HOW THE PHASE I.
CONVENTIONAL
PERIODONTAL THERAPY
CAN IMPROVE PERIODONTAL ATTACHMENT LEVEL??
CHRONIC PERIODONTITIS
Effectiveness of mechanical nonsurgical pocket therapy

How effective is surgical therapy compared with nonsurgical debridement?
THE IMPROVEMENT OF INDIVIDUAL SUPRAGINGIVAL ORAL HYGIENE HAS MINIMAL EFFECT ON THE MASS AND COMPOSITION OF SUBGINGIVAL BACTERIAL PLAQUE AND CONSEQUENTLY ON TISSUE HEALTH
The improved supragingival oral hygiene has minimal effect on the therapeutic results but has decisive effect on the success of periodontal maintenance.
Effectiveness of mechanical nonsurgical pocket therapy

Jean E. Suvan

The context

A number of systematic reviews have been published on the subject of mechanical nonsurgical pocket therapy. They have provided summaries of evolving perspectives which continue to inform and direct further research. This chapter aims to address the set question ‘what is the effectiveness of mechanical nonsurgical pocket therapy?’ through the review of published systematic reviews. At the same time as examining the effectiveness, this article will highlight current knowledge of the effect, efficacy, and efficiency of this therapy, addressing the question in the context of what is known about the four ‘E’s (effect, efficacy, effectiveness, efficiency). The objective is to appraise and discuss research synthesis results and conclusions, providing a summary of clinical impli-
disparities between research findings and clinical practice. In its attempts to get closer to the truth, it carries with it an underlying principle and goal to minimize bias in all contexts: clinical care, research, and setting of health policy (19, 84).

Although suggested as early as 1884 by Lord Rayleigh in an address to the British Association for the Advancement of Science (29), it was only in the mid 1980s that the healthcare community began to accept that interpretation and clinical application of single study results in isolation was unethical and impossible. The mandate was set that critical summaries were needed to improve patient care (89). This prompted the development of research synthesis methodologies and increased efforts by all healthcare disciplines, including dentistry, to provide systematic reviews that would facilitate decision making (69).
Mechanical nonsurgical pocket therapy has long been documented as part of periodontal therapy.

In the 1950s, plaque or calculus, were thought to be a physical irritant to the gingival tissues.
the rational for mechanical nonsurgical pocket therapy

therapies directed at removal or disturbance of the plaque biofilm and removal of factors facilitating biofilm formation


SUBGINGIVAL SCALING AND ROOT PLANING
In 1984, Badersten et al. concluded: nonsurgical mechanical debridement of the periodontal pocket will result in
- improvement of gingival health,
- arrest disease progression,
- reduce the risk of tooth loss

MEAN POCKET DEPTH REDUCTION FOLLOWING SUBGINGIVAL SCALING AND ROOT PLANING

FOUR WEEKS FOLLOW-UP

<table>
<thead>
<tr>
<th></th>
<th>NON SCALED</th>
<th>SCALED</th>
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<td>2</td>
<td>2</td>
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<td>0</td>
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<td>0,5</td>
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<tr>
<td>GI 25 week</td>
<td>1,5</td>
<td>0</td>
</tr>
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<td>PPD 0 week</td>
<td>$7,0 + 0,9$</td>
<td>$7,0 + 0,6$</td>
</tr>
<tr>
<td>PPD 8 week</td>
<td>$6,5 + 0,9$</td>
<td>$5,3 + 1,0$</td>
</tr>
<tr>
<td>PPD 25 week</td>
<td>$6,5 + 0,8$</td>
<td>$4,5 + 0,9$</td>
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<table>
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<tr>
<th>bacteria</th>
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<td>coccioid and rods 0</td>
<td>41%</td>
<td>42%</td>
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<td>coccioid and rods</td>
<td>43%</td>
<td>82%</td>
</tr>
<tr>
<td>coccioid and rods</td>
<td>39%</td>
<td>75%</td>
</tr>
<tr>
<td>motile and spirochetes 0</td>
<td>55%</td>
<td>49%</td>
</tr>
<tr>
<td>motile and spirochetes 0</td>
<td>48%</td>
<td>13%</td>
</tr>
<tr>
<td>motile and spirochetes 0</td>
<td>51%</td>
<td>8%</td>
</tr>
</tbody>
</table>

