ADR & Medication management in dentistry

Dr.M.Daei
ABZUMS

- Periprocedural medication management
- Significant drug interactions
- Allergic reactions to local anesthetics
- Oral/ Tooth related side effect of drugs

- **Periprocedural medication management**

- **Significant drug interactions**

- **Allergic reactions to local anesthetics**

- **Oral/ Tooth related side effect of drugs**

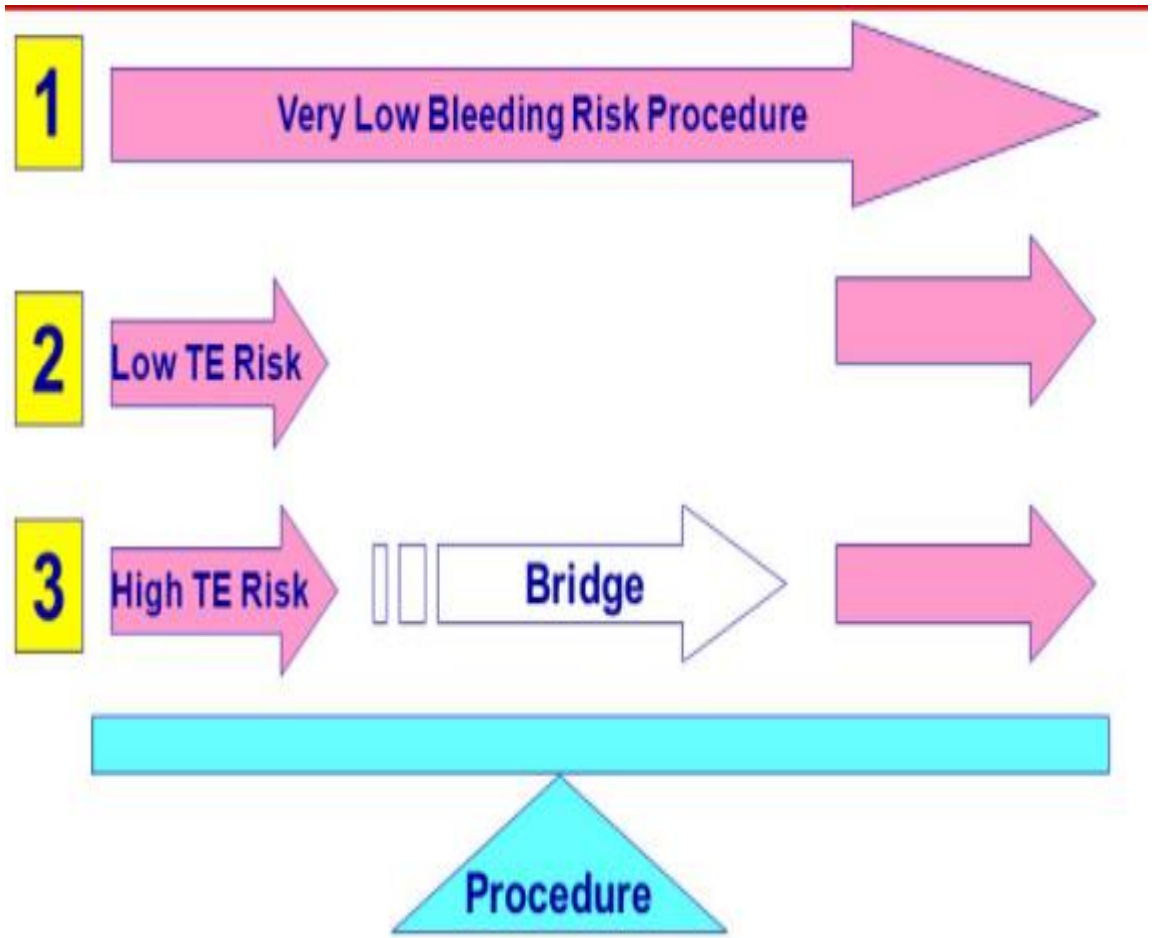
Periprocedural medication management

- Complete medication history
  - Supplements, OTC and herbal drugs
- Bleeding /Thromboembolic risk

Bleeding

- Antithrombotic
  - Anticoagulant
    - Parenteral
    - Oral
      - Warfarin
      - DOAC
  - Antiplatelet

