 diabetes mellitus, hypersensitivity to acetohexamide or any component of the formulation

Caution:

Elderly, cardiac disease, renal disease, hepatic disease, thyroid disease, severe hypoglycemic reactions

DRUG INTERACTIONS OF CONCERN TO DENTISTRY

- Increased hypoglycemic effects: salicylates (large doses)
- Decreased action: corticosteroids
- Disulfiram-like reaction: alcohol

SERIOUS REACTIONS

! Hypoglycemia may occur because of overdosage or insufficient food intake, especially with increased glucose demands.

! GI hemorrhage, cholestatic hepatic jaundice, leukopenia, thrombocytopenia, pancytopenia, agranulocytosis, aplastic or hemolytic anemia occurs rarely.

DENTAL CONSIDERATIONS

General:

- Monitor vital signs at every appointment because of cardiovascular effects of diabetes.
- Patients on chronic drug therapy may rarely have symptoms of blood dyscrasias, which can include infection, bleeding, and poor healing.
- Place on frequent recall to evaluate healing response.
- Ensure that patient is following prescribed diet and takes medication regularly.
- Question patient about self-monitoring of drug's antidiabetic effect, including self-monitored blood glucose (SMBG) values or finger-stick records.
- Avoid prescribing aspirin-containing products.
- Early-morning appointments and a stress reduction protocol may be required for anxious patients.
- Patients with diabetes may be more susceptible to infection and have delayed wound healing.

Consultations:

- In a patient with symptoms of blood dyscrasias, request a medical

consultation for blood studies and postpone dental treatment until normal values are reestablished.
• Medical consultation may include data from patient's blood glucose monitoring, including glycosylated hemoglobin or hemoglobin A1c (HbA1c) testing.

Teach Patient/Family to:
• Encourage effective oral hygiene to prevent soft tissue inflammation.
• Prevent injury when using oral hygiene aids.
• Avoid mouth rinses with high alcohol content.

acetylcholine chloride

ah-seh-teel-**koe′**-leen
(Miochol-E, Miochol-E/Steri-Tags, Miochol-E System Pak)

Drug Class: Cholinergic

MECHANISM OF ACTION

A cholinergic agonist that causes contraction of the sphincter muscles of the iris.
Therapeutic Effect: Results in miosis and contraction of ciliary muscle, leading to accommodation spasm.

USES

To produce miosis for selected types of eye surgery

PHARMACOKINETICS

Rapid miosis of short duration

INDICATIONS AND DOSAGES

▸ Production of Miosis

Intraocular
Adults, Elderly. 0.5–2 ml instilled into anterior chamber before or after securing one or more sutures.

SIDE EFFECTS/ADVERSE REACTIONS

Rare

Corneal clouding, corneal decompensation

PRECAUTIONS AND CONTRAINDICATIONS

Acute iritis and acute inflammatory disease of the anterior chamber, hypersensitivity to acetylcholine chloride or any component of the formulation

DRUG INTERACTIONS OF CONCERN TO DENTISTRY

• None reported

SERIOUS REACTIONS

! Systemic effects rarely occur. These effects include bradycardia, hypotension, flushing, breathing difficulties, and sweating.

DENTAL CONSIDERATIONS

General:
• Acute-use drug in selected types of eye surgery.
• Avoid dental light in patient's eyes; offer dark glasses for patient comfort.

acetylcysteine

ah-see-til-**sis′**-tay-een
(Acetadote, Mucomyst, Parvolex[CAN])
Do not confuse acetylcysteine with acetylcholine.

Drug Class: Antidotes, mucolytics

MECHANISM OF ACTION

An intratracheal respiratory inhalant that splits the linkage of mucoproteins, reducing the viscosity of pulmonary secretions.

Therapeutic Effect: Facilitates the removal of pulmonary secretions by coughing, postural drainage, mechanical means. Protects against acetaminophen overdose-induced hepatotoxicity.

USES

Adjuvant therapy for patients with abnormal, viscid, or inspissated mucus secretions

PHARMACOKINETICS

INH/INSTILL: Onset 1 min, duration 5–10 min, metabolized by liver, excreted in urine.
Half-life: 5.6 hr (adult); 11 hr (newborn).

