**HIGH DOSE ATORVASSTATIN REDUCES PERIODONTAL ACTIVITY IN PROPORTION TO ATHEROSCLEROTIC INFLAMMATION: A POTENTIALLY NOVEL PLEIOTROPIC EFFECT OF STATINS**

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**Background:** Periodontal disease (PD) is a common, chronic oral inflammatory condition and a risk factor for atherosclerosis (Athero). Here, we assessed whether high-dose atorvastatin (ATV) reduces periodontal (perio) inflammation (using 18F-fluorodeoxyglucose-positron emission tomography/computed tomography [FDG-PET/CT]).

**Methods:** Adults at high-risk for or established Athero (N=83) were randomized to ATV 10 mg vs. 80 mg in a multicenter trial. FDG-PET/CT imaging was done at 0, 4 and 12 weeks. Arterial and perio FDG uptake was assessed as a target to background ratio (TBR). PD severity was assessed on high-resolution CT images (alveolar perio bone loss). CT and PET/CT analyses were performed separately while blinded to treatment, clinical, and other imaging data.

**Results:** Perio TBR was higher in severe PD vs. no PD (mean ± SEM: 3.77 ± 0.20 vs. 3.04 ± 0.15; p=0.005). After 12 weeks ATV, perio TBR was reduced more in ATV 80 mg vs. ATV 10 mg group (ΔTBR 12 weeks-baseline= -0.30 ± 0.85 vs. 0.22 ± 0.68; p=0.04). ATV 80 mg effect was greatest in patients with perio inflammation at baseline (-0.52 ± 0.92 vs. 0.22 ± 0.79, P=0.009; Figure 1a). Changes in perio inflammation correlated with changes in carotid inflammation (Figure 1b).

**Conclusions:** High-dose ATV reduces perio inflammation, possibly indicating a novel pleiotropic effect of statins. Future studies should evaluate a possible mechanistic link between a reduction in perio and atherosclerotic inflammation mediated by statin therapy.