- ❑ Procedure
- ❑ Drug
- ❑ Patient

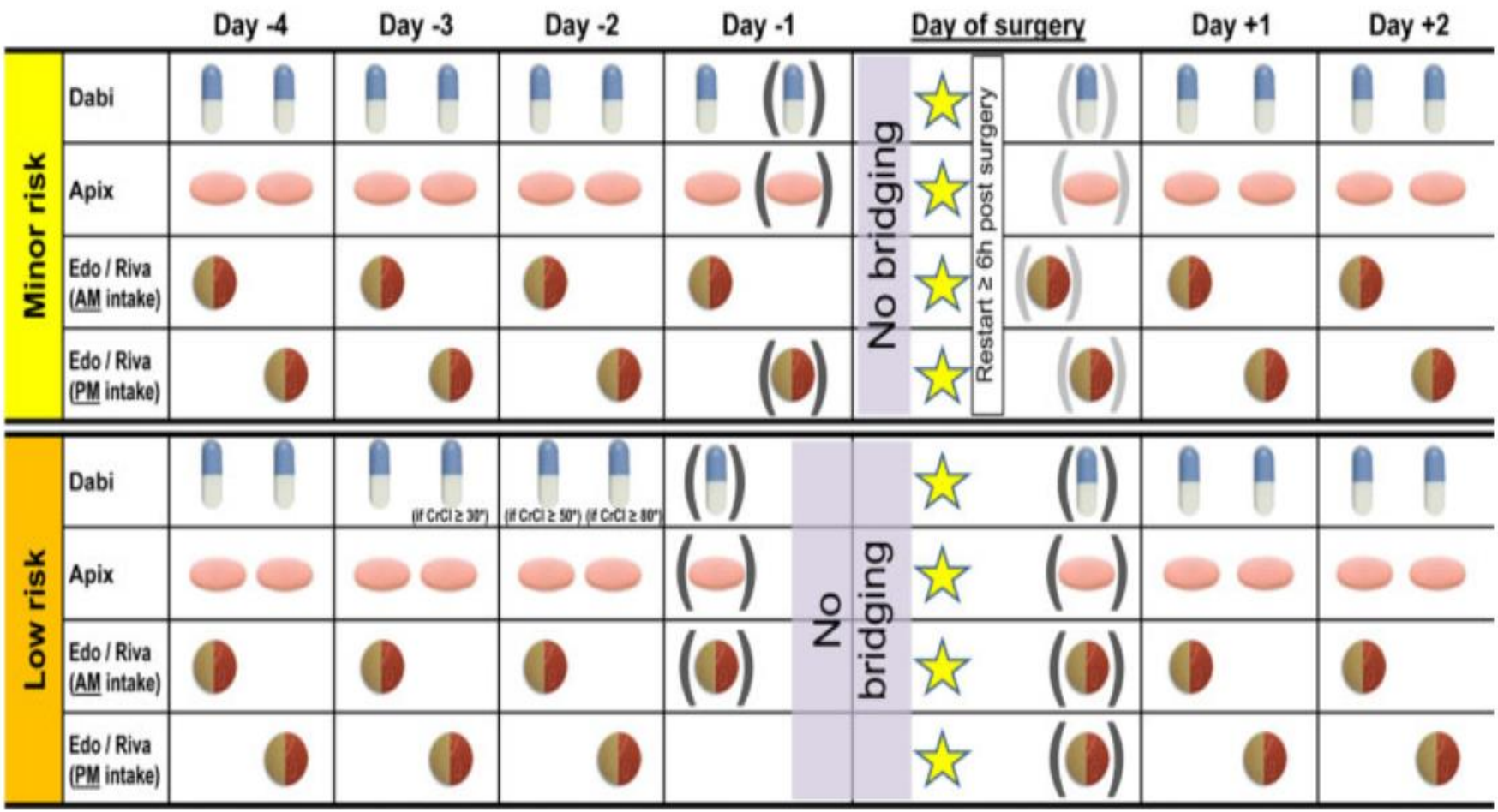

1
Very Low Bleeding Risk Procedure
2
Low TE Risk
3
High TE Risk
Bridge
Procedure

Bleeding Risk?
Tooth extraction: Low

Minor risk interventions (i.e. infrequent bleeding and with low clinical impact)
Dental extractions (1–3 teeth), paradontal surgery, implant positioning, subgingival scalling/cleaning
Cataract or glaucoma intervention
Endoscopy without biopsy or resection
Superficial surgery (e.g. abscess incision; small dermatologic excisions, skin biopsy)
Pacemaker or ICD implantation (except complex procedures)
Electrophysiological study or catheter ablation (except complex procedures)
Routine elective coronary/peripheral artery intervention (except complex procedures)
Intramuscular injection (e.g. vaccination)
Low-risk interventions (i.e. infrequent bleeding or with non-severe clinical impact)
Complex dental procedures
Endoscopy with simple biopsy
Small orthopaedic surgery (foot, hand, arthroscopy, . . .)

Anticoagulant

	Dabigatran		Apixaban - Edoxaban - Rivaroxaban	
No perioperative bridging with LMWH / UFH				
Minor risk procedures: - Perform procedure at NOAC trough level (i.e., 12 h / 24 h after last intake). - Resume same day or latest next day.				
	Low risk	**High risk**	**Low risk**	**High risk**
CrCl ≥80 ml/min	≥ 24 h	≥ 48 h	≥ 24 h	≥ 48 h
CrCl 50-79 ml/min	**≥ 36 h**	**≥ 72 h**		
CrCl 30-49 ml/min	**≥ 48 h**	**≥ 96 h**		
CrCl 15-29 ml/min	Not indicated	Not indicated	**≥ 36 h**	
CrCl <15 ml/min	No official indication for use			


Day -4
Day -3
Day -2
Day -1
Day of surgery
Day +1
Day +2
Minor risk
Dabi
Apix
Edo / Riva (AM intake)
Edo / Riva (PM intake)
No bridging
Restart ≥ 6h post surgery
Low risk
Dabi
Apix
Edo / Riva (AM intake)
Edo / Riva (PM intake)
(if CrCl ≥ 30°)
(if CrCl ≥ 50°)
(if CrCl ≥ 80°)
No bridging

