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Title: Changes in gingival crevicular inflammatory mediator levels during the induction and resolution of experimental gingivitis in humans.

Author: Offenbacher S, Barros S, Mendoza L, et al.

Overview:

This research examined the level of inflammatory mediators in gingival crevicular fluid (GCF) during and after stent-induced gingivitis.

Summary of research:

- Gingivitis induced in 25 subjects for 21 days followed by 28 days of treatment with a sonic toothbrush
- Clinical signs of gingivitis noted and GCF collected weekly during induction phase and bi-weekly during treatment phase of study
- Non-stent induced changes in clinical signs and biomarkers included as control

Results and conclusions:

- Gingivitis induction resulted in significant increase in several inflammatory mediators including, IL-1 alpha and IL-1 beta
- Gingivitis induction resulted in significant decrease in other biomarkers including chemokines and several MMP's
- Clinical signs of gingivitis and biomarker levels returned to baseline in response to treatment

Key take-aways:

Gingivitis is among the most common oral diseases. This study measured the changes in GCF levels of inflammatory mediators during the 3 weeks of gingivitis and 4 weeks of treatment with a sonic toothbrush. As clinicians, we should realize that there is a significant increase in inflammatory activity during gingivitis, not just during more advanced forms of periodontal disease. MMP's are protein degrading enzymes and are responsible for tissue destruction in periodontal diseases. Their reduction following treatment is favorable and predictable. Chairside and lab tests for inflammatory markers will be available in the near future, enhancing our ability to predict the development and outcome of gingivitis and periodontitis.

Implementation Strategies:

Once again the topic of gingivitis is in the forefront reminding us how critical it is to treat this early infection. The goal is always to provide treatment at a level that is in the patient's best interest. In response to this there are *three* things that clinicians should do to ensure we are addressing all periodontal diseases *without over treating or under*

Richard Nagelberg, DDS & Kim Miller, RDH, BSDH, RDHMP
531 West Germantown Pike Suite 104
Plymouth Meeting, PA 19462



treating. The first is to provide complete and thorough risk assessment, the second is to determine which bacteria are causing the current infection and the third, use the medical model; diagnosis, prognosis, treatment plan & follow through.

Those patients with diabetes, autoimmune deficiencies and a previous history of periodontal disease and those who use tobacco products or are pregnant are considered at high risk for the progression of periodontal disease. Moderate risk factors such as, but not limited to: plaque, calculus, infrequent dental visits, failing restorations, malocclusion, poor home care, poor nutrition, stress, medications, lack of exercise, age, ethnicity & excessive alcohol consumption, also increase the risk for the progression of periodontal diseases, including gingivitis.

For a great risk assessment resource, check out www.perio.org, the AAP's website. Enter the orange tab for *Public and Media*, go *Gum Disease*, then *Assess Your Risk*. This can be done online chair side in just about 1 minute. This program uses mathematic algorithms to calculate your patient's risk. Print it out and give it to the patient as a third party validation of your assessment.

When your patient shows signs of gingivitis and has high or moderate risk for disease progression, it is in the patient's best interest to perform a saliva test to determine which pathogens are causing the gingivitis. Since we know that *bacterial invasion precedes clinical signs of disease*, in many cases, when testing and treating appropriately & early you can prevent the onset of bone loss. Once again, this lab test and report provide third party validation of your diagnosis as well as your treatment plan.

Once you have provided risk assessment, saliva testing customized the treatment plan including the follow through assisting the patient to disease remission you have satisfied the elements of the medical model.

When we intercept disease progression at the gingivitis stage we are essentially saving the patient from a life long battle with periodontal disease. No small feat!

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531 West Germantown Pike Suite 104
Plymouth Meeting, PA 19462