

Lotions, Potions, Pastes and More!

Older Adults And Meds

- 13% over 65 use 1/3 of all meds RX
- Average over 65 person uses 6 meds
- Average over 65 person uses 7x otc meds

Basis for Today's Program

EVIDENCE!!

Polypharmacy Problems~compliance

- Qid 27%
- Tid 40%
- Bid 67%
- QD 85%

Research/Consulting

- Sunstar Americas
- Colgate
- Lornamead
- Johnson and Johnson
- St. Renatus
- Curozone
- Church & Dwight
- Oral Sciences

Food Drug Interactions

- Grapefruit juice can increase serum blood levels of drugs
- Metamucil and antacids can decrease the absorption of drugs

Drugs Affecting Oral Tissue

- Tetracycline
- Anticoagulants
- Dilantin
- Calcium Channel Blockers
- Cyclosporin
- Anticholinergic Drugs
- Birth Control Pills
- Lead Perborate
- Bismuth & Mercury-containing Agents
- Antimetabolites
- Non-Steroidal Anti-inflammatories

Herpes Labialis Therapy

Denavir Topical-5 gram tube, apply as needed

Abreva-5 gram tube, apply prn

Valtrex Caplets-2g-BID for one day-note that Thrombocytopenic purpura has occurred in HIV and transplant patients-can present with "stroke-like" symptoms

Mininocycline: May produce a black to gray pigmentation of teeth, alveolar bone, and gingival tissues

Ace Inhibitors

- Angioedema*
- Lichenoid lesions
- Mucositis
- Hoarse voice

*Also seen with denture adhesives

Apthous Ulcers

- Side Effect of NSAID's
- Sodium Lauryl Sulfate may exacerbate (SLS)
- Aphasol Rx
- Avoid Caffeine
- No SLS in Rembrandt, Sensodyne Gel (some), Tom's of Maine and Biotene

Captopril

- Accupril
- Altace
- Capoten
- Lotensin
- Monopril
- Prinivil
- Univase
- Vasotec

Causes of Gingival Enlargement

LOCAL

- Non-restored Teeth
- Habits
- Mouthbreathing
- Excess Plaque

Drugs and Gingival Enlargement

- Dilantin (Phenytoin)-50%
- Calcium Channel Blockers-25%
- Cyclosporin-25%
- Amphetamines?

Causes of Gingival Enlargement

SYSTEMIC

- | | |
|---------------|----------------------------|
| • Familial | • Cyclosporin |
| • Scleroderma | • Calcium Channel Blockers |
| • Pregnancy | • Amphetamines |
| • Puberty | • Dilantin |
| | • Barbiturates |

Bisphosphonates & Alveolar Bone

- Data based on 2 year review of charts of patients
- Usually find **4-6** patients with osteonecrosis of alveolar bone
- Survey found **63** patients with problem while being medicated-**7** were on oral bisphosphonates for osteoporosis-others for cancer

Calcium Channel Blockers

- Nifedipine (Procardia)
- Verapamil (Calan)
- Diltiazem (Cardizem)
- Amlodipine (Norvasc)

Bisphosphonates & Alveolar Bone

- Patients being medicated with Bisphosphonates (alendronate, etidronate, ibandronate, iludronate, risedronate) may develop necrosis of alveolar bone
- Patients medicated IV for metastatic cancer may be at increased risk (pamidronate, clodronate, zoledronic Acid)
- May be more prone to implant failure

Oral and IV Bisphosphonates

- Brand Name/Generic Name
Actonel, risedronate,
Boniva, ibandronate, Fosamax, alendro-nate, Skelid,
stiludronate, Didronel, etidronate

IV

- Aredia, pamidronate, Zometa, zoledronic acid,
Bonafos, clodronate

Bisphosphonates: Therapy

- Inform patient of possibility, stress rare
- Treat one quadrant/site, wait 2 months
- Place patient on topical antimicrobial rinse for the 2 months
- Chlorhexidine is best but because of staining can alternate with Essential Oils rinse
- Dentifrice used should be antiseptic

Bisphosphonates

- Risk of Bone Osteonecrosis (ARONJ) is <1/100,000 with oral dose-varies with country
- Probability may be increased in patients taking steroids or estrogens, over 65, and long term use of bisphosphonates
- Effects of Bisphosphonates are long lasting after cessation of therapy

In Summary...