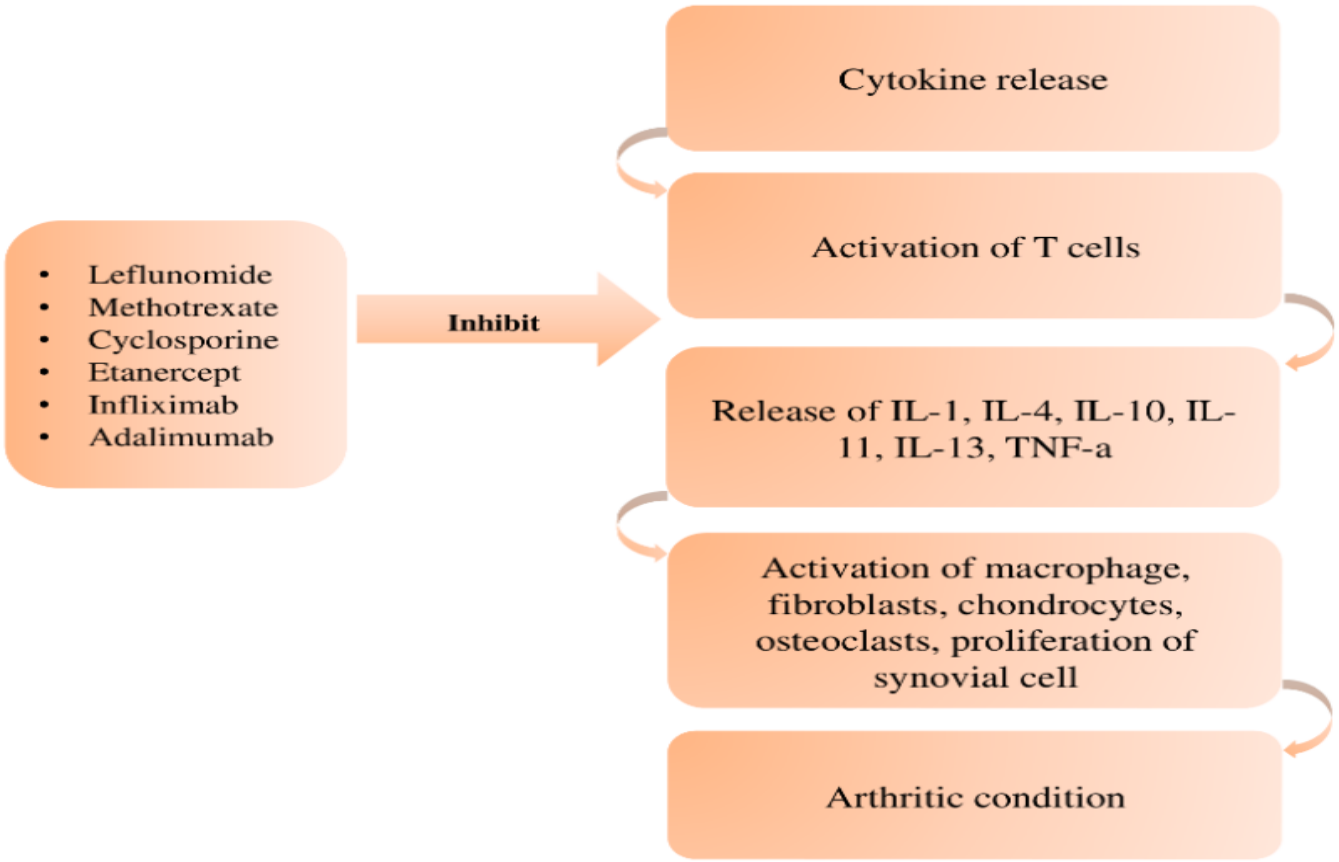
Aspirin

- Minor dental surgery, no need to stop

DAPT after PCI

- If major oral surgery, postpone if possible.
- After PCI, at least 6m, 3m, or 1m
- Discontinue P2Y12Inhibitor but continue ASA

DMARDs


Leflunomide
Methotrexate
Cyclosporine
Etanercept
Infliximab
Adalimumab
Inhibit
Cytokine release
Activation of T cells
Release of IL-1, IL-4, IL-10, IL-11, IL-13, TNF-a
Activation of macrophage, fibroblasts, chondrocytes, osteoclasts, proliferation of synovial cell
Arthritic condition

Herbal Supplements (altered coagulation)

- Ginkgo biloba
- Ginseng
- Garlic
- Ginger
- Saw palmetto
- Evening primerose oil
- Ginseng
- Garlic
- Ginger
- Saw palmetto

- Periprocedural medication management
- **Significant drug interactions**
- Allergic reactions to local anesthetics
- Oral/ Tooth related side effect of drugs

Considerable AB interactions in dentistry

- Metronidazole:
  - Avoid alcohol, PG or products containing these substances during & 3 days after the last dose
  - Lithium

