



Source: J Periodontal Res. 2009 Sep 23. [Epub ahead of print]

Title: Enhanced monocyte migration and pro-inflammatory cytokine production by Porphyromonas gingivalis infection.

Author: Pollreis A, Huang Y, Roth GA et al.

Overview:

This research investigated the role of the perio pathogen, *P. gingivalis*, (Pg) in the development of vascular inflammation and atherosclerosis, which are primary risk factors for cardiovascular events.

Summary of research:

- Monocytes and macrophages infected with either Pg or a non-invasive form of Pg.

Results and conclusions:

- Infection with Pg. markedly induced monocyte migration and significantly enhances production of **pro-inflammatory cytokines*.
- Infection with the non-invasive form of Pg. had minimal effect on monocyte attraction and pro-inflammatory mediator production.
- Monocyte recruitment and activation are important steps in the development of vascular inflammation and atherosclerosis. Pg. infection may be involved in these processes.

* *Proinflammatory cytokines promote systemic inflammation. Cytokines are a category of signaling molecules (mediators) used extensively in cellular communication.*

Key take-aways:

Pg. is a virulent periodontal pathogenic bacterium. Monocytes are a type of white blood cell that migrates to sites of infection and mature into macrophages. The function of both monocytes and macrophages is to kill foreign microorganisms by phagocytosis. Migration and activation of monocytes are important to the development of inflammation in blood vessels and atherosclerotic plaques, which are primary risk factors for heart attacks and strokes. This research indicates a potential mechanism for the connection between periodontal disease and cardiovascular events.

Implementation Strategies:

Our implementation of this data is all about *intervention!* Since Pg. may be involved in the development of *atherosclerosis* and is a key player in the development of *periodontitis* we as clinicians must diagnose and treat all cases of gingivitis and periodontitis. When diagnosed and treated early gingivitis is completely reversible rendering no lasting harm (bone loss) to the patient.

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However, when we perform bloody prophies over and over again, admonishing the patient to brush more, floss more, we allow gingivitis to become chronic. In chronic gingivitis the monocyte and cytokine activity increases potentially developing increased inflammation in blood vessels and atherosclerotic plaques. Since there is a growing segment of the population at risk for cardiovascular disease we must take action. DNA-PCR testing for the pathogens in all gingivitis cases, before you treat, will increase your confidence in obtaining positive outcomes when treating this very common condition.

Don't miss the article **It's Time to Revisit Gingivitis** by Dr. Nagelberg, DDS & Heidi Arndt, RDH coming in the May 2010 issue of RDH Magazine.

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