INDICATIONS AND DOSAGES

▸ Adjunctive Treatment of Viscid Mucus Secretions from Chronic Bronchopulmonary Disease and for Pulmonary Complications of Cystic Fibrosis

Nebulization
Adults, Elderly, Children. 3–5 ml (20% solution) 3–4 times a day or 6–10 ml (10% solution) 3–4 times a day. Range: 1–10 ml (20% solution) q2–6h or 2–20 ml (10% solution) q2–6h.
Infants. 1–2 ml (20%) or 2–4 ml (10%) 3–4 times a day.

▸ Treatment of Viscid Mucus Secretions in Patients with a Tracheostomy

Intratracheal
Adults, Children. 1–2 ml of 10% or 20% solution instilled into tracheostomy q1–4h.

▸ Acetaminophen Overdose

PO (Oral Solution 5%)
Adults, Elderly, Children. Loading dose of 140 mg/kg, followed in 4 hr by maintenance dose of 70 mg/kg q4h for 17 additional doses (unless acetaminophen assay reveals nontoxic level).

IV
Adults, Elderly, Children. 150 mg/kg infused over 15 min, then 50 mg/kg infused over 4 hr, then 100 mg/kg infused over 16 hr. See administration and handling. Repeat dose if emesis occurs within 1 hr of administration. Continue until all doses are given, even if acetaminophen plasma level drops below toxic range.

▸ Prevention of Renal Damage from Dyes Used During Certain Diagnostic Tests

PO (Oral Solution 5%)
Adults, Elderly. 600 mg twice a day for 4 doses starting the day before the procedure.

SIDE EFFECTS/ADVERSE REACTIONS

Frequent
Inhalation: Stickiness on face, transient unpleasant odor
Occasional
Inhalation: Increased bronchial secretions, throat irritation, nausea, vomiting, rhinorrhea
Rare
Inhalation: Rash

PRECAUTIONS AND CONTRAINDICATIONS

None known

DRUG INTERACTIONS OF CONCERN TO DENTISTRY

- None reported

SERIOUS REACTIONS

! Large doses may produce severe nausea and vomiting.

DENTAL CONSIDERATIONS

General:

- Be aware that aspirin and/or sulfite preservatives in vasoconstrictor-containing products may exacerbate asthma.

• Acute asthmatic episodes may be precipitated in the dental office. A rapid-acting sympathomimetic inhalant (rescue inhaler) should be available for emergency use. Many patients may already have prescribed rescue inhalers they normally use for acute asthmatic events.
• Consider semisupine chair position for patients with respiratory disease.
• Determine dose and duration of glucocorticoid therapy to assess for risk of stress tolerance and immunosuppression. Patients on chronic glucocorticoid therapy may require supplemental doses for dental treatment.
• Examine for oral manifestation of opportunistic infection.
• Evaluate respiration characteristics and rate.
• Short appointments and a stress reduction protocol may be required for anxious patients.
• Inquire about other drugs patients are using for respiratory disease.

Consultations:
• Consultation with physician may be necessary if sedation or general anesthesia is required.
• Consultation may be required to confirm glucocorticoid dose and duration of use.
• Medical consultation may be required to assess disease control and patient's ability to tolerate stress.

Teach Patient/Family to:
• Encourage effective oral hygiene to prevent soft tissue inflammation.
• Update health and medication history if physician makes any changes in evaluation or drug regimens; include OTC, herbal, and nonherbal remedies in the update.
• Gargle, rinse mouth with water, and expectorate after each aerosol dose.

acitretin
ah-sih-**tre′**-tin
(Soriatane)

Drug Class: Systemic retinoid

MECHANISM OF ACTION
A second-generation retinoid that adjusts factors influencing epidermal proliferation, RNA/DNA synthesis, controls glycoprotein, and governs immune response.
Therapeutic Effect: Regulates keratinocyte growth and differentiation.

