Periodontal disease and coronary plaque vulnerability-Insights from the the ATHERODENT Study

Carmen Ioana Biris
University of Medicine and Pharmacy of Tirgu Mures, Romania

The role of periodontal disease (PD) as a mediator of systemic inflammation has been well established. At the same time, PD has been recognized to play a significant role in progression of cardiovascular diseases, being associated with the severity of coronary artery lesions. However, its association with high-risk atheromatous plaque in the coronary arteries has not been elucidated so far. The purpose of the ATHERODENT trial (ClinicalTrials.gov Identifier: NCT03395041) was to evaluate the interrelation between severity of periodontal disease (PD) and coronary plaque vulnerability, in patients with unstable angina.

Methods: So far, 52 patients with unstable angina were enrolled in the ATHERODENT clinical trial, who underwent: (1) complex dental examination for assessment of periodontal diseases as expressed by periodontal index (PI) and (2) coronary computed tomography angiography for analysis of morphology, composition and vulnerability features of the culprit coronary plaques causing myocardial ischemia.

Results: The total PI was directly correlated with the total amount of calcium in the coronary arteries, as expressed by coronary calcium score (r=0.45, p=0.0008). Coronary calcium score was significantly higher in patients with hight PI (505.29±478.64 vs 93.82±233.0,p=0.0001). Similarly, patients with high PI presented a significantly higher plaque volume in lesions causing ischemia (p=0.019), and a larger volume of non-calcified plaque (p=0.002). At the same time, we assessed several features of high risk in coronary plaques such as positive remodeling, low density atheroma, spotty calcification and napkin-ring sign. Interestingly, patients with high risk atheormatous plaques presented more severe PD as expressed by the loss of gingival attachments (3.6±2.91 vs. 1.66±1.8, p=0.009), papillary bleeding index (4.5±3.06 vs. 2.04±1.96, p=0.002) and total PI (28.20±13.34 vs. 18.71±11.31, p=0.001) than those with low risk plaques.

Conclusions: Presence of periodontal disease is associated with a more vulnerable phenotype of the atheromatous plaques causing an acute coronary event. Patients with high-risk features of the culprit coronary plaques present an increased severity of the PD as compared to patients with low-risk atheromatous lesions. These indicate that PD could represent a maker of increased risk in patients with coronary artery disease.

Speaker Biography

Carmen Ioana Biris is the Assistant University Lecturer, University Lecturer, Associate Professor and Scientific Researcher at the University of Medicine and Pharmacy Targu Mures, Romania. She is also a Specialist General Dentist and a Specialist in Prosthodontics and Oral Rehabilitation. She has been a active participant in national and international dental meetings, symposiums and congresses.

e: biriscarmen74@yahoo.com

Notes: