

A POTPOURRI OF PRACTICAL DENTAL PHARMACOLOGY

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I. What is a drug interaction?

- a drug interaction is the action of an administered drug on the effectiveness and/or toxicity of another drug administered earlier, simultaneously, or later.

II. FDA Classification (Risk rating)

- A. No known interaction
- B. No action needed
- C. Monitor therapy
- D. Consider therapy modification
- E. Avoid combination

III. Mechanisms of Drug Interactions

- A. Effects due to similar pharmacologic activity
 - CNS depressants
- B. Effects due to opposing pharmacologic activity
 - local anesthetics and vasoconstrictors
- C. Alteration of bioavailability
 - Tetracyclines and milk/dairy products
- D. Plasma protein binding
 - Coumadin and NSAIDs
- E. Biotransformation
 - Alcohol and Acetaminophen
- F. Renal Excretion
 - Lithium and NSAID's

IV. Pharmacologic Management of Orofacial Infections

- A. Routine orofacial infections
- Penicillin or amoxicillin?
 - Dosage

Rx Penicillin V Tablets 500 mg

Disp: 30 tablets

Sig: Take two tablets to start, then one tablet every six hours until all tablets are gone

- B. Prophylaxis
- Subacute Bacterial Endocarditis

Rx Amoxicillin tablets 500 mg

Disp: 4 tablets

Sig: Take four tablets by mouth 30-60 minutes before dental appointment

- Cardiac Conditions Associated With the Highest Risk of Adverse Outcome from Endocarditis for Which Prophylaxis With Dental Procedures is Recommended***

1. Artificial heart valves
 2. A history of infective endocarditis
 3. Certain specific, serious congenital (present from birth) heart conditions, including
 - a. Unrepaired or incompletely repaired cyanotic congenital heart disease , including palliative shunts and conduits
 - b. A completely repaired congenital heart defect with prosthetic material or device, whether placed by surgery or by catheter intervention during the first six months after the procedure
 - c. Any repaired congenital heart defect with residual defects at the site or adjacent to the site of a prosthetic patch or prosthetic device
 4. A cardiac transplant that develops a problem in a heart valve
- Alternatives

Rx Cephalexin Tablets 500 mg

Disp: 4 Tablets

Sig: Take four tablets by mouth 30-60 minutes before dental appointment

Rx *Clindamycin Tablets 150 mg*
Disp: 4 Tablets
Sig: *Take four tablets by mouth 30-60 minutes
before dental appointment*

Rx *Azithromycin tablets 250 mg*
Disp: 2 tablets
Sig: *Take two tablets by mouth 30-60 minutes
before dental appointment*

- Orthopedic prostheses???

C. Antifungals

- fluconazole (Diflucan) – systemic

Rx *Diflucan tablets 100mg*
Disp: Fifteen tablets
Sig: *Take two tablets by mouth the first day then
one tablet daily for thirteen days*

D. Antiviral

1. idoxuridine (Stoxil, Herplex)

2. acyclovir (Zovirax)

Rx *Zovirax Ointment 5%*

Disp: 15 gm

Sig: *Apply small amount to affected area
every three hours six times a day for
7 days*

3. valacyclovir (Valtrex)-systemic

- metabolite of acyclovir

- approved for herpes simplex

- 2 Grams orally twice a day (twelve hours apart) for
one day

4. penciclovir (Denavir)

Rx *Denavir Cream 1%*

Disp: 2 Gm tube

Sig: *Apply small amount of cream to affected areas
every two hours during waking hours for four
days*

5. docosanol (Abreva)
 - 10% cream
 - only OTC topical preparation approved by FDA
 - expensive

- E. Aphthous Ulcers
 1. Amlexanox (Apthasol)
 2. Debacterol
 - sulphonated phenols and sulphuric acid
 3. silver nitrate sticks
 4. Alum
 5. Cola drinks

Pharmacologic Management of Post-operative Dental Pain

I. Choosing an analgesic

- A. Quality of Pain
 - Dull, aching, inflammatory
 - Sharp, piercing, lancinating
 - Neuropathic pain
- B. Quantity of Pain
 - Mild/moderate/severe
- C. Locus of Action
 - Central nervous system
 - Locally, peripherally

II. Acetylsalicylic acid and derivatives

- A. pharmacologic effects - most of aspirin's useful pharmacologic effects are due to its ability to inhibit prostaglandin synthesis
 1. analgesic
 2. antipyretic
 3. anticoagulant
 4. anti-inflammatory
- B. contraindications
 1. allergy to aspirin or NSAIDs
 2. asthma-mechanism?
 3. chronic gastritis
 4. gout-probenecid-Why?
 5. anticoagulant (coumadins)
 6. pregnancy

III. Acetaminophen

- A. Mechanism of action
 - 1. COX-3 inhibitor (located in the CNS)
 - 2. peripheral effects also
- B. Pharmacologic effects
 - 1. analgesic
 - 2. antipyretic
 - 3. **NO** gastritis ☺
 - 4. **NO** clinically significant effects on uric acid ☺
 - 5. **NO** anti-platelet effects ☺
 - 6. **NO ANTI-INFLAMMATORY EFFECTS**
- C. maximum dose
 - < 3000 mg/day
 - maximum analgesic **dose** is 1000 mg

IV. Non-Steroidal Anti-inflammatory Agents (NSAIDs, NSAIDs)

- A. Mechanism of action
 - inhibition of cyclooxygenase-1 (COX-1) and/or cyclooxygenase-2 (COX-2)
- B. Combined COX-1 and COX-2 inhibitors
 - 1. ibuprofen (Advil, Motrin, Motrin-IB)
 - maximum daily dose-3200 mg
 - 2. naproxen (Naprosyn)
 - 3. naproxen sodium-better bioavailability (Anaprox DS)
 - maximum daily dose-1100 mg
- D. contraindications to all NSAIDs
 - 1. previous hypersensitivity to these drugs or aspirin
 - 2. history of gastritis
 - 3. anticoagulants
 - 4. asthma
 - 5. pregnancy

V. Narcotic (Opioids) derivatives

- A. less common side effects
 - 1. constipation
 - 2. urinary retention
 - 3. xerostomia
- B. most common side effects
 - 1. dizziness
 - 2. lightheadedness
 - 3. sedation
 - 4. nausea, vomiting

- D. available preparations
 - synthetic/semisynthetic codeine derivatives
 - with and without aspirin/acetaminophen
- E. Other Narcotics
 - 1. meperidine (Demerol)
 - 2. nalbuphine (Nubain)
 - 3. hydromorphone (Dilaudid)