Warfarin, OCP

NSAIDs

- ASA
- Antithrombotics
- HTN Drugs
- Li

NSAID of Choice

- CVD
- GI disorders
- Bleeding

- Periprocedural medication management
- Significant drug interactions
- **Allergic reactions to local anesthetics**
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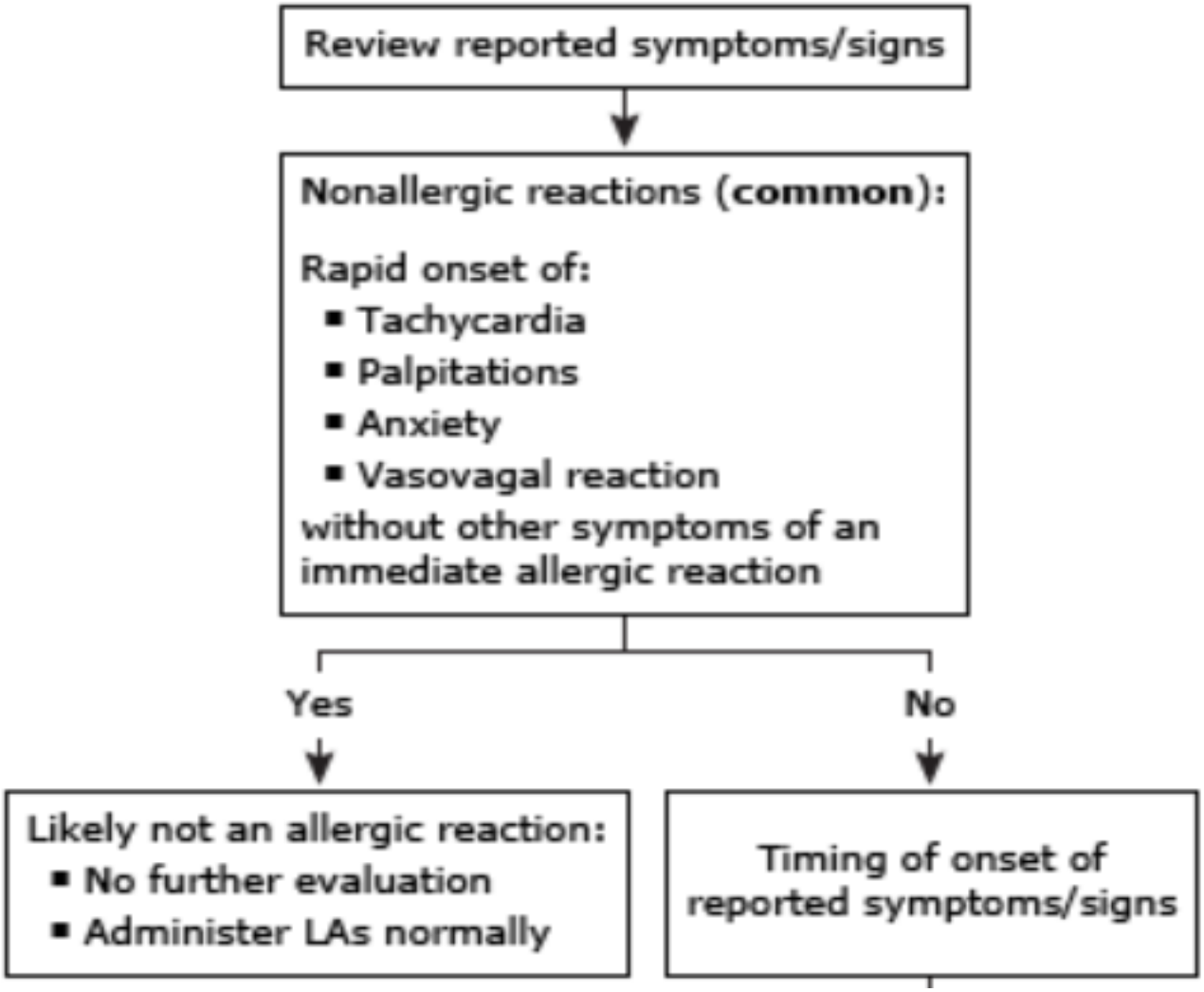
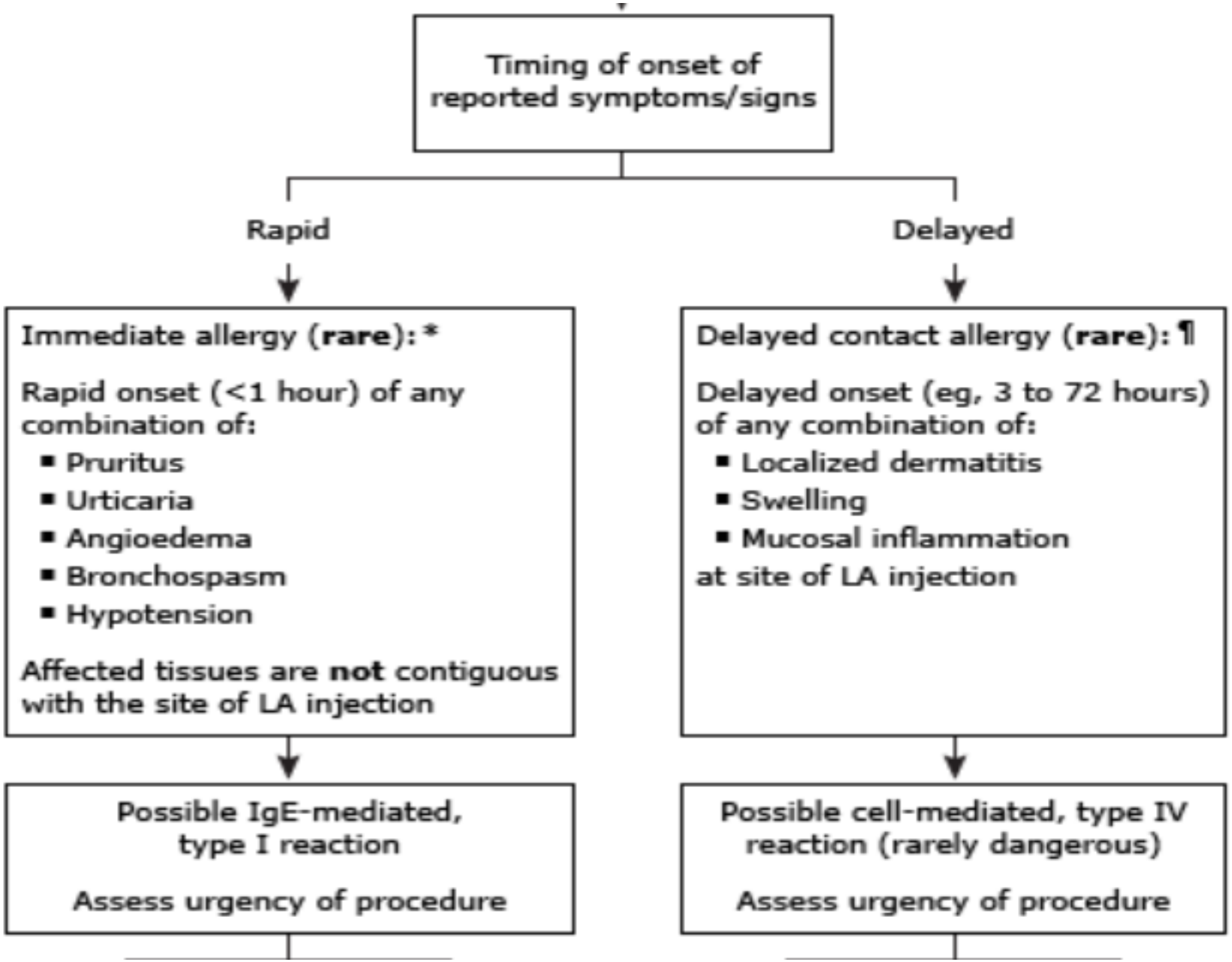
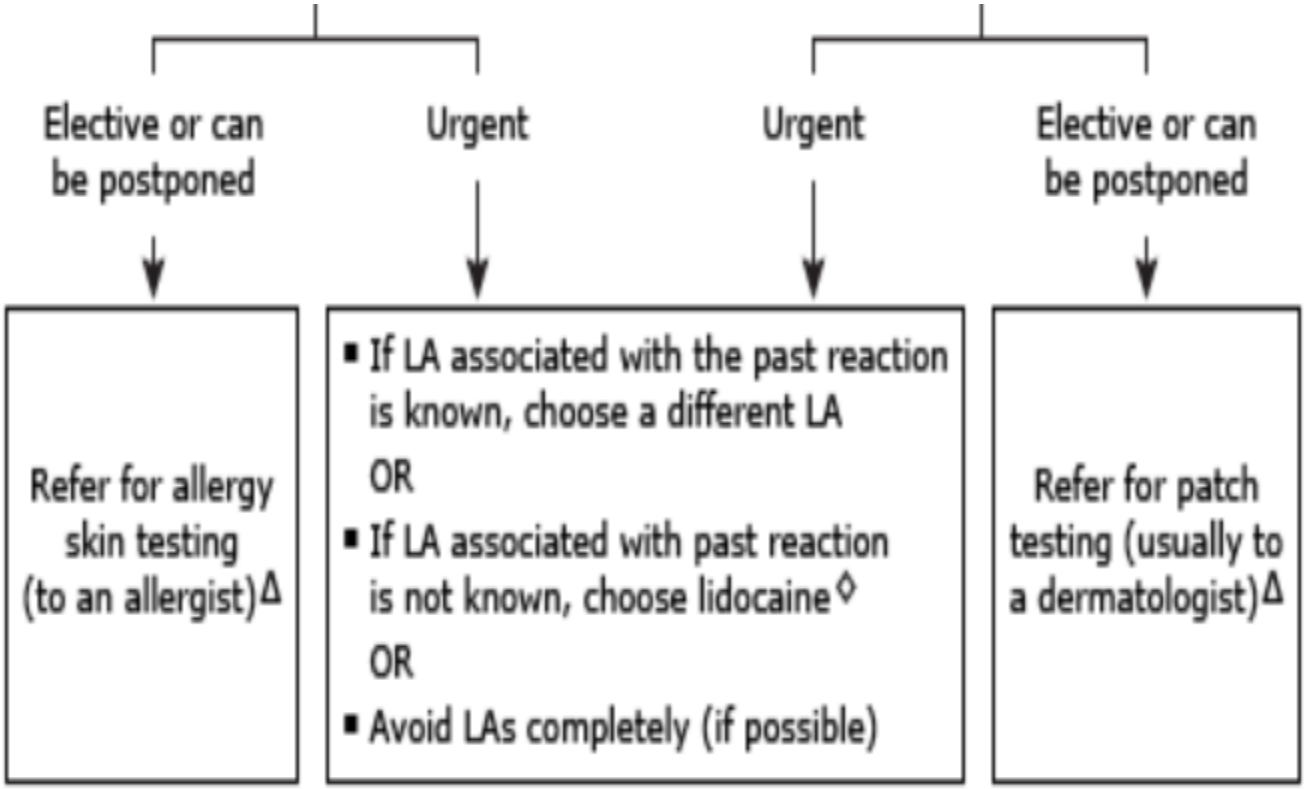
Allergic reactions to local anesthetics

