Top Ten Things To Know
Periodontal Disease and Atherosclerotic Vascular Disease: Does the Evidence Support an Independent Association?

1. Globally, atherosclerotic vascular disease (ASVD) is the number 1 cause of death (30% of all deaths) and is the leading cause of disability and death in the United States. Atherosclerotic vascular disease is the buildup of plaque in the inner lining of arteries.

2. There is increasing interest in a possible association between ASVD and periodontal disease (PD).

3. This paper evaluates the quality of the data on this topic through reviews of pathophysiology, predominant theories, and investigative approaches that focus on
   • assessment of supporting data for an independent association between PD and ASVD and
   • the potential for PD treatment to modify ASVD risks and outcomes.

4. Diabetes mellitus, aging, alcohol, obesity, race/ethnicity, socioeconomic status, and smoking are risk factors shared by PD and ASVD.

5. Pathogenic mechanisms that might link PD and ASVD include
   • indirect mechanisms such as systemic inflammation and elevated inflammatory markers,
   • mimicry (antibodies to PD bacterial pathogens that are cross-reactive), and
   • direct mechanisms such as vascular infection caused by bacteremia with periodontal pathogens.

6. PD treatment reduces systemic inflammation and may improve noninvasive surrogate markers of ASVD and endothelial function, but
   • there isn’t consistency across studies for the effects of PD therapy for specific inflammatory markers;
   • the sustainability of treatment outcomes over time hasn’t been established;
   • the variability in the responses isn’t understood; and
   • after intensive PD therapy, transient pro-inflammation and deranged endothelial functions can be detected.

7. The Evidence – PD as a risk factor for ASVD

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<tr>
<th>association between ASVD and PD</th>
<th>Level of Evidence A</th>
<th>Supports</th>
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<tbody>
<tr>
<td>“…benefit of periodontal intervention in decreasing local periodontal inflammation”</td>
<td>Level of Evidence A</td>
<td>Supports</td>
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<tr>
<td>causation of ASVD by PD</td>
<td>Level of Evidence A or B</td>
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<tr>
<td>“benefit of periodontal intervention in decreasing long term systemic inflammation”</td>
<td>Level of Evidence A or B</td>
<td>Not supported</td>
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8. Based for the most part on observational studies corrected for common confounders:
   • “PD is associated with ASVD, independent of known confounders.”
   • No causal relationship for PD and ASVD has been demonstrated.
   • There is no confirmation that “therapeutic periodontal interventions prevent heart disease or stroke or modify the clinical course of ASVD.”
9. Based on this review, significant gaps in the scientific understanding of the relationship between oral health and ASVD were highlighted:
   - More study is needed to identify the clinically relevant aspects of the PD/ASVD association and the impact of treatments on outcomes.
   - Treating PD has a transient impact on inflammation markers and endothelial function and the implications of this need to be clarified.
   - Uniform criteria for PD severity and consistent correction for known confounders could improve future studies.

10. Current data suggest that gum disease and atherosclerotic heart disease often occur together, but evidence does not suggest that maintaining or improving gum health will prevent or stop atherosclerotic heart disease or stroke. “Statements that imply a causative association between PD and specific ASVD events or claim that therapeutic interventions may be useful based on that assumption are unwarranted.”

http://circ.ahajournals.org/lookup/doi/10.1161/CIR.0b013e31825719f3