

## Host Modulation Effects

**Clinical Benefits of oral irrigation for periodontitis are related to reduction of pro-inflammatory cytokine levels and plaque.** Cutler C, Stanford T, Abraham C, Cederberg R, Boardman T, Ross C. *J Clin Periodontol* 2000; 27:134-143.

### Objective

To analyze the effects of supra-gingival oral irrigation with water on the clinical signs of periodontitis and on the levels of cytokines in the gingival crevice.

### Design

Single-center, blinded, four week clinical trial

### Methodology

Fifty two (52) adult subjects with mild to moderate periodontitis; interproximal probing depths ranging from 4 – 7 mm, bleeding on probing, and radiographic evidence of horizontal or vertical alveolar bone loss

Subjects were assigned to one of three groups. (The no oral hygiene group was self-selected while the regular oral hygiene and irrigation groups were randomized.)

- Complete cessation of oral hygiene for 14 days; followed by a prophylaxis and daily use of oral irrigation in addition to routine oral hygiene for 14 days
- Routine oral hygiene – patients were instructed to clean their teeth “the way they normally do”
- Routine oral hygiene (Waterpik® oral cleaning system) plus once daily oral irrigation with water

### Results\*

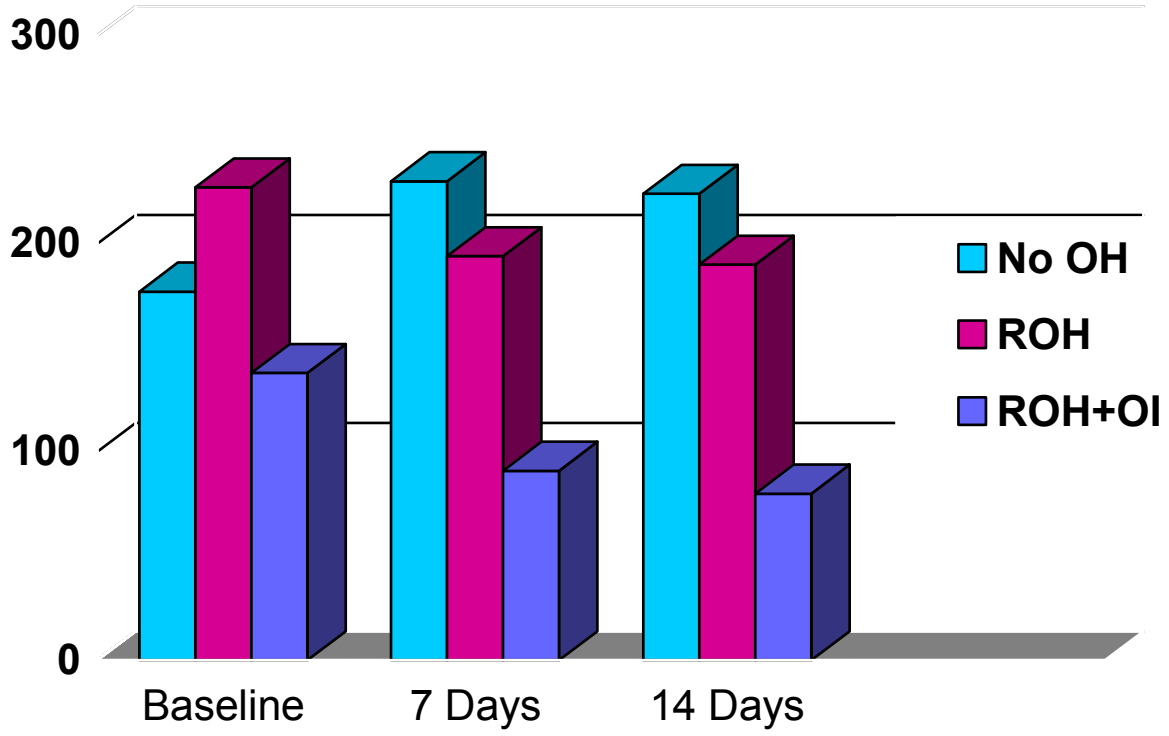
- The addition of daily water irrigation to routine oral hygiene resulted in statistically significant reductions in plaque, gingivitis, bleeding on probing, and probing pocket depth compared to both routine oral hygiene and no oral hygiene.
- The addition of oral irrigation to routine oral hygiene resulted in significant reductions in pro-inflammatory mediator reductions, IL-1 $\beta$  and PGE<sub>2</sub> plus a rise in the anti-inflammatory cytokine, IL-10 and stabilization of the bacteria-killing cytokine IFN $\gamma$
- The reduction of IL-1 $\beta$  did not correlate with plaque reduction but with a reduction in BOP.
- When the no oral hygiene group was crossed-over to the irrigation, a significant decrease in IL-1 $\beta$  occurred.

### Clinical Implications

Oral irrigation may have a direct effect on reducing pro-inflammatory cytokine production thus inhibiting disease activity. Because the reduction in cytokines was selective, this suggests a specific modulation of cytokine activity.

\*Cytokine measures of IL-1 $\beta$ , PGE<sub>2</sub>, IL-10 & IFN $\gamma$ , occurred at minimum, 8 hours post irrigation

## Reduction in IL-1 beta



## Reductions in BOP

