

## American Academy of Periodontology Statement on Local Delivery of Sustained or Controlled Release Antimicrobials as Adjunctive Therapy in the Treatment of Periodontitis\*

**S**ustained or controlled release local delivery antimicrobial agents (LDAs) are available for use as adjuncts to scaling and root planing (SRP) in the treatment of periodontitis. These products are placed into periodontal pockets in order to reduce subgingival bacterial flora and clinical signs of periodontitis. This therapy cannot correct anatomical deformities caused by the disease process. Use of LDAs can deposit a high level of the active agent in the periodontal pocket, and the delivery vehicle facilitates prolonged drug delivery.

Recent systematic reviews report that modest additional probing depth (PD) reductions in the range of 0.25 mm to 0.5 mm were achieved when LDAs were used as an adjunct to SRP in pockets  $\geq 5$  mm. However, even when the differences were statistically significant, the additional improvement in PD was a fraction of the reported mean 1.45 mm PD reduction achieved by SRP alone. Effects on clinical attachment level gains were smaller and statistical significance less common. In many studies, repeated LDA applications were compared to a single episode of SRP. It should be noted that these reviews included a number of antimicrobial agents not currently sold in the United States. Antimicrobial agents for local delivery currently sold in the United States include: Arestin<sup>®</sup> (1 mg minocycline microspheres), Atridox<sup>®</sup> (10% doxycycline hyclate in a bioabsorbable polymer), and PerioChip<sup>®</sup> (2.5 mg chlorhexidine in gelatin matrix).

The existing data appear insufficient to conclude that adjunctive sustained or controlled release LDA treatment can either reduce the need for surgery or improve long-term tooth retention, or is cost effective. Additional studies are needed to support the use of LDAs in special sites (e.g., periodontal abscesses, furcations, peri-implantitis) and special populations

(e.g., smokers, patients with aggressive periodontitis, or who are medically compromised). Additional studies are also needed to further define the therapeutic value of LDAs in different phases of treatment (active versus maintenance). The long-term benefits are unknown because most studies are limited to 9 months.

Thorough SRP is highly effective in the treatment of chronic periodontitis and is the standard approach to non-surgical periodontal therapy. Clinicians may consider the use of LDAs in chronic periodontitis patients as an adjunct to SRP:

- When localized recurrent and/or residual PD  $\geq 5$  mm with inflammation is still present following conventional therapies.

Therapies other than LDAs should be considered when:

- Multiple sites with PD  $\geq 5$  mm exist in the same quadrant.
- The use of LDAs has failed to control periodontitis (e.g., reduction of PD).
- Anatomical defects are present (e.g., intrabony defects).

The clinician's decision to use LDAs should be based upon a consideration of clinical findings, the patient's dental and medical history, scientific evidence, patient preferences, and advantages and disadvantages of alternative therapies.

### REFERENCES

- Bonito AJ, Lux L, Lohr KN. Impact of local adjuncts to scaling and root planing in periodontal disease therapy: A systematic review. *J Periodontol* 2005;76:1227-1236.
- Hanes PJ, Purvis JP. Local anti-infective therapy: Pharmacological agents. A systematic review. *Ann Periodontol* 2003;8:79-98.

\*This statement was developed under the direction of the Task Force on Local Delivery of Antimicrobials as Adjunct Therapy and approved by the Board of Trustees of the American Academy of Periodontology in May 2006.