

0244 Superoxide Production by Monocytes in Localized Aggressive Periodontitis

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Localized aggressive periodontitis (LAP), formerly known as localized juvenile periodontitis (LJP) is a unique form of early-onset periodontitis characterized by circumpubertal onset, alveolar bone loss localized to the first permanent molars and incisors, a high prevalence of the gram negative bacteria *Actinobacillus actinomycetemcomitans*, and a significant familial aggregation.

Objectives: The aim of the present study was to evaluate superoxide production of peripheral blood monocytes of LAP patients in response to different stimuli including opsonized zymosan, phorbol 12-myristate 13-acetate (PMA), and a synthetic peptide (Formyl-Methionyl-Leucyl-Phenylalanine; FMLP).

Methods: Eight LAP patients and eight sex-, race- and age-matched controls were included in this study. Monocytes were isolated by density gradient centrifugation and were cultured for varying periods of time. Superoxide production of monocytes was assessed by SOD-inhibitable cytochrome C reduction assay was tested over an elongated observation period in order to determine the time course of enzyme activity.

Results: LAP had significantly higher superoxide production (2.91 ± 1.03) compared to healthy controls (1.78 ± 0.68) in resting cells ($p < 0.05$). In addition, monocytes from LAP patients produced significantly higher amounts of superoxide with respect to healthy control subjects upon stimulation with opsonized zymosan (8.47 ± 2.82 vs 3.31 ± 1.14) ($p < 0.05$). PMA and FMLP did not significantly increase the superoxide production of monocytes neither from LAP nor control subjects.

Conclusions: This data suggests that LAP patients have monocytic functional abnormalities resulting in elevated superoxide anion formation. Elevated superoxide production by monocytes is consistent with priming of these phagocytic cells similar to that observed in LAP neutrophils. Supported by USPHS Grant DE13499.