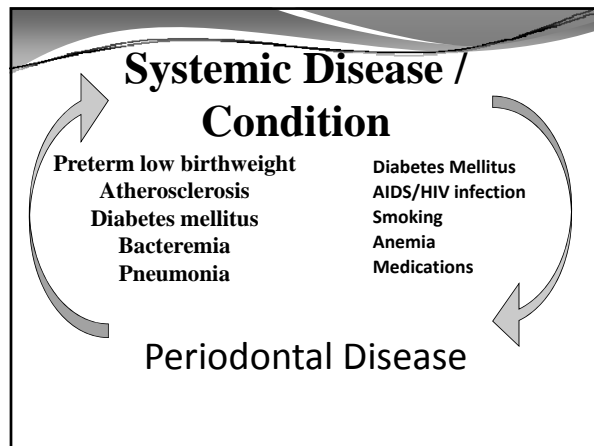
- A variety of medications/conditions can cause gingival enlargement
- Calcium Channel Blockers are common cause of medication related enlargement
- Oral lesions are rare in the United States in patients being medicated with oral bisphosphonates

Non Bisphosphonate Anti-resorptive Agent

- New agent now marketed-denosumab
- Brand Name -Prolia
- Case reported in J.Oral Maxillofac Surg, 2010
- Others under development
- In view of this, should refer to ARONJ and not BONJ

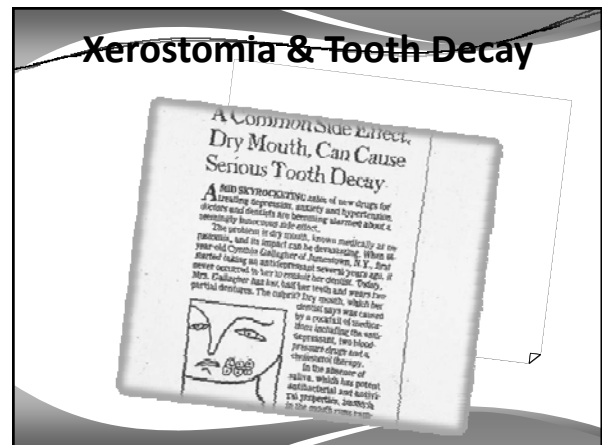
In Summary..

- Awareness of oral manifestations of systemic meds
- Systemic meds affect diagnosis and treatment planning



- ### Medications & Xerostomia
- Antihypertensives
 - Analgesics
 - Sedatives
 - Tranquilizers
 - Antihistamines
 - Anti-parkinson Meds

Xerostomia: A Problem for the 21st Century

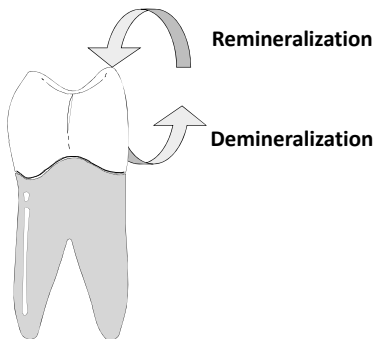


Over 500 Medications may cause Xerostomia

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- ### Systemic Conditions and Xerostomia
- Sjogren's Syndrome
 - Endocrine Disorders
 - Nutritional Deficiencies
 - Radiation
 - Chemotherapy
 - Stress
 - Depression

Remineralization, i.e. Amorphous Calcium Phosphate: Recaldent, Enamelcare



Root Surface Caries: Therapy

- **Topical fluorides**
Prevident, Gel-kam, Minute Foam
Prevident Clear, Duraphat, Durafluor, X-Pur
- **Remineralization**
Trident White, Amorphous CaPO_4 , MI Paste, X-Pur

Fluoride Varnishes

- Duraphat-5% Sodium Fluoride-over 200 clinical studies
- Prevident Varnish-clear version of Duraphat
- X-Pur Clear varnish-(.25 or .5 ml.)
- Duraphlor-generic copy-no clinical studies
- Fluor Protector-0.9% Fluorsilane

Artificial Saliva

- **Sprays better than other dosage forms**
- **Spray tends to be longer lasting**

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Colgate® Prevident® Varnish



Active Ingredients

- 5% sodium fluoride (22,600 ppm)

Benefits

- Ready-to-use unit dose treatment
 - Translucent color to guide application, but dries transparent on teeth
- Highest fluoride concentration available for clinically proven for hypersensitivity relief
- Sets rapidly on contact with saliva

Salagen (Pilocarpine)

- **Must have intact salivary gland tissue**
- **5 mg tid (10mg-refractory)**
- **Sweating, bronchial secretions, rhinitis**
- **Peaks in 1 hr., duration-3 hrs.**
- **Metabolized partially in plasma**

Xerostomia- Therapy

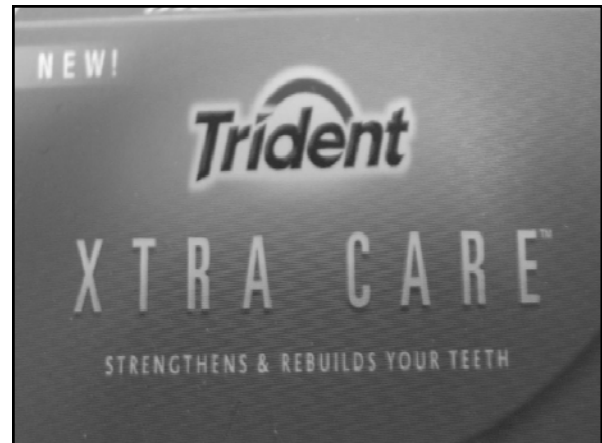
- Salagen
5-10mg TID
- Evoxac –30 mg tid

