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Emergence of *Porphyromonas gingivalis* Antibiotic Resistance Over 20 Years

Alexandria, VA, USA – Thomas E. Rams, Temple University, Philadelphia, PA presented “Emergence of *Porphyromonas gingivalis* Antibiotic Resistance Over 20 years” at the hybrid 51st Annual Meeting & Exhibition of the AADOCR, held in conjunction with the 46th Annual Meeting of the Canadian Association for Dental Research (CADR), online and onsite in Atlanta, GA, on March 25, 2022.

Increased exposure to antibiotics over time has led to greater levels of antibiotic resistance in the human microbiome. This study examined temporal changes in antibiotic resistance patterns of periodontal *Porphyromonas gingivalis* over a 20-year period. Subgingival *P. gingivalis* was cultured before treatment from 2,193 adults with severe periodontitis in the USA during three time periods: 1999-2000 (936 patients); 2009-2010 (685 patients), and 2019-2020 (572 patients).

The clinical isolates were tested for *in vitro* antibiotic resistance on anaerobically-incubated enriched Brucella blood agar supplemented with breakpoint concentrations of either 4 mg/L of clindamycin or doxycycline, 8 mg/L of amoxicillin, or 16 mg/L of metronidazole, with data for amoxicillin and metronidazole additionally combined post hoc. *P. gingivalis* growing on antibiotic-supplemented media was considered resistant to the incorporated drug. Fisher’s exact test evaluated time period differences in the percentage of patients with antibiotic-resistant *P. gingivalis*.

The researchers found that *in vitro* resistance of subgingival *P. gingivalis* significantly increased to clindamycin (15-fold increase to 9.3% of patients) and amoxicillin (28-fold increase to 2.8% of patients) over a 20-year period in severe periodontitis patients in the USA. In contrast, no or minimal *P. gingivalis* resistance, and no significant temporal changes were found with doxycycline, metronidazole, or metronidazole plus amoxicillin. They also concluded that to limit further emergence of clindamycin-resistant strains, empiric use of clindamycin in *P. gingivalis*-positive US periodontitis patients without antibiotic susceptibility testing should be avoided.

This research was presented as a virtual Interactive Talk on March 25, 2022 at 11 a.m. EDT, [view the abstract](#) on the 2022 Annual Meeting Hybrid Platform.

About AADOCR

The American Association for Dental, Oral, and Craniofacial Research (AADOCR) is a nonprofit organization with over 3,000 members in the United States with a mission to drive dental, oral, and craniofacial research to advance health and well-being. AADOCR is the largest division of the International Association for Dental Research which has over 10,000 members. Learn more at www.aadocr.org.