- Uncommon
- Most are non allergic
- Types
  - Allergic contact dermatitis and delayed swelling at the site of administration
  - Generalized urticaria and/or anaphylaxis

Preprocedural evaluation and management of suspected Hx of LA allergy if LA would ordinarily be used




Timing of onset of reported symptoms/signs
Rapid
Delayed
Immediate allergy (rare): *
Rapid onset (<1 hour) of any combination of:
Pruritus
Urticaria
Angioedema
Bronchospasm
Hypotension
Affected tissues are not contiguous with the site of LA injection
Delayed contact allergy (rare): ¶
Delayed onset (eg, 3 to 72 hours) of any combination of:
Localized dermatitis
Swelling
Mucosal inflammation
at site of LA injection
Possible IgE-mediated, type I reaction
Assess urgency of procedure
Possible cell-mediated, type IV reaction (rarely dangerous)
Assess urgency of procedure


Elective or can be postponed
Urgent
Urgent
Elective or can be postponed
Refer for allergy skin testing (to an allergist)Δ
If LA associated with the past reaction is known, choose a different LA
OR
If LA associated with past reaction is not known, choose lidocaine◊
OR
Avoid LAs completely (if possible)
Refer for patch testing (usually to a dermatologist)Δ

COMMON: NONALLERGIC REACTIONS

- **Sympathetic stimulation**
  - Tachycardia, hypertension, anxiety, and palpitations may be caused by the release of endogenous catecholamines in response to pain.
  - Epi
- **Psychomotor reactions**
  - hyperventilation (manifested by dyspnea and tachypnea), paresthesias in the fingers or perioral area, dizziness, palpitations, tachycardia, nausea, or simply "not feeling good"
- **Vasovagal syncope**
  - Vasovagal syncope is usually associated with bradycardia (rather than tachycardia) and pallor (rather than flushing). These differences can be helpful in distinguishing it from anaphylaxis. Rapid spontaneous recovery is also a common feature.
- **Systemic toxic effects**
  - LAs can cause central nervous stimulation, even at therapeutic levels, and patients differ in their sensitivity to these effects. Highly sensitive individuals may experience circumoral numbness/tingling, anxiety, tremulousness, excitement, or even convulsions. At toxic doses, vasomotor collapse with hypotension, apnea, stupor, and myocardial dysfunction may occur.

- Periprocedural medication management
- Significant drug interactions
- Allergic reactions to local anesthetics
- **Oral/ Tooth related side effect of drugs**

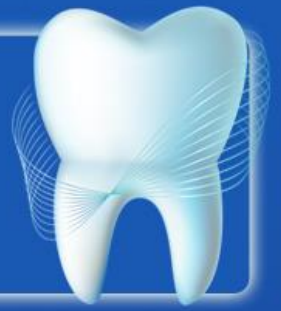
ONJ
(Bisphosphonate & denosumab)

- Rare
- High IV doses
- Cancer patients
- Anticancer therapy
- High dose and duration
- Dental extractions / Implants
- Poorly fitting denture
- GCs
- Smoking
- DM
- Preexisting dental disease

Bisphophonate

- Do not start if soon expect a procedure
- If a four year history of use, discontinue 2m before the dental surgery
- Restart after the bone healing

Xerostomia

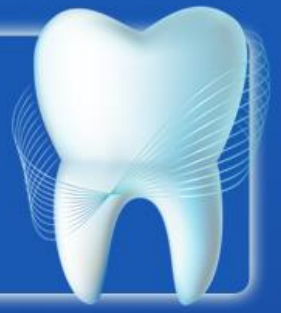


- The most common Oral ADR

Consequences:

- Smooth surface dental caries
- Gingivitis
- Worsening of periodontitis
- Increased risk of oral candidiasis
- Taste disturbance
- Dysphagia

Xerostomia

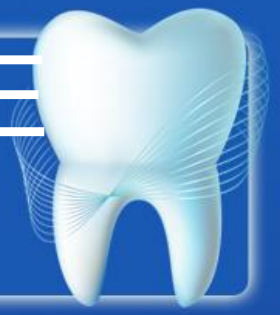


- Anticholinergic/ antimuscarinic medicines
- Anticonvulsants
- Antidepressants / Antipsychotics
- Antihypertensives / Diuretics
- Opioids
- Sedative hypnotics
- …> 400 drugs

DRUG-INDUCED TOOTH DISCOLOURATION

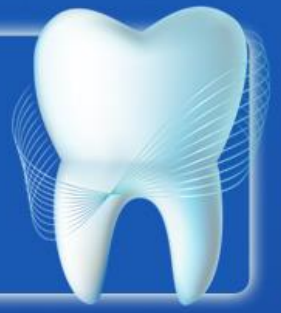
- Extrinsic
  - Chlorhexidine
  - Liquid oral Iron (greenish black)
  - Linezolide (yellow)
- Intrinsic
  - Tetracyclines
  - FQs

DRUG-INDUCED TASTE DISTURBANCE



- Dysgeusia, ageusia & parageusia
- 3% -11%
- Onset occurs early in treatment even from the 1st dose, usually persists for several weeks after the drug has been ceased.
- Metallic or bitter taste

DRUG-INDUCED TASTE DISTURBANCE

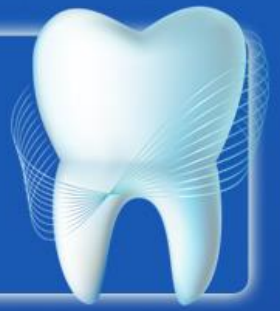


- Antihypertensive: Captopril, losartan, CCBs
- Acetazolamide
- Metronidazole
- Terbinafine (Aguesia)
- Topiramate
- Chlorhexidine

Drug induced Bruxism

- 14%-20% in children,with a prevalence of 18.6% in adults
- The average time of onset was 3-4 weeks after starting or with dose escalation
- Dose-dependent.