Prevention in Xerostomics

- Sugarless gum with Recaldent(Trident Extra care)
- Sugarless Lozenges-Lemon or pineapple
- Artificial Saliva Spray
- Fluoride Varnishes
- Salagen [pilocarpine]
- Candidiasis more common in appliance users
- Remineralizing dentifrices

Xerostomia – Therapy

- No caffeine
- Chewing sugarless gum
- Sugarless lozenges
 - Lemon, Pineapple, Apple (Halters)
 - Apple Artificial saliva spray
- Oral Balance (Biotene)



Xerostomia Quadruplets

- Candidiasis
- Caries-recurrent and root surface
- Excess Plaque
- Denture Retention Problems



In Summary...

- Xerostomia will be increasing due to increased use of medications
- Oral Candidiasis often associated with xerostomia
- Diagnosis and treatment of xerostomia is essential to proper care

Desensitizing Agents

- **IN OFFICE PRODUCTS**
 - Fluorides, Oxalates, Varnishes, Sealants, Arginine and Bonding Agents
- *Super Seal*
Unique-removes smear layer and seals tubules in one step-lab study shows more dentinal tubule penetration than other in office sealants

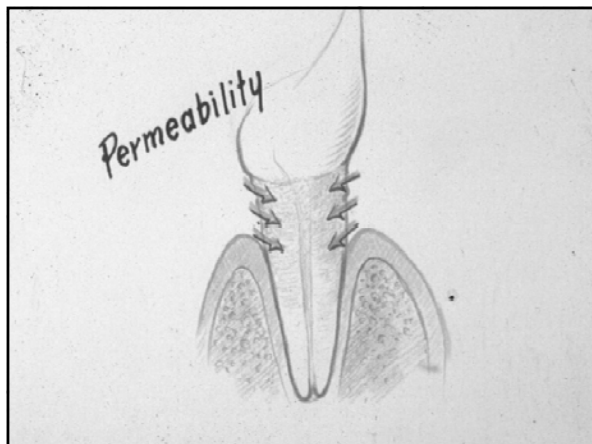
SENSITIVITY

Colgate® Sensitive Pro-Relief™
Desensitizing Paste with Pro-Argin™ Technology



8% arginine and CaCO_3 with prophyl-grade silica.

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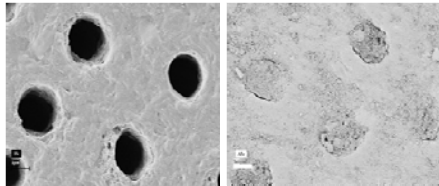
How Does the Pro-Argin™ Technology Work?

- Arginine and Calcium Carbonate work together to physically occlude dentin
- Arginine helps CaCO_3 stick to dentin
- Relies on physical attraction of a solid particle to occlude

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Dentin Occlusion by Pro-Argin™ Technology

SEM Images – 10,000x Magnification



Before Pro-Argin™ After Pro-Argin™

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Commonly Studied Antiseptics

- Chlorhexidine
- Essential oils
- Cetylpyridinium chloride
- Stannous fluoride
- Triclosan
- Zinc citrate

ADA Guidelines

- Six month studies (2)
- Safety to oral tissues
- Clinical & statistical efficacy
- No adverse microflora effects
- Plaque reduction Must be associated with gingivitis reduction

Fluorides

- Stannous Fluorides 0.04%, 0.1% , 0.4%
- Acidulated phosphate fluoride 1.23% - 2.5%
- Sodium fluoride 0.24% - 0.5%

What Are Antiseptic Rinses and How Do They Work?

- Antiseptics = topical or subgingival
- Antiseptic mouthrinses kill oral microorganisms that cause caries, gingivitis, and periodontitis
- Antiseptics ≠ antibiotics
- Antiseptics ≠ disinfectants

Ciancio SG. *Compend Contin Educ Dent.* 2000;21:59-78.