SUBGINGIVAL SCALING AND ROOT PLANING ARE EFFECTIVE:

- reduces inflammation even in very deep pockets but provides no definite results
- reduces pocket depth
- slows down the progression of attachment loss
- sometimes provides clinical attachment gains
THE REGULAR PROFESSIONAL SUPRA AND SUBGINGIVAL SCALING AND EXCELLENT INDIVIDUAL ORAL HYGIENE SIGNIFICANTLY REDUCES THE RECURRENCE OF PERIODONTAL INFLAMMATION AND GUARANTEE THE PERIODONTAL HEALTH
Mechanical debridement in initial therapy
five reviews considered mechanical nonsurgical pocket therapy as a part of initial therapy or initial therapy combined with maintenance therapy

The effect of manual vs. machine-driven instruments, with or without adjunctive agents.

CONCLUDED:

- Hand and machine-driven instruments appear to be comparably efficacious in the reduction of probing pocket depth,

- Both types of instruments gave results substantially better than those in untreated controls, confirming the benefit of mechanical debridement.

A meta-analysis to determine the effect of scaling and root planing on probing pocket depth and clinical attachment level
- With the increase of initial periodontal probing depths, scaling and root planing results in more positive clinical outcomes’.
- Therapy is more predictable or effective in deeper pockets.
- Pockets with a greater depth at baseline have the greatest opportunity for improvement.

Comparing the efficacy of hand instruments to machine-driven instruments in mechanical debridement.

- No evidence of a difference in the efficacy of the two instruments,
- Machine-driven instruments being suggested to be faster.

positive effect of subgingival debridement on probing pocket depth
- clinical attachment level under controlled conditions
- the effect being greater than that of supragingival plaque control alone

Mechanical debridement in maintenance therapy

In clinical practice, maintenance therapy effectiveness has been based partially on extrapolation of effect and efficacy of debridement in initial therapy and partly on the role of the biofilm in disease pathogenesis.

ORAL HYGIENE IN THE MONITORED AND NON-MONITORED GROUPS

6 years follow-up

TEST GRP.

CONTROL GRP.

PI

baseline
3 years
6 years

total appr buc-ling
total appr buc-ling

Gingivitis in the monitored and non-monitored groups

6 years follow-up

MEAN ATTACHMENT LOSS IN THE MONITORED AND NON-MONITORED GROUPS

6 YEARS FOLLOW-UP

Mechanical debridement as control therapy for antimicrobial therapies

Scaling and root planing results were comparable to combined therapy confirms that mechanical nonsurgical pocket therapy is successful in improving clinical parameters. This review provides solid evidence that mechanical nonsurgical therapy is efficacious alone.

Results in the control groups, - the mechanical debridement alone in control groups, were comparable to results in systematic AB treated groups

Reviews showing significant pocket depth reduction and clinical attachment gain, therefore confirming the efficacy of this therapy.

‘there is insufficient evidence to support the use of systemic antibiotics as a mono-therapy in periodontitis patients’.
The review endorses mechanical debridement as a foundation therapy for the adjunctive use of systemic antimicrobials.

The authors state that scaling and root planing alone had a positive effect on probing pocket depth reduction,

INITIAL THERAPY I

In periodontitis patients, mechanical nonsurgical pocket therapy reduces inflammation, pocket depth, and increases clinical attachment level.
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The magnitude of pocket depth reduction correlates with greater pocket depth before treatment.
INITIAL THERAPY I

• In periodontitis patients, mechanical nonsurgical pocket therapy reduces inflammation, pocket depth, and increases clinical attachment level.
• The magnitude of pocket depth reduction correlates with greater pocket depth before treatment.

Nonsurgical mechanical debridement may cause loss of attachment in shallow pockets (≤ 3 mm).
INITIAL THERAPY II

There is no evidence of a difference in efficacy of machine-driven (ultrasonic and sonic) and hand instruments (in single rooted teeth) Machine driven instruments may be faster than hand instruments
INITIAL THERAPY II

• There is no evidence of a difference in efficacy of machine-driven (ultrasonic and sonic) and hand instruments (in single rooted teeth). Machine driven instruments may be faster than hand instruments.