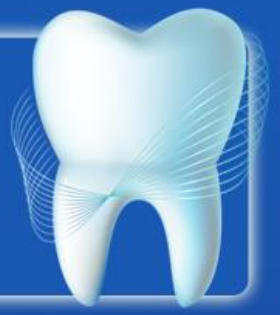
Drug induced Bruxism



Drug class	Drug	
Antidepressants	Citalopram	Paroxetine
	Escitalopram	Sertraline
	Duloxetine	Venlafaxine
	Fluoxetine	
	Fluvoxamine	
Antipsychotics	Chlorpromazine	
	Fluphenazine	
	Haloperidol	
Drugs for ADHD	Atomoxetine	

Drugs associated with hairy tongue

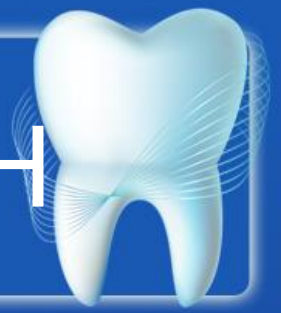
- Benign, self-limiting disorder
- Black, brown, yellow or green discoloration



- Tobacco use, alcohol, poor oral hygiene, xerostomia, recent radiation therapy

Drug class		Drug
Antibiotics	Penicillins	Amoxicillin
		Amoxicillin/clavulanic acid
		Ampicillin
		Phenoxymethylpenicillin
	Macrolides	Erythromycin
	Nitroimidazoles	Metronidazole
	Oxazolidinones	Linezolid
	Tetracyclines	Doxycycline
Antifungals		Griseofulvin
Antipsychotics		Olanzapine
		Chlorpromazine

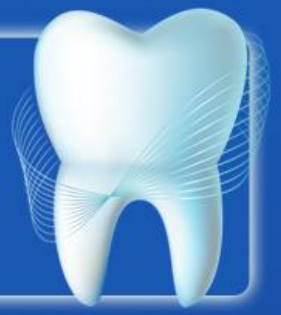
GINGIVAL OVERGROWTH



Over- growth of the gingiva accompanied by swelling, bleeding and can cause problems with speech, function and aesthetics

Drug class		Drug
Anticonvulsants		Phenytoin
Calcium channel blockers	Dihydropyridines	Amlodipine
		Nifedipine
		Felodipine
	Non-dihydropyridines	Diltiazem
		Verapamil
Immunosuppressants		Cyclosporin

Drugs associated with hypersalivation



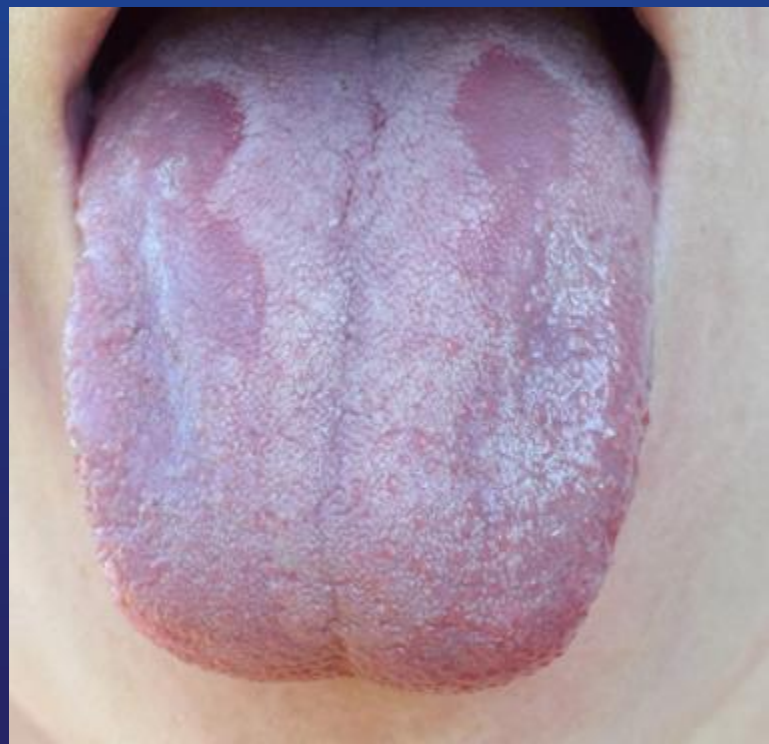
Sialorrhea or hypersalivation is the increased flow of saliva diagnosed by quantitative sialometry.