Stannous Fluoride Staining



Fluoride Content of Dentifrices

1 inch=1.5 grams=1.5mg of fluoride



ADA/FDA Study Guidelines

- six month studies (2)
- Safety to oral tissues
- Clinical & statistical efficacy
- No adverse microflora effects
- Plaque reduction Must be associated with gingivitis reduction

Adverse Effects of Hydrogen Peroxide

- May delay wound healing
- May increase tissue injury
- May be a co-carcinogen

Commonly Studied Antiseptics

- Chlorhexidine
- Essential oils
- Cetylpyridinium chloride
- Stannous fluoride
- Triclosan
- Zinc citrate

Leukoplakia



Oral Antimicrobials: 6 Month or Longer

	#	Usage	Subj	%PI	%GI	Anticandida
Chlorhexidine	6	BID	1516	21-61	18-67	+++
• Essential Oils	11	BID	2540	19-56	15-37	++
• Cetylpyridinium	3	BID	450	14-28	8-37	+
• Stannous Fl	3	BID	913	0	0	
	2	BID	145	0-77	45-72	
	2	BID	744	0	20	
	2	BID	316	0-7	22-26	
• Triclosan	9	BID	1400	12-30	20-75	
• Zinc Citrate	1	BID	113	25	19	

Cetylpyridinium Chloride(CPC)

- Active ingredient in Advanced Care Viadent, Cepacol, Scope, Pro-health
- Stains teeth in 10% of patients
- Activity decreased by dentifrice ingredients, serum
- May decrease bond strength, discolor restorations

Triclosan: Anti-inflammatory Effect

- Inhibits cytokines
- Inhibits mediators of inflammation-pge₂, cyclooxygenase(Cox 2)
- Inhibition of Cox 2 decreases production of pge₂

Listerine Zero

- In vitro data shows similar efficacy in bacterial reduction to alcohol free mouthrinses (Meridol, Crest Pro-Health) *
- In vivo single use study shows significant reduction in anaerobes and malodor associated volatile sulfur compound (VSC) producing bacteria*
- 2 week in vivo non brushing study shows 23.9% reduction in PI and 10.4% reduction in MGI**

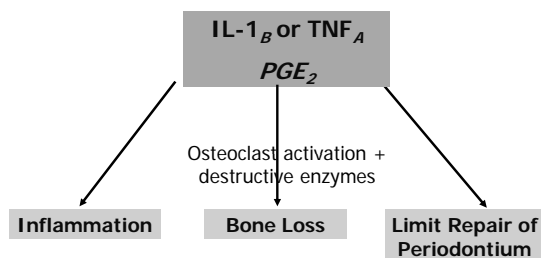
*AADR 2011: abs. 793 ,791 & **AADR 2012 : abs. 42

Anti-inflammatory Effects of Essential Oils

The mixture of essential oils was found to have significantly inhibited mPGE₂S with a 50% inhibitory concentration (IC₅₀) of 0.004%.

Microsomal Prostaglandin E Synthase-1 Inhibition by Antiseptic Mouthrinse Essential Oils J. GIERSE, et al, JDR, 85,2607abs, 2006

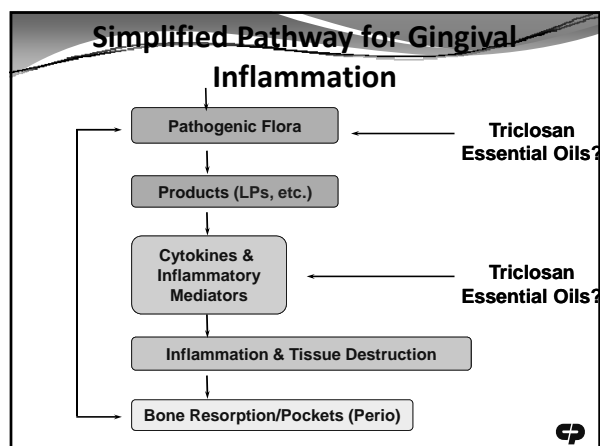
Mediators of Inflammation



Anti-inflammatory Effects of Essential Oils

- The preliminary findings presented here suggest that, when in a fixed combination, the four EOs may be useful in reducing PGE₂ levels in the oral environment and, hence, have anti-inflammatory properties.

J. GIERSE, et al, JDR, 85,2607 abs. 2006



Microbiological Conclusions

- Long Term use of Triclosan/Copolymer/Fluoride dentifrice does not result in the development of pathogenic, opportunistic or resistant oral microorganisms

Colgate Total & Essential Oils- Dual Actions

- 12 hour antibacterial action-triclosan; kills bacteria for 12 hour plaque and gingivitis protection-essential oils
- Both have some activity in vivo against cytokines

FDA order halts P&G, Colgate toothpaste intros

By Jennifer Lawrence and Judann Dagnoli

P&G, on the brink of introducing Crest Ultra Protection Crest, learned last week the product is likely to be delayed for at least two years because the FDA has determined the toothpaste's active ingredient—triclosan—is a new drug.

The new Crest formula is said to gum disease.

The halt order is a dramatic and embarrassing blow to P&G, since the marketer had already presented the product to the retail trade. An estimated \$55 million ad campaign from D'Arcy Masius Benton & Bowles, New York, to support the launch has been scrapped.

The anti-bacterial triclosan must undergo the FDA's new drug application process, which can take from 24 to 36 months to complete, once the supporting data have been filed.

The FDA's position on triclosan also appears to be a setback for Colgate, the leader in the \$3 billion toothpaste market.

