SUMMARY: Antibody titers to P. gingivalis are increased in patients with rheumatoid arthritis and are associated with disease-specific autoimmunity. BACKGROUND: Periodontitis (PD) has been implicated as a risk factor for rheumatoid arthritis (RA). We sought to characterize antibody titers to P. gingivalis (a pathogen in PD) in subjects with RA, PD, and in healthy controls and to examine their relationship with disease autoantibodies. METHODS: P. gingivalis antibody was measured in subjects with RA (n=78), PD (n=39), and in controls (n=40). Group frequencies of bacterial titer elevations were compared using the Chi-square test and antibody titers were compared using non-parametric tests. Correlations of P. gingivalis titer with C-reactive protein (CRP), antibody to cyclic citrullinated peptide (anti-CCP), and rheumatoid factor (RF) were examined in those with RA while CRP and autoantibody concentrations were compared based on seropositivity to P. gingivalis. RESULTS: Antibody titers to P. gingivalis were highest in PD, lowest in controls, and intermediate in RA (p=0.0003). Elevations in P. gingivalis (titer= or >800) were more common in RA and PD (67% and 77%, respectively) than in controls (40%) (p=0.002). In RA, there were significant correlations with P. gingivalis titer with CRP, anti-CCP-IgM, and -IgG-2. CRP (p=0.006), anti-CCP-IgM (p=0.01) and
IgG2 (p=0.04) concentrations were higher in RA cases with P. gingivalis titers \( \geq 800 \) compared to cases with titers \( <800 \). CONCLUSION: Antibodies to P. gingivalis are more common in RA subjects than controls, although lower than that in PD. Associations of P. gingivalis titers with RA-related autoantibody and CRP concentrations suggests that infection with this organism plays a role in disease risk and progression in RA.