• Adjunctive therapies have been developed and investigated, but, to date, no therapy exists as a stand alone replacement for mechanical nonsurgical pocket therapy.
MAINTENANCE THERAPY

In periodontal maintenance patients, mechanical debridement reduces inflammation and disturbs the bacterial biofilm understood to be key in disease control, including prevention of disease progression.
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In periodontal maintenance patients, mechanical debridement reduces inflammation and disturbs the bacterial biofilm understood to be key in disease control, including prevention of disease progression.

The effect of mechanical nonsurgical pocket therapy on pocket depth reduction and clinical attachment gain in maintenance patients is unclear.
MAINTENANCE THERAPY

- In periodontal maintenance patients, mechanical debridement reduces inflammation and disturbs the bacterial biofilm understood to be key in disease control, including prevention of disease progression.

  The effect of mechanical nonsurgical pocket therapy on pocket depth reduction and clinical attachment gain in maintenance patients is unclear.

  Maintenance or stability of pocket probing depth and clinical attachment level has been demonstrated and meets the goal of maintenance therapy.
How effective is surgical therapy compared with nonsurgical debridement?
The most common outcome measures used to determine whether treatment is successful.

- Reduction in bleeding on probing
- Reduction of probing pocket depths
- Maintenance or improvement of clinical attachment levels,
Effectiveness of mechanical surgical / non-surgical pocket therapy

What is the effect of surgical debridement vs. non-surgical debridement in terms of changes in clinical attachment level, probing pocket depth, bleeding on probing for patients with chronic periodontitis?
ACCESS FLAP OR SUBGINGIVAL CLOSED CURETTAGE?

- AFTER SCALING AND ROOT PLANING
- GROUP 1 SUBGINGIVAL CURETTAGE
- GROUP 2 MODIFIED WIDMAN FLAP
- GROUP 3 APICALLY REPOSITIONED FLAP
CHANGES IN PROBING POCKET DEPTH

FOLLOW-UP 8 YEARS

Knowles & Ramfjord J. Periodont 1979
CHANGES IN PERIODONTAL ATTACHMENT LEVEL

FOLLOW-UP PERIOD - 8 YEARS

Knowles & Ramfjord J. Periodont 1979
THE CRITERIA OF SUCCESS

- 1. NO INFLAMMATION
- 2. DECREASED PPD
- 3. GINGIVAL RECESSION
- 4. ATTACHMENT GAIN
SUBGINGIVAL CURETTAGE GIVES BETTER RESULTS IN LARGE BUT SHALLOW (LESS THAN 4 mm) PERIODONTAL POCKETS IN DEEP POCKETS (6mm<) PERIODONTAL SURGERY PROVIDES MORE PREDICTABLE HEALING AND BETTER REGENERATION
How effective is surgical therapy compared with nonsurgical debridement?

Lisa J. A. Heitz-Mayfield

Chronic periodontitis is defined as an inflammatory disease of the supporting tissues of teeth caused by groups of specific microorganisms, resulting in progressive destruction of the periodontal ligament and alveolar bone with either pocket formation or recession, or both. The aim of effective treatment of periodontal diseases is to arrest the inflammatory therapies. However, this is only a small part of the systematic review (22).

The three papers reviewed in this chapter – Heitz-Mayfield et al. (8), Antczak-Bouckoms et al. (2) and Hung & Douglass (10) – have reviewed all combined randomized controlled trials comparing scaling and root planing with open flap debridement in meta-
A systematic review of the effect of surgical debridement vs. nonsurgical debridement for the treatment of chronic periodontitis

Six randomized controlled trials for evaluation in five of which the data presentation was appropriate for meta-analyses.

Differences in clinical outcomes (change in clinical attachment level and probing pocket depth) between surgical and nonsurgical therapies for respective initial probing depth categories.