(Continued on Page 44)

Microbiology Studies TRICLOSAN (Total)

Research	Pathogen	Opportunist	Resist
Zambon	no	no	no
Bontá	no	no	no
Walker	no	no	no
Zambon	no	no	no
Fine	no	no	no

Ph of Mouthrinses

• Plax	7.6
• Cepacol-reg/mint	7.0/6.0
• Peridex, Perio-Gard	5.5
• Scope, Pro-Health	5.4
• Viadent	4.8
• Listerine	4.2

Soft Drinks-ph

• Diet Coke	3.29
• Diet Pepsi	3.05
• Nestea	3.04
• Gatorade	2.95
• Dr. Pepper	2.92
• Hawaiian Punch	2.82
• Orange Soda	2.80
• Coke	2.53
• Pepsi	2.49

Average Urethane Level (ppb)

Beverage	Domestic	Imported
Brandy (grape)	10	45
Brandy (fruit)	5	255
Bourbon (retail)	70	55
Rum	2	5
Scotch	•	55
Sherry	10	40
Grape wine	10	15
Saki	55	60

Buffering Effects of Saliva

- Active 30 sec rinse with Listerine vs. water
- Lingual plaque pH recorded at 30, 60, 120 secs post expectoration
- pH was 6.73 to 5.04 to 5.78 (30 sec) to 6.74 (120 sec) vs. 6.56
- No change in calcium, phosphate or organic acids compared to water

Nazari, Lynch J Dent Res 1997; 76 (5):1048 (abstr #238).

Regulatory Bodies

- The American Dental Association, the US National Cancer Society, and the US FDA maintain that epidemiological studies have not established an association between the use of alcohol containing mouthrinses and oral cancer.
- Most recently, in 2009, the British Dental Health Foundation, the British Dental Association & International Academy of Periodontology found no proven links between alcohol-containing mouthwashes and increased incidence of oral cancer.

Alcohol Content - %

Listerine I	26.9	Listerine II	21.6
Scope	18.5		
Cepacol	14.0%		
Peridex, PerioGard	11.6%		
Viadent	11.5%		
X-Pur (Chx)	4.0%		

In Summary..

- Evidence for mouthrinses should come from 6 month studies
- Alcohol content and pH may be important factors in some patients
- Be aware of adverse effects
- Products with the ADA seal have proven efficacy and safety

REASONS FOR IMPLANT FAILURE

- Infection
- bone quality
- smoking
- surgical trauma
- systemic disease
- medications
- overload
- periodontitis history
- Adjacent endodontic lesion
- genetics?

Patients with local inflammation or inadequate oral hygiene should not be subjected to dental implant therapy

Buser '99

Past history of periodontitis represents a risk factor for peri-implantitis(esp. diabetics and smokers)

Van der Weijden '05

Implants and Essential Oils

The Effect of an Antiseptic Mouthrinse on Implant Maintenance: Plaque and Peri-Implant Gingival Tissues'

S.G. Ciancio, F. Fuscuria, D. Shilly, M. Virelli, and M. Muller

THE PURPOSE OF THIS CONTROLLED DOUBLE-BLIND, PARALLEL, RANDOMIZED CLINICAL STUDY WAS TO DETERMINE THE EFFECT OF ANTISEPTIC MOUTHRINSE ON PARAMETERS IMPORTANT TO DENTAL IMPLANT MAINTENANCE. PLACQUE, PERI-IMPLANT GINGIVITIS, GINGIVAL BLEEDING, PROBING DEPTH, AND ATTACHMENT LEVEL WERE ASSESSED OVER A 3-MONTH TEST PERIOD. TWENTY HEALTHY ADULT PATIENTS EACH OF WHOM HAD AT LEAST FIVE DENTAL IMPLANTS, A MODIFIED PERI-IMPLANT INDEX > 1.5, AND A MODIFIED QUIGLEY-HEIN PLACQUE INDEX > 1.7 WERE ENROLLED INTO THE

Study conducted at Buffalo VA demonstrated that rinsing with essential oils rinse reduces peri-implant mucositis by significant reductions in PI, MGI and BOP when used as an adjunct to routine oral hygiene

Ciancio, et al, J.Periodontol.,1995

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Bacterial Recolonization

- Following implant placement, bacteria begin to immediately recolonize surfaces
- Complex microflora is established within one week after abutment connection
- Healthy implants present with low biofilm scores
- Unhealthy implants present with high biofilm scores



Chlorhexidine and Implants

- Patients with Peri-implant mucositis
- Used Chlorhexidine in Water Pik with Pik Pocket tip
- Significant reduction in Peri-implant mucositis compared to control group

Felo, et al, J. Periodontol.,1997

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Triclosan-Peri-Implant Mucositis Study Results

- Plaque biofilm scores equally reduced (absence or presence)
- Bleeding on Probing reduced significantly in Test group by 25% but not in control group
- Probing Depth significantly reduced in control group but not in test group

In partially edentulous patients, micro-organisms in periodontal pockets may serve as a reservoir for colonization of the subgingival area around implants

Meffert '93, Nevins '01, Mombelli '02, Quirynen '02

Failing Implant therapy

- Establish Biofilm Control-use of **effective** antiseptic mouthrinses and dentifrices
- Debridement
- Local Delivery of Medication
- Clindamycin systemic
- Followed by Low dose doxycycline

Home Remedy for Pyorrhea

Tips 1:

Chew a very green Guava.