USES
Severe psoriasis; unlabeled uses: nonpsoriatic dermatoses, keratinization disorders, palmoplantar keratoses, lichen planus, Darier's disease, Sjögren-Larsson syndrome; should be prescribed only by physicians knowledgeable in the use of systemic retinoids.

PHARMACOKINETICS
Well absorbed from the GI tract. Food increases rate of absorption. Protein binding: greater than 99%. Metabolized in liver. Excreted in bile and urine. Not removed by hemodialysis. ***Half-life:*** 49 hr.

INDICATIONS AND DOSAGES
▸ Psoriasis
PO
Adults, Elderly. 25–50 mg/day as a single dose with main meal. May increase to 75 mg/day if necessary and dose tolerated. Maintenance: 25–50 mg/day after the initial response is noted. Continue until lesions have resolved.

SIDE EFFECTS/ADVERSE REACTIONS

Frequent

Lip inflammation, alopecia, skin peeling, shakiness, dry eyes, rash, hyperesthesia, paresthesia, sticky skin, dry mouth, epistaxis, dryness/thickening of conjunctiva

Occasional

Eye irritation, brow and lash loss, sweating, chills, sensation of cold, flushing, edema, blurred vision, diarrhea, nausea, thirst

PRECAUTIONS AND CONTRAINDICATIONS

Women who are pregnant or those who intend to become pregnant within 3 yr following discontinuation of therapy; severely impaired liver or kidney function; chronic abnormal elevated lipid levels; concomitant use of methotrexate or tetracyclines; ingestion of alcohol (in females of reproductive potential); hypersensitivity to acitretin, etretinate, or other retinoids; sensitivity to parabenz (used as preservative in gelatin capsule)

Caution:

Women are advised to use effective contraception during use and for 3 yr after use, renal impairment, lactation, hyperlipidemia, cardiovascular disease

DRUG INTERACTIONS OF CONCERN TO DENTISTRY

- Avoid vitamin preparations containing vitamin A.
- Avoid tetracyclines and other drugs that cause photosensitivity.

SERIOUS REACTIONS

! Benign intracranial hypertension (pseudotumor cerebri) occurs rarely.

DENTAL CONSIDERATIONS

General:

- Determine why patient is taking the drug.
- Apply lubricant to dry lips for patient comfort before dental procedures.
- Assess salivary flow as factor in caries, periodontal disease, and candidiasis.
- Palliative medication may be required for management of oral side effects.
- Place on frequent recall because of oral side effects.
- Consider semisupine chair position for patient comfort if GI side effects occur.
- Avoid dental light in patient's eyes; offer dark glasses for patient comfort.

Consultations:

- Medical consultation may be required to assess disease control.

Teach Patient/Family to:

- Encourage effective oral hygiene to prevent soft tissue inflammation.
- Prevent trauma when using oral hygiene aids.
- Report oral lesions, soreness, or bleeding to dentist.
- When chronic dry mouth occurs, advise patient to:
  - Avoid mouth rinses with high alcohol content because of drying effects.
  - Use daily home fluoride products for anticaries effect.
  - Use sugarless gum, frequent sips of water, or saliva substitutes.

acyclovir

ay-**sye′**-kloe-ver
(Aciclovir-BC IV[AUS], Acihexal[AUS], Acyclo-V[AUS], Avirax[CAN], Lovir[AUS], Zovirax, Zyclir[AUS])
Do not confuse with Zostrix, Zyvox.

Drug Class: Antiviral

MECHANISM OF ACTION

A synthetic nucleoside that converts to acyclovir triphosphate, becoming part of the DNA chain.
Therapeutic Effect: Interferes with DNA synthesis and viral replication. Virustatic.

USES

Management of initial genital herpes and in limited non-life-threatening mucocutaneous herpes simplex infection in immunocompromised patients

PHARMACOKINETICS

Poorly absorbed from the GI tract; minimal absorption following topical application. Protein binding: 9%–36%. Widely distributed. Partially metabolized in liver. Excreted primarily in urine. Removed by hemodialysis. ***Half-life:*** 2.5 hr (increased in impaired renal function).

