Comment on: Cani et al. (2007) Metabolic Endotoxemia Initiates Obesity and Insulin Resistance: *Diabetes* 56:1761–1772

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The recent article by Cani et al. (1) interests us very much. We have reported that obesity and periodontitis were associated for the first time in 1998 (2). Further study revealed that hepatic impairment was more strongly associated with periodontitis than obesity indexes (3). Our results showed that periodontitis increased with elevated serum levels of aspartate aminotransferase, alanine aminotransferase, and cholinesterase and an aspartate aminotransferase–to–alanine aminotransferase ratio of less than one, suggesting that hepatic steatosis is associated with periodontitis. Adjustment for neither BMI nor body fat attenuated these relationships. Tomofuji et al. (4) reported that chronic administration of lipopolysaccharide (LPS) to the periodontal pockets in a rat model of periodontitis increased serum LPS, fatty liver lesion, tumor necrosis factor-α, and 8-hydroxydeoxyguanosine in the liver. We reported that past development of glucose intolerance was significantly associated with deeper periodontal pockets, suggesting that a periodontal gram-negative pathogen, such as *Porphyromonas gingivalis* and *Actinobacillus actinomycetemcomitans*, is one cause of glucose intolerance (5). Periodontal treatment to remove these bacteria appears to reduce circulating tumor necrosis factor-α levels (6). Many studies have clarified that these bacterial infections are associated with arteriosclerosis, cardiovascular disease, and stroke.

Although 10–20% of the population has moderate-to-severe periodontitis, 21–80% of adults have some form of periodontal disease. The ulcerated area inside periodontal pockets with these subgingival bacteria is estimated to be as much as 72 cm^2 in patients with severe periodontitis (7). Periodontal gram-negative pathogens could be another source of LPS in addition to intestinal bacteria, at least in the case of severe periodontitis. Periodontitis might lead these people to obesity/diabetes.

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