



Zdenek Broukal

Institute of Dental Medicine, Prague, Czech Republic

The presence of Enterococci in the oral cavity of one-year-old infants delivered pre-term with very low birth weights (a pilot study)

Objective: This pilot study was aimed to identify Enterococci in the oral cavity of 12-month-old infants and to compare their occurrence between a cohort of very low birth weight infants (VLBW) and a control cohort of full-term born children.

Materials & Methods: Altogether 116 one-year-old infants were examined, 64 of whom were born prematurely with very low birth weights and 52 were carried full-term. At 12 months of age, both groups of infants were orally examined and smear samples of dental plaque on erupted teeth were taken and processed for the identification of cultivable Enterococci. Samples were diluted in PBS and spread on Bile Esculin Azide Agar (Sigma Aldrich) incubated aerobically, colonies preliminarily identified as Enterococci were isolated (altogether 223 isolates) and their biochemical properties tested on StreptoTest-24 (Erba Lachema, CZ). Statistical analysis included Chi-square and Fisher's factorial test ($p < 0.05$).

Results: Enterococci were detected in 7 (13.5%) of VLBW infants and in 3 (4.7%) of their full-term peers ($p = 0.0326$). If present, their growth density ranged from 1 to 23 CFU per plate. Isolates from VLBW and full-term infants, based on biochemical properties belonged to *E. faecalis* in 92.6% and 85.2% resp. and to *E. faecium* in 7.4% and 17.6% resp.; $p = 0.1240$.

Conclusion: Enterococci are considered as transient constituent components of the oral microbiome especially in infants' age. This study confirmed however their early acquisition to the oral cavity in one-year-old infants. Their significantly higher prevalence in VLBW infants as compared to their full-term peers can be explained by their obvious longer stay in neonatological wards during the first months of life. VLBW children have thus, a higher chance to acquire enterococcal nosocomial infection, despite of frequent broad spectrum antibiotics administration than full-term and healthy infants cared in home environment. Future research should focus on establishing the clinical significance of the early acquisition of enterococci to the mouth in the on-going child's age.

Speaker Biography

Zdenek Broukal completed his Ph.D in Dentistry in 1979. He is Professor (2004-present) and Chair in the Department of Oral Epidemiology and Preventive Dentistry in the Institute of Clinical and Experimental Dental Medicine (Charles University). He is the member of Czech Dental Society, ORCA, European Association for Dental Public Health, He has conducted a number of symposia and workshops in many national scientific congresses. He is the author/co-author of 3 monographs and around 156 papers in journals.

e: broukal@vus.cz

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