**Table 1. Summary of meta-analyses for clinical outcomes – Heitz-Mayfield et al. (8)**

<table>
<thead>
<tr>
<th>Outcome</th>
<th>Initial PPD category</th>
<th>No. of studies</th>
<th>Studies included (ref. nos.)</th>
<th>WMD (mm)</th>
<th>95% CI</th>
<th>P-value for WMD</th>
<th>Heterogeneity Method</th>
<th>P-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>CAL gain 1-3 mm</td>
<td>4</td>
<td>18, 20, 23, 26</td>
<td>−0.513 [-0.737, −0.290]</td>
<td>0.000</td>
<td>random</td>
<td>0.005</td>
<td></td>
<td></td>
</tr>
<tr>
<td>PPD reduction</td>
<td>2</td>
<td>23, 26</td>
<td>0.101 [−0.036, 0.239]</td>
<td>0.147</td>
<td>random</td>
<td>0.008</td>
<td></td>
<td></td>
</tr>
<tr>
<td>CAL gain 4-6 mm</td>
<td>4</td>
<td>18, 20, 23, 26</td>
<td>−0.373 [−0.485, −0.261]</td>
<td>0.000</td>
<td>fixed</td>
<td>0.331</td>
<td></td>
<td></td>
</tr>
<tr>
<td>PPD reduction</td>
<td>2</td>
<td>23, 26</td>
<td>0.351 [0.234, 0.467]</td>
<td>0.000</td>
<td>fixed</td>
<td>0.108</td>
<td></td>
<td></td>
</tr>
<tr>
<td>CAL gain &gt; 6 mm</td>
<td>5</td>
<td>14, 18, 20, 23, 26</td>
<td>0.191 [0.035, 0.347]</td>
<td>0.017</td>
<td>fixed</td>
<td>0.897</td>
<td></td>
<td></td>
</tr>
<tr>
<td>PPD reduction</td>
<td>&gt; 6 mm</td>
<td>3</td>
<td>14, 23, 26</td>
<td>0.584</td>
<td>[0.383, 0.785]</td>
<td>0.000</td>
<td>fixed</td>
<td>0.687</td>
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</table>

CAL, clinical attachment level. CI, confidence interval. PPD, probing pocket depth. WMD, weighted mean differences.
<table>
<thead>
<tr>
<th>Reference</th>
<th>Non-molar teeth</th>
<th>12-month results</th>
<th>Scaling and root planing</th>
<th>Open flap debridement</th>
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<tr>
<td></td>
<td></td>
<td>Initial PPD</td>
<td>n</td>
<td>Mean</td>
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<tr>
<td>Lindhe et al. (20)</td>
<td>Δ CAL mm</td>
<td>1–3 mm</td>
<td>15</td>
<td>0.9</td>
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<td></td>
<td></td>
<td>4–6 mm</td>
<td>15</td>
<td>0.7</td>
</tr>
<tr>
<td></td>
<td></td>
<td>&gt; 6 mm</td>
<td>15</td>
<td>0.9</td>
</tr>
<tr>
<td>Pihlstrom et al. (24)</td>
<td></td>
<td>4–6 mm</td>
<td>14</td>
<td>0.34</td>
</tr>
<tr>
<td></td>
<td></td>
<td>&gt; 6 mm</td>
<td>10</td>
<td>0.41</td>
</tr>
<tr>
<td>Isidor &amp; Karring (11)</td>
<td>all PPD</td>
<td>16</td>
<td>0.6</td>
<td>0.2*</td>
</tr>
<tr>
<td></td>
<td>Angular defects</td>
<td>16</td>
<td>1.6</td>
<td>0.3*</td>
</tr>
<tr>
<td>Lindhe et al. (20)</td>
<td>Δ PPD mm</td>
<td>1–3 mm</td>
<td>15</td>
<td>0.4</td>
</tr>
<tr>
<td></td>
<td></td>
<td>4–6 mm</td>
<td>15</td>
<td>2.0</td>
</tr>
<tr>
<td></td>
<td></td>
<td>&gt; 6 mm</td>
<td>15</td>
<td>2.6</td>
</tr>
<tr>
<td>Pihlstrom et al. (24)</td>
<td>4–6 mm</td>
<td>14</td>
<td>0.8</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td>&gt; 6 mm</td>
<td>10</td>
<td>1.71</td>
<td>-</td>
</tr>
<tr>
<td>Isidor &amp; Karring (11)</td>
<td>all PPD</td>
<td>16</td>
<td>2.3</td>
<td>0.3*</td>
</tr>
<tr>
<td></td>
<td>Angular defects</td>
<td>16</td>
<td>3.7</td>
<td>0.3*</td>
</tr>
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</table>

CAL, clinical attachment level. PPD, probing pocket depth.
Change in clinical attachment level and probing pocket depth

In 4–6 mm pockets, scaling and root planing resulted in 0.4 mm more clinical attachment gain

$[-0.49, -0.26]$ 95%

0.4 mm less probing depth reduction

$[+0.23 + 0.47]$ 95%

than surgical therapy.
Change in clinical attachment level and probing pocket depth

In deep pockets (> 6 mm), surgical therapy resulted
- 0.6 mm more probing pocket depth reduction [0.38- 0.79 95%]
- 0.2 mm more clinical attachment gain [0.04, - 0.35 95% ]

than nonsurgical therapy.
A similar reduction in the percentage of sites with presence of bleeding on probing following nonsurgical and surgical treatment modalities was reported.