INDICATIONS AND DOSAGES

▸ Genital Herpes (initial episode)
IV
Adults, Elderly, Children 12 yr and older. 5 mg/kg q8h for 5 days.
PO
Adults, Elderly, Children 12 yr and older. 200 mg q4h 5 times a day.

▸ Genital Herpes (recurrent) fewer than 6 episodes per year
PO
Adults, Elderly, Children 12 yr and older. 200 mg q4h 5 times a day for 5 days.

▸ Genital Herpes (recurrent) 6 episodes or more per year
PO
Adults, Elderly, Children 12 yr and older. 400 mg 2 times a day or 200 mg 3–5 times a day for up to 12 mo.

▸ Herpes Simplex Mucocutaneous
IV
Adults, Elderly, Children 12 yr and older. 5 mg/kg/dose q8h for 7 days.
Children younger than 12 yr. 10 mg/kg q8h for 7 days.

▸ Herpes Simplex Neonatal
IV
Children younger than 4 mo. 10 mg/kg q8h for 10 days.

▸ Herpes Simplex Encephalitis
IV
Adults, Elderly, Children 12 yr and older. 10 mg/kg q8h for 10 days.
Children younger than 12 yr. 20 mg/kg q8h for 10 days.

▸ Herpes Zoster (Caused by Varicella)
IV
Adults, Elderly, Children 12 yr and older. 10 mg/kg q8h for 7 days.
Children younger than 12 yr. 20 mg/kg q8h for 7 days.

▸ Herpes Zoster (Shingles)
PO
Adults, Elderly, Children 12 yr and older. 800 mg q4h 5 times a day for 7–10 days.
Topical
Adults, Elderly. Apply to affected area 3–6 times a day for 7 days.

▸ Varicella (chickenpox)
PO
Adults, Elderly, Children older than 12 yr or Children 2–12 yr, weighing

40 kg or more. 800 mg 4 times a day for 5 days.
Children 2–12 yr, weighing less than 40 kg. 20 mg/kg 4 times a day for 5 days. Maximum: 800 mg/dose.
Children younger than 2 yr. 80 mg/kg/day.

▸ Dosage in Renal Impairment
Dosage and frequency are modified on the basis of severity of infection and degree of renal impairment.
PO
For creatinine clearance of 10 ml/min or less, dosage is 200 mg q12h.
IV

Creatinine Clearance	Dosage Percent	Dosage Interval
Greater 50 ml/min	100	8 hr
25–50 ml/min	100	12 hr
10–25 ml/min	100	24 hr
Less than 10 ml/min	50	24 hr

SIDE EFFECTS/ADVERSE REACTIONS

Frequent
Parenteral: Phlebitis or inflammation at IV site, nausea, vomiting
Topical: Burning, stinging
Occasional
Parenteral: Pruritus, rash, urticaria
Oral: Malaise, nausea
Topical: Pruritus
Rare
Oral: Vomiting, rash, diarrhea, headache
Parenteral: Confusion, hallucinations, seizures, tremors
Topical: Rash

PRECAUTIONS AND CONTRAINDICATIONS

Use in neonates when acyclovir is reconstituted with bacteriostatic water containing benzyl alcohol.
Caution:
Modify dose with acute or chronic renal impairment, safety of oral doses in pediatric patients less than 2 yr old not established, lactation, hepatic disease, renal disease, electrolyte imbalance, dehydration.

SERIOUS REACTIONS

! Rapid parenteral administration, excessively high doses, or fluid and electrolyte imbalance may produce renal failure exhibited by such signs and symptoms as abdominal pain, decreased urination, decreased appetite, increased thirst, nausea, and vomiting.
! Toxicity has not been reported with oral or topical use.

DENTAL CONSIDERATIONS

General:
• Postpone dental treatment when oral herpetic lesions are present.
Teach Patient/Family to:
• Dispose of toothbrush or other contaminated oral hygiene devices used during period of infection to prevent reinoculation of herpetic infection.
• Apply with a finger cot or latex glove to prevent herpes infection on fingers.
• Avoid mouth rinses with high alcohol content because of irritating effects.

adapalene

a-**dap′**-ah-leen
(Differin)

Drug Class: Dermatologics, retinoids

MECHANISM OF ACTION

Binds to retinoic acid receptors in cell nuclei modulating cell differentiation, keratinization.

