



ORAL OPPORTUNISTIC INFECTIONS: PRETERM LOW BIRTH WEIGHT BABIES

The periodontium, comprised of the gingiva, bone and other supporting tissues that anchor the teeth, plays a key role in the interplay between oral health and systemic disease. Infection in these tissues, primarily by gram-negative anaerobic bacteria, can initiate a series of inflammatory and immunologic changes leading to the destruction of connective tissue and bone. Long considered a localized infection, periodontal diseases are now linked to a variety of conditions with systemic implications.

CHRONIC DEGENERATIVE DISEASES

Periodontitis, advanced infection of the periodontium that often causes tooth mobility and tooth loss, appears to share genetically determined risk factors with several other chronic degenerative diseases such as ulcerative colitis, juvenile arthritis, and systemic lupus erythematosus. Recent research points to specific genetic markers associated with increased production of the pro-inflammatory cytokines interleukin-1 and TNF as strong indicators of susceptibility to severe periodontitis. This recent finding could lead to early identification of people at most risk for severe periodontal disease and initiation of appropriate therapeutic interventions.

PRETERM LOW BIRTH WEIGHT BABIES

Emerging evidence may link severe periodontal disease in pregnant women to a sevenfold increase in the risk of delivering preterm low birth weight babies. NIDCR-supported researchers estimate that as many as 18 percent of the 250,000 premature low-weight infants born in the United States each year may be attributed to infectious oral disease.

The emotional, social, and economic costs associated with these small babies are staggering. Hospital costs alone surpass \$5 billion annually. When costs to society in terms of suffering and managing long-term disabilities often associated with prematurity are considered, this figure escalates dramatically.

In a recent study, mothers of preterm low-weight newborns were found to have significantly more severe periodontal disease than did mothers of full-term, normal weight babies. Investigators believe that the molecular pathogenesis may be similar to that characterized for other maternal, bacterial, opportunistic infections, such as genitourinary infections, that are associated with low-weight preterm births.

Scientists theorize that oral pathogens release toxins that reach the human placenta via the mother's blood circulation and interfere with fetal growth and development, which has been shown to occur in animal studies. The oral infection also prompts accelerated production of inflammatory mediators PGE2 and TNF that normally build to a threshold level throughout pregnancy, then cue the onset of labor. Instead, the elevated levels of these inflammatory mediators trigger premature delivery.

Taking into account all the known risk factors for premature birth, the researchers could identify no other reason for the relationship they had found between severe periodontal disease and preterm low-weight births. Additional research is needed to confirm this intriguing finding and to determine if treating and preventing periodontal disease would reduce the incidence of these high risk births.

NATIONAL INSTITUTE OF HEALTH

Key Recommendations from the Expert Panel on the Identification, Evaluation, and Treatment of Overweight and Obesity in Adults Professional Education Materials
Patient and Public Education Materials National Heart, Lung and Blood Institute
National Institutes of Health

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