Tips 2:

Drink 1 cup of spinach juice mixed with 1 cup of carrot juice.

Tips 3:

Eat a ripe Banana by only removing the outer peel very gently.

Tips 4:

Eat the Banana along with the threadlike inner peel.

Source www.medindia.org, 2006

Another Reason for Implant Failure

**Adverse effects on implant subgingival
surface from treatment for peri-
implantitis**

Rossitto R*, et al., March, 2000, Annual Meeting, Academy of Osseointegration. New Orleans,

Herbal Products

- Bleeding
- Xerostomia
- Decreased wound healing

Herbal Products

Usage has increased by **400%** from 1980-1997
& **500%** from '97-2010

180% increased in high doses of vitamins

1/5 of population take prescription drugs ,
vitamins & herbs

Dangerous Dietary Supplements

- Ephedra-cardiac arrhythmia
- Citrus aurantitium(bitter orange)-cardiac arrhythmia
- Usnic acid (weight loss)-liver damage
- Kava (varied uses)-liver damage
- Pyrrolizidine alkaloids (varied uses)-Liver damage

Interactions : Herbal Agents

Ginkgo , Garlic ; Danshen , & Dong quai can
increase bleeding episodes in conjunction
with anticoagulants

St. John's wart may decrease levels of
anticoagulants resulting in blood clotting

Herbal Agents :

Cardiovascular Toxicity

Ephedra may increase response to
epinephrine including dysrhythmia

Cocaine sensitizes heart to dysrhythmia
to local anesthetics

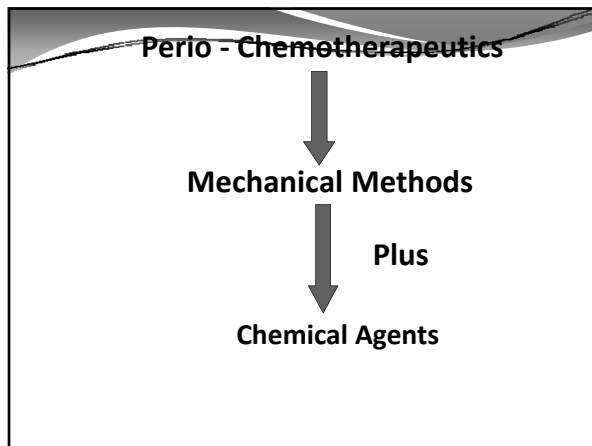
Herbal Agents : Liver Toxicity

- Chaparral
- Coltsfoot
- Comfrey
- Germander

Herbal Agents : Miscellaneous

Licorice may potentiate the effect of
corticosteroids

Feverfew and NSAID'S may increase
apthous ulcers



Cetacaine

- Benzocaine 14%, Butamben 2%, Tetracaine 2%
- Placed subgingivally, rapid acting
- Made by Cetylite Industries
- Cost less than similar products

Non-surgical treatment of Periodontal Disease

Good oral hygiene

Scaling and root planning

Systemic antibiotics- “special cases”

Locally delivered medications

Systemic medications non-antibiotics



PRINCIPLES OF NON-SURGICAL THERAPY

- 10-12 minutes per tooth with anesthesia
- More effective on single rooted teeth
- Antibiotics may be useful adjuncts
- Re-evaluate in six-eight weeks



Antibiotics and Periodontal Therapy

Tetracyclines

- ❖ LAP, GAP, severe adult cases

Augmentin

- ❖ Refractory, LAP

Metronidazole

- ❖ Severe adult cases

Amoxicillin + Metronidazole, Augmentin + Metronidazole

- ❖ LAP, GAP, Refractory

Clindamycin

LAP, Refractory



Localized Aggressive Periodontitis

- Amoxicillin plus Metronidazole

Amoxicillin-500mg

Metronidazole-250mg

#30

One TID

Mechanism of Action

- | | |
|-----------------------------|----------------------|
| • Tetracycline | bacteriostatic |
| • Minocycline | bacteriostatic |
| • Doxycycline | bacteriostatic |
| • Clindamycin | bacteriostatic/cidal |
| • Augmentin | bactericidal |
| • Metronidazole | bactericidal |
| • Amoxicillin/Metronidazole | bactericidal |

Generalized Aggressive Periodontitis

- Azithromycin 250 mg

- #6

- Two daily

(Z Pack-3 day)

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Localized Aggressive Periodontitis

Doxycycline 100mg.

