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Teodora G. Karteva[1], Tatyana T. Todorova[2], Neshka A. Manchorova-Veleva[1], Maria Kazakova[2], Ekaterina G. Karteva[1], Donka Keskinova[3], Stoyan Vladimirov[1], Victoria Sarafian[2]
[1]Operative Dentistry and Endodontics, Medical University - Plovdiv, Plovdiv, Bulgaria, [2]Department of Medical Biology, Medical University - Plovdiv, Plovdiv, Bulgaria, [3]Department of Applied and Institutional Sociology, University of Plovdiv Paisii Hilendarski, Plovdiv, Bulgaria

TITLE: IL-1β: Determinant of Destruction Extent in Asymptomatic Apical Periodontitis

ABSTRACT BODY:

Objectives: IL-1β is a key regulator of the immunoinflammatory response to microbial infections. Marginal and apical periodontal diseases are local inflammatory reactions to bacterial challenge presented by the periodontal and endodontic microbiota, respectively. The dynamics of chronic marginal periodontitis are determined by the nature of the immunoinflammatory response, IL-1β being a potent inducer of the consequent tissue destruction. Whether it plays the same role in the pathogenesis of asymptomatic apical periodontitis (AAP), however, remains unexplored.
The aim of the study was to compare IL-1β production by peripheral blood mononuclear cells (PBMCs) from patients with AAP and the destruction extent of the lesion.

Methods: Patients (n=20) diagnosed with AAP were enrolled in the study. The initial assessment of the lesions' characteristics (size, volume, borders, density) was performed with limited-volume cone beam-computed tomography images (limited FOV CBCT). Peripheral blood samples were obtained from the patients for the isolation of PBMCs. The cells were cultivated in RPMI 1640 medium and stimulated with E.coli LPS. The supernatant was collected at 24 and 48 hours and IL-1β levels were determined by ELISA.

Results: IL-1β levels were lower at the 48-hour time point compared with the 24-hour time point. IL-1β levels detected in the supernatants of LPS-stimulated cultures of PBMC correlated positively with the lesion volume ($p<0.05$).

Conclusions: PBMCs isolated from patients with more extensive lesions produced higher levels of IL-1β. We suggest that increased IL-1β concentration illustrate tissue destruction and the accompanying inflammation in AAP. The financial support by the National Science Fund of Bulgaria (Contract No. DM-13/2,15.12 2017) is acknowledged.