Possesses antiinflammatory properties.
Therapeutic Effect: Normalizes differentiation of follicular epithelial cells.

USES
Treatment of acne

PHARMACOKINETICS
Absorption through the skin is low. Trace amount found in plasma following topical application. Excreted primarily by biliary route.

INDICATIONS AND DOSAGES
▸ **Acne Vulgaris**
Topical
Adults, Elderly, Children older than 12 yr: Apply to affected area once daily at bedtime after washing.

SIDE EFFECTS/ADVERSE REACTIONS
Frequent
Erythema, scaling, dryness, pruritus, burning (likely to occur first 2–4 wk, lessens with continued use)
Occasional
Skin irritation, stinging, sunburn, acne flares, erythema, photosensitivity, pruritus, xerosis

PRECAUTIONS AND CONTRAINDICATIONS
Hypersensitivity to adapalene, vitamin A or any one of its components

DRUG INTERACTIONS OF CONCERN TO DENTISTRY
• Avoid use of topical antiinfectives on same skin application site.

SERIOUS REACTIONS
! Concurrent use of other potentially irritating topical products (soaps, cleansers, aftershave, cosmetics) may produce severe topical irritation.

DENTAL CONSIDERATIONS
General:
• Advise patient if dental drugs prescribed have a potential for photosensitivity.
• Apply lubricant to dry lips for patient comfort prior to dental procedures.
• Limit systemic vitamin A doses to no more than the RDA.
Teach Patient/Family to:
• Avoid getting in eyes or mouth, or on other mucous membranes.

adefovir
ah-**deff**′-oh-veer
(Hepsera)

Drug Class: Antiviral

MECHANISM OF ACTION
An antiviral that inhibits the enzyme DNA polymerase, causing DNA chain termination after its incorporation into viral DNA.
Therapeutic Effect: Prevents cell replication of viral DNA.

USES
Treatment of chronic hepatitis B in adults showing evidence of active viral replication and with persistent elevations of ALT or AST or histologically active disease

PHARMACOKINETICS
Binds to proteins after PO administration. Excreted in urine.
Half-life: 7 hr (increased in impaired renal function).

INDICATIONS AND DOSAGES
▸ **Chronic Hepatitis B in Patients with Normal Renal Function**
PO
Adults, Elderly. 10 mg once a day.

▸ Chronic Hepatitis B in Patients with Impaired Renal Function
PO
Adults, Elderly with creatinine clearance. 20–49 ml/min. 10 mg q48h.
Adults, Elderly with creatinine clearance. 10–19 ml/min. 10 mg q72h.
Adults, Elderly on hemodialysis. 10 mg every 7 days following dialysis.

SIDE EFFECTS/ADVERSE REACTIONS

Frequent
Asthenia
Occasional
Headache, abdominal pain, nausea, flatulence
Rare
Diarrhea, dyspepsia

PRECAUTIONS AND CONTRAINDICATIONS

Hypersensitivity
Caution:
Severe acute exacerbations of hepatitis in patients who have discontinued drug, renal dysfunction with chronic use, HIV resistance, lactic acidosis, severe hepatomegaly with steatosis, monitor renal and hepatic function, safety and effectiveness in children and lactation not established

DRUG INTERACTIONS OF CONCERN TO DENTISTRY

- None reported

SERIOUS REACTIONS

! Nephrotoxicity (characterized by increased serum creatinine and decreased serum phosphorus levels) is a treatment-limiting toxicity of adefovir therapy.
! Lactic acidosis and severe hepatomegaly occur rarely, particularly in female patients.

DENTAL CONSIDERATIONS

General:
- Examine for oral manifestation of opportunistic infection.
- Determine why patient is taking the drug.
- Consider semisupine chair position for patient comfort if GI side effects occur.
- Do not provide treatment if clinician does not have seroconversion to protective antibodies to hepatitis B.