#21

1 BID Day 1

1 daily to finish

Generalized Aggressive Periodontitis

Clindamycin 150mg.

#30-36

1 TID

Pseudomembranous Colitis

- Caused by overgrowth of *C. difficile*
- Incidence
 - *31% Cephalosporins
 - *27% Ampicillin
 - *11% Clindamycin
 - * 31% Miscellaneous Antibiotics

ANTIBIOTICS – PREGNANCY RISK CATEGORY

- Category D - Tetracyclines
- Category C - Clarithromycin, Ciprofloxacin
- Category B – All other antibiotics

STUDY DESIGN

- SRP plus tetracycline for 2 weeks
- Recall prophylaxis at 3 months
- Recall prophylaxis at 6 months plus tetracycline for 2 weeks
- Recall prophylaxis at 9 months
- Recall and final evaluation at 1 year

Host Modulation

Emerging Concept for the 21st Century

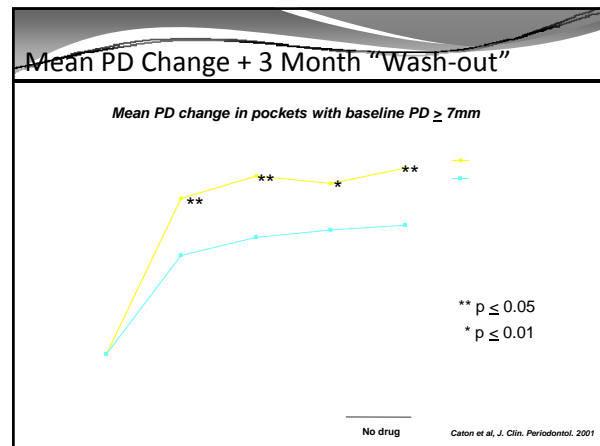
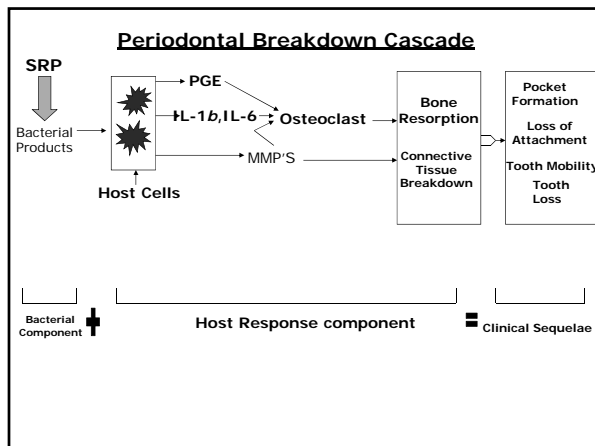
Drug Interaction–Birth Control Medications

The “protective effect” of birth control pills can be lost when broad spectrum antibiotics are administered concomitantly.

Patients should be advised to use other methods of contraception during medication with antibiotics and for 2 weeks post antibiotics usage!

Agents Modifying Host Factors

- Tetracyclines-reduce collagenase activity, reduce release of collagenase from pmn's
- NSAID's-decrease production of prostaglandins by reducing production of their precursor-arachadonic acid



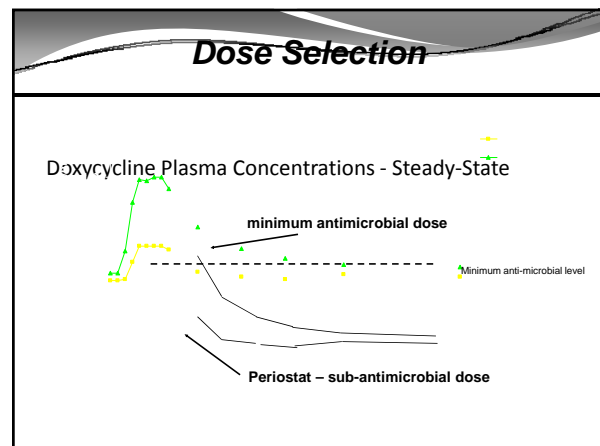
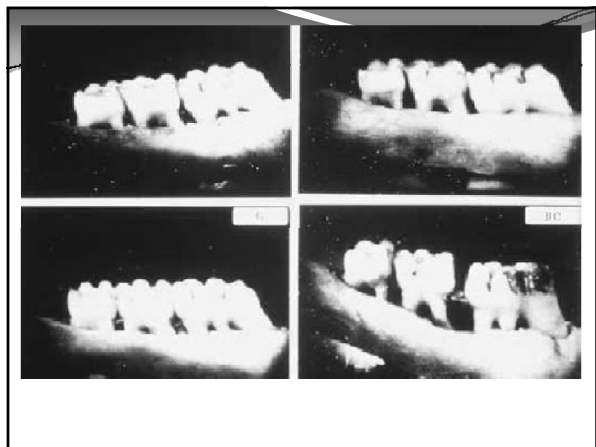
Inhibition of epithelial cell matrix metalloproteinases by tetracyclines

