High Blood Press Cardiovasc Prev 2007; 14 (3): 145-196
1120-9879/07/0003-0145/$44.95/0

Vessels and Endothelium

10.35 Arterial Stiffness in Periodontal Disease

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Introduction: The theory of the "focal infection" according to which bacteria entering the general circulation can go to damage heart and other organs goes up again to over 60 years; waned at the end of the 1940s this theory is today living a second popularity wave. The periodontal diseases are the most frequent between the focal infections. Since the beginning of the 1980s a correlation between the periodontal diseases and the cardiovascular diseases has been assumed. Purpose of our study is to highlight the presence of early preclinical arterial elasticity alterations before the atherosclerosis is highlightable with the increase in thickness of the walls with the ultrasounds, through the study of the arterial stiffness in patients with periodontal disease without other pathologies or factors of cardiovascular risk.

Methods: Stomatological examinations were carried out in 153 (105 men and 48 women) aged 18 to 52 years (mean age 38.5±13.5 years). The condition of the parodontium was assessed and classified according to a 3-grade scoring system used for periodontal disease assessment (Gingival Index, Sulcus Bleeding Index, periodontal probing). Pulse Wave Velocity (PWV), large-artery elasticity (C1), small-artery elasticity (C2), systemic vascular resistance (SVR) and total vascular impedance (TVI) were measured with the applanation tonometry before and after 4 weeks from the therapies and after 6 months.

Results: An increase in C1 (19.75±3.18 ml/mmHg x 10 vs 16.96±2.13 ml/mmHg x 10) and in C2 (7.31±2.52 ml/mmHg x 100 vs 6.72 ±2.34 ml/mmHg x 100); a reduction in SVR (1038.5±112.7 dina x sec x cm x cm^{-5} vs 1300.3 ± 142.6 dina x sec x cm x cm^{-5}) and in IVT (97.2±23.5 dina x sec x cm x cm^{-5} vs 113.1±34.7 dina x sec x cm x cm^{-5}); a reduction in PWV (10,03 ms vs 12.5 ms) is revealed after treatment. The results has been confirmed after 6 months only in healthy subjects (97 vs 56; 35 males and 62 females).

Conclusions: Periodontitis is a chronic bacterial infection of the supporting structures of the teeth. Our preliminary data indicate a reduction of arterial elasticity and increased systemic vascular resistance during periodontal disease. Persistent subclinical vascular alterations in patients with a greater intensity of the periodontal disease and poor control after therapies seems to confirm the role of this chronic disease in the atherosclerotic process.