Consultations:
- Medical consultation may be required to assess disease control and patient's ability to tolerate stress.
- Patients who report feeling symptoms of lactic acidosis, such as weakness, malaise, with unusual muscle pain, difficulty breathing, stomach pain with nausea, cold feeling in arms or legs, dizziness or light-headedness, and irregular heartbeat, should be immediately referred to their physicians.

Teach Patient/Family to:
- Encourage effective oral hygiene to prevent soft tissue inflammation.
- Prevent trauma when using oral hygiene aids.
- Update health and drug history if physician makes any changes in evaluation or drug regimens.

aflibercept

a **flib′** er sept
(Eylea)

Drug Class: Ophthalmic agent, vascular endothelial growth factor (VEGF) inhibitor

MECHANISM OF ACTION

A recombinant fusion protein that prevents VEGF-A and PIGF from

binding and activating endothelial cell receptors, thereby suppressing neovascularization and slowing vision loss.
Therapeutic Effect: Inhibits progression of age-related macular degeneration (AMD).

USES
Treatment of neovascular (wet) AMD; treatment of macular edema following central retinal vein occlusion (CRVO)

PHARMACOKINETICS
Low levels are detected in the plasma following intravitreal injection. ***Half-life:*** 5–6 days.

INDICATIONS AND DOSAGES
AMD
Intravitreal injection
Adults. 2 mg (0.05 ml) every 4 wk for 3 mo then every 8 wk thereafter.

Macular Edema Following CRVO
Intravitreal injection
Adults. 2 mg (0.05 ml) every 4 wk.

SIDE EFFECTS/ADVERSE REACTIONS
Frequent
Conjunctival hemorrhage, eye pain, cataract, vitreous detachment, vitreous floaters
Occasional
Corneal edema, blurred vision, increased lacrimation, increased intraocular pressure

PRECAUTIONS AND CONTRAINDICATIONS
Hypersensitivity to aflibercept or any component of the formulation. Current ocular infection; active ocular inflammation. Intravitreous injections may be associated with endophthalmitis and retinal detachments. Hypersensitivity may present as severe intraocular inflammation; instruct patients to report intraocular inflammation that increases in severity. Following intravitreal injection, intraocular pressure may increase.

DRUG INTERACTIONS OF CONCERN TO DENTISTRY
- None reported

SERIOUS REACTIONS
! Risk of thromboembolic events may be increased following intravitreal administration of VEGF inhibitors.

DENTAL CONSIDERATIONS
General:
- Protect patient's eyes at all times due to increased risk of eye infections.
- Note potentially elevated antinuclear antibody (ANA) levels if diagnosing Sjögren's syndrome.

Consultations:
- Medical consultation may be needed prior to dental procedures to determine disease status and ability of patient to tolerate dental procedures.

Teach Patient/Family to:
- Encourage effective oral hygiene to prevent soft tissue inflammation and oral infection.
- Avoid contamination of eye with mouth fluids.

albendazole
all-**ben′**-dah-zole
(Albenza)

Drug Class: Anthelmintic, systemic

MECHANISM OF ACTION
A benzimidazole carbamate anthelmintic that degrades parasite cytoplasmic microtubules, irreversibly blocks cholinesterase secretion, glucose uptake in helminth and larvae (depletes glycogen, decreases ATP production, depletes energy). Vermicidal.
Therapeutic Effect: Immobilizes and kills worms.

USES
Treatment of infections caused by worms

PHARMACOKINETICS
Poorly and variably absorbed in GI tract. Widely distributed, cyst fluid and including CSF. Protein binding: 70%. Extensively metabolized in liver. Primarily excreted in urine and bile. Not removed by hemodialysis.
Half-life: 8–12 hr.

INDICATIONS AND DOSAGES
▸ Neurocysticercosis
PO
Adults, Elderly weighing more than 60 kg. 400 mg 2 times a day. Continue for 28 days, rest 14 days, repeat cycle 3 times.
Adults, Elderly weighing less than 60 kg. 15 mg/kg/day. Continue for 28 days, rest 14 days, repeat cycle 3 times.
▸ Cystic Hydatid
PO
Adults, Elderly weighing more than 60 kg. 400 mg 2 times a day. Continue for 8–30 days.
Adults, Elderly weighing less than 60 kg. 15 mg/kg/day. Continue for 8–30 days.