When sites with an initial probing pocket depth of 4–6 mm were treated by open flap debridement, there was less clinical attachment level gain than after scaling and root planing.

There was a greater reduction in probing pocket depth after the open flap debridement procedure.
sites with an initial probing pocket depth of > 6 mm were treated by open flap debridement, there was a greater increase in the clinical attachment level than after scaling and root planing.

Open flap debridement resulted in a greater reduction in probing pocket depth than scaling and root planing in these deep pockets.
Long-term treatment outcomes showed no significant difference between treatment modalities, with the exception of a greater reduction in probing pocket depth following surgery at 2 years for initial probing pocket depth 4–6 mm (four studies) at 5 years for initially deep pockets (probing pocket depth > 6 mm).
Conclusions

Surgical treatment is better for reduction of periodontal probing depth and these benefits become greater with the increase of initial probing depth.
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The gain of attachment level differences indicates an advantage for nonsurgical treatment in shallow and medium initial periodontal probing depths.
**Conclusions**

Surgical treatment is better for reduction of periodontal probing depth and these benefits become greater with the increase of initial probing depth. The gain of attachment level differences indicates an advantage for nonsurgical treatment in shallow and medium initial periodontal probing depths. For deep initial periodontal probing depths, surgical therapy showed similar attachment gains when compared with scaling and root planing.
Bottom line message:
When the objective is reduction of probing depth, surgical therapy provides a greater benefit than nonsurgical therapy for all levels of initial disease severity.

When the objective is to increase attachment level, nonsurgical therapy provides a greater benefit for initial disease severity levels 1–3 mm and 4–6 mm, and surgical therapy for > 6 mm.
CHEMICAL PLAQUE - CONTROL INDICATION

DR. GERA ISTVÁN
The age of the biofilm can also be a significant factor; older biofilms (72 h) of *S. sanguinis* were more resistant to chlorhexidine than younger (24 h) biofilms (Millward & Wilson 1989).
Plaque as a community

Oral bacteria do not exist as independent entities but rather function as a co-ordinated, spatially organized and metabolically integrated microbial community (Marsh & Bradshaw 1999, Marsh & Bowden 2000).

Benefits of a community life-style to plaque

(a) a broader habitat range for growth, e.g. oxygen-consuming species such as *Neisseria* spp. (together with the accumulation of reduced end products of metabolism) create environmental conditions suitable for colonization in plaque by obligate anaerobes (Bradshaw et al. 1996).
Biofilms of oral bacteria are also more tolerant of antibiotics

- amoxycillin,
- doxycycline,
- minocycline,
- metronidazole

than planktonic cells

(Larsen 2002, Socransky & Haffajee 2002, Noiri et al. 2003),

biofilms of *P. gingivalis* tolerated 160 times the MIC of metronidazole that had been determined for planktonic cells (Wright et al. 1997),
This diversity can affect several key properties of cells, motility, nutritional requirements, secretion of products, detachment, and biofilm formation; this diversity better equips an organism or community to survive an environmental stress.
CHEMOPROPHYLAXIS
to sustain the normal ecological balance of the oral cavity and control bacterial colonization.

CHEMOTHERAPY
kill subgingival bacteria
control bacterial invasion into the deeper periodontal tissues
assist periodontal healing
Periodontal chemoprophylaxis

Non-selective with total bacterial eradication
Non-selective with marked oral bacterial reduction

Selective chemoprophylaxis
Ideal anti-plaque chemical or biological agent

• Can permanently inhibit bacterial adhesion
• The agent can penetrate and reach plaque bacteria
• Substantive
• Do not alter normal oral bacterial ecology
• Do not have cumulative or chronic irritative effects
Phenol derivatives:

- **Listerin** with American Dental Association (ADA) seal
- Evidence support its anti-plaque anti-gingivitis effects
- Ingredients: thimol, menthol, methylsalicylate eukaliptol.