Chlorhexidine

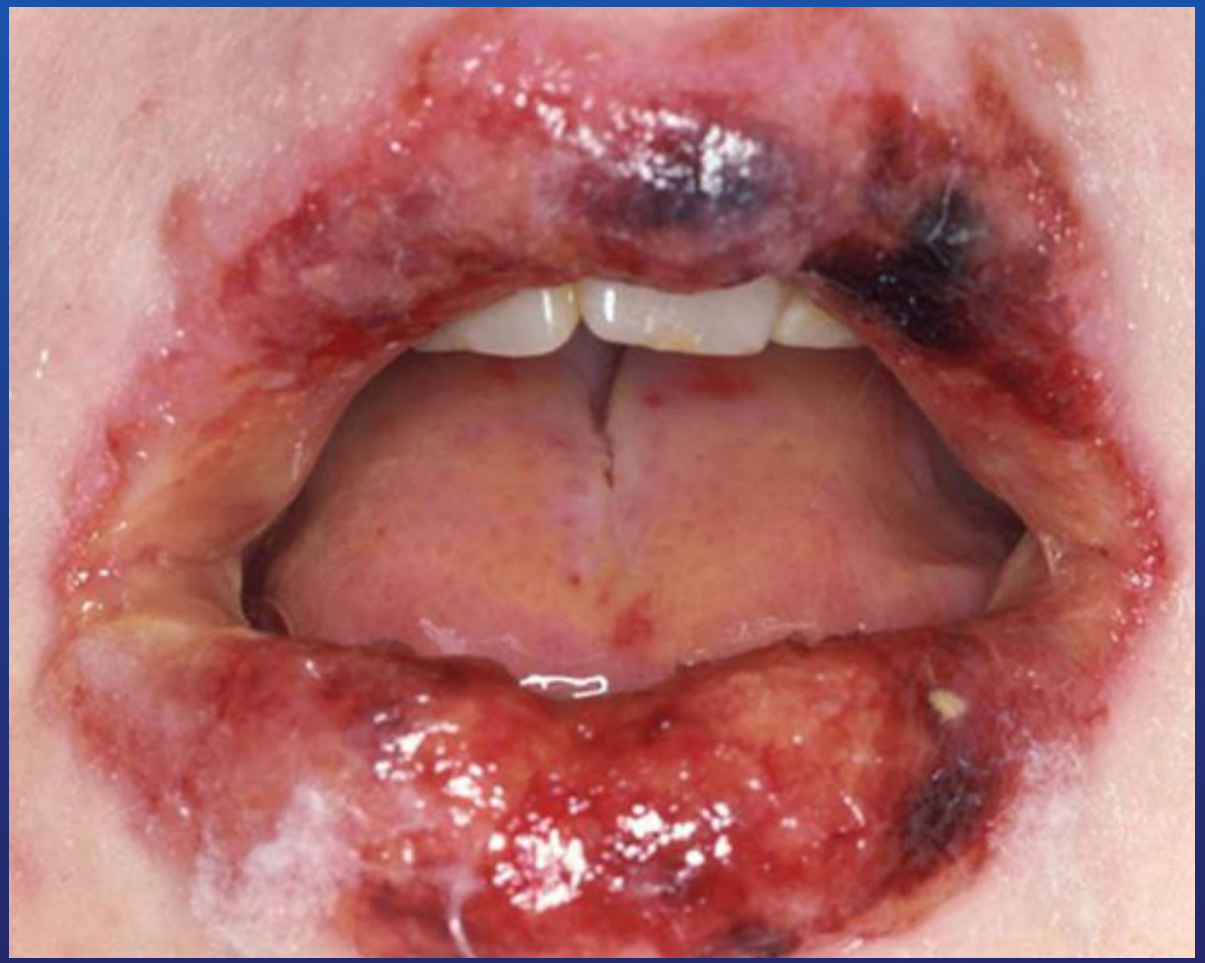
Drug class	Drug	
Acetylcholinesterase inhibitors	Donepezil	
	Galantamine	
	Pyridostigmine	
	Rivastigmine	
Antipsychotics	Haloperidol	Olanzapine
	Amisulpride	Quetiapine
	Chlorpromazine	Risperidone
	Clozapine	Zuclopenthixol
	Fluphenazine	

Oral Thrush

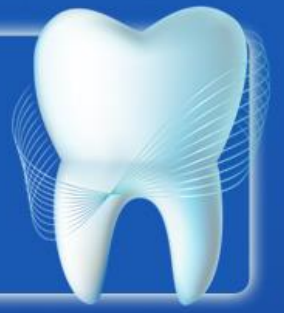
- Inhaled corticosteroids
- Antibiotics



SJS & TEN



SJS/ TEN

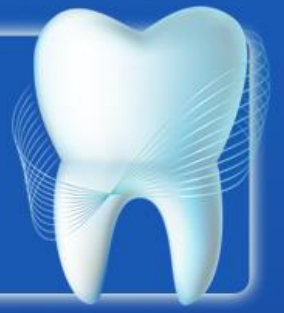


- 4 to 21 days
- Fever, Malaise, Fatigue, Sore throat, Dysphagia, photophobia
- Lymphopenia, Epidermal necrosis on skin biopsy with full thickness loss of epidermis

SJS & TEN

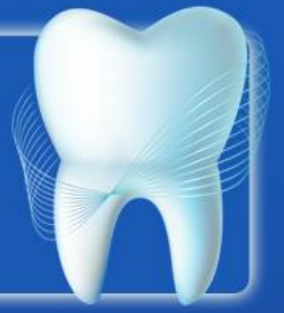
Strongly associated*	Associated Δ	Suspected association/lower risk ◊
Allopurinol	Diclofenac	Pantoprazole
Lamotrigine	Doxycycline	Glucocorticoids
Sulfamethoxazole	Amoxicillin/ampicillin	Omeprazole
Carbamazepine	Ciprofloxacin	Tetrazepam §
Phenytoin	Levofloxacin	Dipyrone (metamizole) ¶
Nevirapine	Amifostine	Terbinafine
Sulfasalazine	Oxcarbazepine	Levetiracetam
Other sulfonamides	Rifampin (rifampicin)	
Oxicam NSAIDs (piroxicam, tenoxicam ¶)		
Phenobarbital		

SJS/ TEN Management



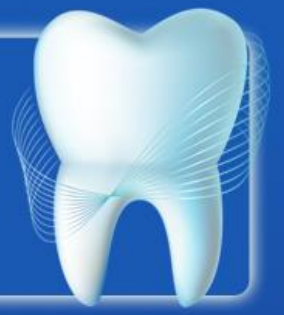
- Hospitalization
- Supportive Treatment
- **PROMPT WITHDRAWAL OF CULPRIT DRUG**

Mucositis



- Cytarabine
- Doxorubicin
- Etoposide (high-dose)
- Melphalan (high-dose)
- FU (bolus administration schedules)
- Methotrexate

Take Home Messages



- **Hold Antithrombotics just in case**
- **Herbal supplements may increase bleeding risk**
- **ONJ RFs: high dose, long IV bisphosphnate**
- **Abs & NSAIDs may cause SJS/TEN**
- **Chlorhexidine ADR: tooth discoloration, taste disorder & salivary enlargement**