SIDE EFFECTS/ADVERSE REACTIONS
Frequent
Neurocysticercosis: Nausea, vomiting, headache
Hydatid: Abnormal liver function tests, abdominal pain, nausea, vomiting
Occasional
Neurocysticercosis: Increased intracranial pressure, meningeal signs
Hydatid: Headache, dizziness, alopecia, fever

PRECAUTIONS AND CONTRAINDICATIONS
Hypersensitivity to albendazole or any component of the formulation, pregnancy

DRUG INTERACTIONS OF CONCERN TO DENTISTRY
• Possible increase in blood levels: glucocorticoids, cimetidine

SERIOUS REACTIONS
! Pancytopenia occurs rarely.
! In presence of cysticercosis, drug may produce retinal damage in presence of retinal lesions.

DENTAL CONSIDERATIONS
General:
• Determine why patient is taking the drug.
• Patient on chronic drug therapy may rarely present with symptoms of blood dyscrasias, which can include infection, bleeding, and poor healing. If dyscrasia is present, caution patient to prevent oral tissue trauma when using oral hygiene aids.
• Question patients about other drugs they may be taking.
Consultations:
• In a patient with symptoms of blood dyscrasias, request a medical consultation for blood studies and postpone treatment until normal values are reestablished.

albiglutide

al-bi-**gloo′**-tide
(Tanzeum)
Do not confuse with **liraglutide.**

Drug Class: Antidiabetic agent, glucagon-like peptide-1 (GLP-1) receptor agonist

MECHANISM OF ACTION

An agonist of human glucagon-like peptide-1 (GLP-1) receptor and augments glucose-dependent insulin secretion, decreases glucagon secretion, increases satiety, and slows gastric emptying.

USES

Adjunct to diet and exercise to improve glycemic control in the treatment of type 2 diabetes mellitus

PHARMACOKINETICS

Administered by subcutaneous injection. Degradation to small peptides and individual amino acids by proteolytic enzymes. ***Half-life:*** 5 days.

INDICATIONS AND DOSAGES

Type 2 Diabetes Mellitus

Adults. 30 mg SC once **weekly**; may increase to 50 mg SC once **weekly** if inadequate glycemic response.
If a dose is missed, administer as soon as possible within 3 days after the missed dose; dosing can then be resumed on the usual day of administration. If more than 3 days have passed since the dose was missed, omit the missed dose and resume administration at the next regularly scheduled weekly dose.

SIDE EFFECTS/ADVERSE REACTIONS

Frequent

Hypoglycemia, diarrhea, nausea, upper respiratory tract infection, injection-site reaction

Occasional

Atrial fibrillation, gastroesophageal reflux disease, arthralgia, cough

PRECAUTIONS AND CONTRAINDICATIONS

Serious hypersensitivity reactions have been reported with use; discontinue therapy in the event of a hypersensitivity reaction; treat appropriately and monitor patients until signs and symptoms resolve. Cases of acute pancreatitis have been reported; monitor for signs and symptoms of pancreatitis. If pancreatitis is suspected, discontinue use.

DRUG INTERACTIONS OF CONCERN TO DENTISTRY

- Delayed gastric emptying with reduced absorption of orally administered drugs (e.g., preoperative antibiotics, sedatives)

SERIOUS REACTIONS

! Thyroid C-cell tumors have developed in animal studies with glucagon-like peptide-1 receptor agonists. It is not known if albiglutide causes thyroid C-cell tumor, including medullary thyroid carcinoma (MTC), in humans. Routine monitoring of serum calcitonin or the use of thyroid ultrasound monitoring is of uncertain value for early detection of MTC in patients treated with albiglutide.

DENTAL CONSIDERATIONS

General:

- Be prepared to manage episodes of hypoglycemia.
- Short appointments and a stress-reduction protocol may be needed for anxious patients.
- Common adverse effects (nausea, diarrhea, upper respiratory infections, sinusitis, cough, and back pain) may require treatment interruptions and/or modifications.
- Question patient about routine monitoring of blood glucose levels.