- **Triclosan** (2,4,4'-triklor-2'-hirdoxifenil-ether) chemically active ingredient in many toothpastes and mouth rinses
Triclosan

- Has only mild anti-plaque effect
- Zink citrate or polyvinilmethyl ether – maleic acid can potentiate its effect and increase substantivity.
- Several clinical trials proved the anti-gingivitis effect by toothpastes containing triclosan/zink citrat or co-polymer.
Quaternery ammonium compounds

- In vitro strong antibacterial effect
- In vivo, mind anti plaque effect due to low substantivity.
- *cetilpirimidinumklorid* (CPC)
- *benzylcononium-chloride*
- *domifen-bromid*. 
Halogenes
iodine and fluorides.

Betadin.
- fluorides
- Sn-fluoride and amino fluoride with strong anti-plaque effects
- mild anti-plaque effect comparing to Chlorhexidin
- Meridol amino-fluoride + stannous fluoride.
Plant alcaloides:

- (Sanguinaria canadensis)
- *Sanguinarin*

- many toothpastes and mouth rinses contain sanguinarin
Bisbiguanid derivatives
second generation chemoprophylactic agents

- Chlorhexidin $1,6$-di-4-klórfenil-diguanidhexan.
  - $0,2,\% 0,15, \% 0,05 \%$ - rinses Corsodyl, Chlorhexamed
  - $1\%$-os gel Corsodyl

- Alexidin etil-hexil-biszguanidin-dihidroklorid
  - Similar effect to Chlorhexidin,
  - locally less irritation,
  - does not contain carcinogenic phenyl groups
Chlorhexidin

- Broad spectrum antiseptic
- Effective against Gram negative and Gram-positive microorganisms
- Proportionally decrease the whole oral bacterial count
- Effective against anaerobs and *Streptococcus mutans*
- Clinically improves plaque and gingivitis indices
Chlorhexidin

- Molecules attach to the negatively charged surfaces – hydroxyapatite, acquired dental pellicle, mucosa
- From this bond the active molecules slowly released
- After a single rinse approx. 30% of molecules adhere to the surfaces and can sustain inhibitory concentration for at least over 12 hours
- Chlorhexidin rinsing twice a day can sustain permanent anti-plaque effect in oral cavity
Chlorhexidin

- Several side effects
- Discoloration
- Taste disturbances
- Glossitis
- After long term use, mucosal chronic irritation can occur.
Antibiotics as chemoprophylactic agents

- Should be selective against plaque bacteria
- Will not be used in other systemic disorders
- Non toxic
- Has no cumulative or chronic irritative effect
- Does not develop bacterial resistance
- Does not act as an allergen
- Has a substantive effect
- Today there is no ideal agent !!!!
Periodontal chemotherapy

- Can be administered:
  - Locally,
  - *per os*
  - Parenterally
BASIC PRINCIPLES OF PERIODONTAL ANTIBIOTIC THERAPY

• Definitive periodontal diagnosis
• Only in active disease stage is to be used
• Preferably bacteriological testing
• Antibiotic therapy is not a monotherapy
• Systemic treatment can be completed by antiseptics (Chlorhexidine, Betadine, Tetracyclin etc.)
• Antibiotics can be used before surgery and postoperatively to improve periodontal wound healing

•
Metronidazol (Klion)

- It is not a real antibiotic.
- *Nitroimidazol* derivative originally was used against protozoa
- It is effective against the most obligatory anaerobic microorganisms,
- It has a bactericide effect - blocks DNA synthesis
- Effective against most periodontopathogenic organisms (*P. gingivalis, P. intermedia, T. forsythia*),
- It does not kill *A. actinomycetemcomitans* and other facultative anaerobic bacteria
- In this cases it should be given in combination with others
Metronidazol (Klion)

- Daily dose 2x250 mg, 3x250mg

- Clinical studies indicated that daily 500-750mg metronidazol combined with subgingival SRP was superior to only mechanical SRP alone.
Penicillin derivatives

- Penicillin is not indicated against periodontal infections
- Only synthetic amoxicillin or clavunated amoxicillin (Augmentin) are effective
**Amoxicillin:**