Nip LH, Uitto V-J, Golub LM: Inhibition of epithelial cell matrix metalloproteinases by tetracyclines. J Periodont Res 1993; 28: 379-385. © Munksgaard, 1993

Conclusion-Periostat FDA Studies

A 9-month course of SDD treatment results in

- Gain in attachment level beyond SRP
- Reduction in probing depth beyond SRP
- 30% of sites reduced probing depth by 2mm or more
- Reduction in Bleeding on probing
- Side effects similar to SRP



Summary: Microbiological Data on Long Term Use of Periostat®

- **No changes in antimicrobial susceptibility (up to 18 months)**

Thomas, J et al. *J Periodontol* 71(9):1472-1483, 2000.

- **No antibacterial effect on the subgingival microflora associated with adult periodontitis**

Walker, C et al. *J Periodontol* 71(9):1465-1471, 2000.

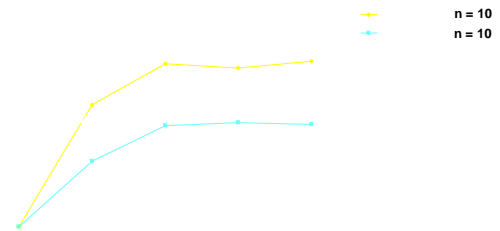
- **No effect on the microflora of the GI tract, the GU tract or the skin**

Walker, C et al. *J Dent Res*, IADR Abstracts 2001

Mean PD Change

Periostat Phase IV Study

Baseline PD ≥ 7 mm Non-molar teeth only



Novak, J et al. Adjunctive subantimicrobial dose doxycycline in the management of severe periodontitis. *J Dent Res* 81(Spec Issue A: Abstract #4072):A-496, 2002

Repeat Sub-Gingival Debridement in Aggressive Generalized Periodontitis

Novak et al, University of Pittsburgh Dental School

Novak, J et al. Adjunctive subantimicrobial dose doxycycline in the management of severe periodontitis. *J Dent Res* 81(Spec Issue A: Abstract #4072):A-496, 2002

Periostat & Atridox PD/AL

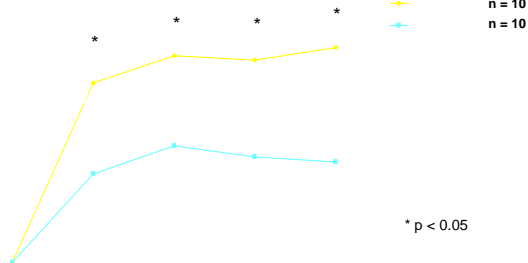
3mos 6mos

Shallow Pockets 4-6mm	0.6mm	0.6mm	0.5mm	0.4mm
Deep Pockets 7mm or >	0.7mm	0.7mm	0.8mm	0.7mm

Mean PD Change

Periostat Phase IV Study

Baseline PD ≥ 7 mm All Teeth



* $p < 0.05$

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Periostat Diabetes Study

- 20 patients completed-3 mos.
- PD decrease 1.7mm over SRP
- CAL increased 1.6mm over SRP
- HbA_{1c} levels, ROS, cytokines sig. better than SRP

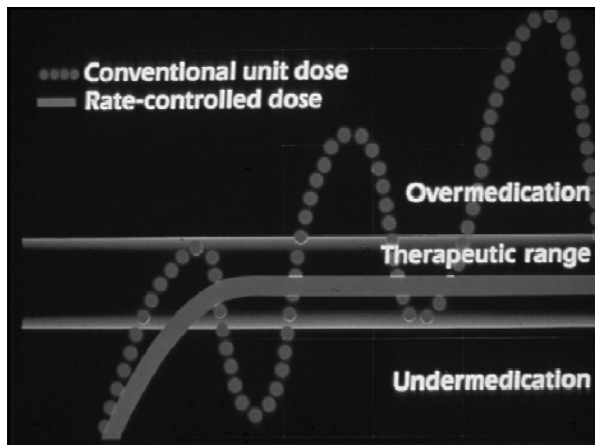
Rx

Periostat®

Disp: 180 tabs or 45 tab 100mg

SIG: 1 tab bid ¼ tab bid

refills 2



Perio-Chip

2.5mg Chlorhexidine

Locally Delivered Medications

- Perio Chip (Chlorhexidine)
- Atridox (Doxycycline)
- Arestin (Minocycline)
- Moxifloxacin?
- NSAID's ?

New Dimensions in Therapy

Our Patients Deserve the Facts!

ADA Guide to Dental Therapeutics
800 947 4746

Biological Therapies in Dentistry
855 647 6511 (Cust.Care)
BTDS12