- Broad spectrum semi-synthetic penicillin
- Effective against both Gram – and Gram + bacteria
- Penicillinase, beta-lactamase producing bacteria inactivates its effect
- Indication: aggressive periodontitis and refractory periodontitis can be combined with metronidazole
- Infective endocarditis prophylaxis
**Clavunated amoxicillin (Augmentin)**

- Amoxicillin + acidum clavulanicum penicillinase resistant
- Broader spectrum.
- Indication: aggressive periodontitis and refractory periodontitis can be combined with metronidazole
- Infective endocarditis prophylaxis (2 g one hour before invasive procedures).
- Dose: - 3x 375mg/day – 3x625mg/day for one week.
Tetracyclin

- Bacteriostatic agent
- Effective against both Gram +, mint Gram –
- Crevicular fluid concentration is 2-10 fold higher than serum concentration
- It can inhibit *A. actinomycetemcomitans* *at relatively low sulcus fluid concentration* (4ug/m)
- At very low concentration can inhibit bacterial and tissue collagenase enzyme activity and indirectly decrease tissue damage during inflammation.
**Tetracyclin**

- Semi-synthetic agents
- doxycyclin,
- vibramycin
- minocyclin.
Tetracyclin

• **Doxycyclin**
• In vivo its absorption is unpredictable
• Its great advantage that only one tablet is to be taken daily.
• Dose: as antibiotic – first day 2x100mg, and than 100mg/ day.
• Dose: as anti collagenaze: 2x 20mg/ day doxycyclin hyclat Periostat (USA).
Clindamycin (Dalacin C)

- Effective against the most periodontopathogenic microorganisms
- Concentrated in the bone
- Higher than serum concentration in periodontal tissue and sulcus
- Strong gastrointestinal side effects pseudomembranosus colitis can occur
Ciprofloxamin (Ciprobay)

- Today all *A. actinomycetemcomitans* clonal forms are sensitive
- Strongly inhibits *A. actinomycetemcomitans* cell division but has minimal effect on commensal oral bacteria
- It is very effective to restore the normal composition of oral subgingival and supragingival bacterial flora,
- Daily dose 2x 250-500 mg.
LOCAL ANTIBIOTIC THERAPY

• 1000 mg Tetracycline given per os can only produce 10ug/ml sulcular concentration while the minimal effective concentration should be 30ug/ml

• A microflora in deep pockets cannot be influenced with mouth rinses

• The supragingival plaque control has minimal effect on the composition of subgingival biofilm located deeper than 1-2 mm
**Actisite:**

- Tetracycline incorporated into etilen-vinil-copolimer fiber.
- A 250 mm cord contains 12.7 mg tetracycline.
- The Actisite fiber can be applied like the gingival retraction cords.
- Treatment lasts for 8-10 days.
- The local TCL concentration achieved is 1000-1200 ug/ml in the sulcus.
Lokális antibiotikus-antibakteriális tasak-kezelés

**Actisite**

etilen-vinil-kopolimer fonalba inkorporált tetracyclin

Egy kb. 25 cm-es fonal 12,7mg tetracyclint tartalmaz.

A fonalat a tasaktágító fonal behelyezéséhez hasonlóan helyezzük a tasakba.

A kezelés 8-10 napig tart
Slowly absorbed antibiotic gels:

- Doxycyclin gel (Atridox 10% doxycyclin),

- Metronidazol gel (Elyzol 25% metronidazol),
  They are not available in Hungary.

- Ebrimycin gel (primicynum sulfuricum) had been successfully used for topical pocket therapy.
Local antiseptics in the pocket

- Corsodyl gel 1%.

- **Periochips** 2,5 mg chlorhexidin incorporated into hydrolyzed gelatin –pellets (chips)

- In deep pockets can sustain 100ug/ml concentration in crevicular fluid
Lokális antiszeptikus tasak kezelés

Actisite elvein működő lassan felszívódó chlorhexidin készítmény

Periochips kisméretű hidrolizált zseletin lemezkébe inkorporált 2,5mg chlorhexidint tartalmaz.

Egy hétre a mély tasakba helyezve állandó, 100ug/ml koncentráció feletti sulcus folyadék szintet biztosít.

Periochips