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**EVOLIUCINĖ MEDICINA:
ŽMOGAUS RAIDOS PERSPEKTYVOS IR SVEIKATA
BESIKEIČIANČIOJE APLINKOJE**

**EVOLUTIONARY MEDICINE:
PERSPECTIVES ON HUMAN DEVELOPMENT AND HEALTH
CONSEQUENCES IN A CHANGING ENVIRONMENT**

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Vilniaus universiteto Medicinos ir sveikatos mokslų
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PERI-IMPLANTITIS AS A MODERN INFLAMMATORY BURDEN: AGEING, PERIODONTAL SUSCEPTIBILITY AND ORAL HYGIENE

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Background and Aim: Peri-implantitis may be interpreted as a modern inflammatory burden, where artificial oral rehabilitation in later life encounters cumulative susceptibility to biofilm-induced periodontal breakdown. This study aimed to determine whether age, periodontal disease severity and self-reported hygiene-related behaviours explain peri-implantitis risk in patients with osseointegrated dental implants.

Materials and Methods: A cross-sectional study was conducted in 2025 at the Institute of Dentistry, Faculty of Medicine, Vilnius University, and Periodont Dental Clinic. Patients with at least one osseointegrated dental implant were included. Ethical approval was obtained from the Vilnius Regional Biomedical Research Ethics Committee. Clinical and radiological assessments evaluated peri-implant status, periodontal disease stage and alveolar bone atrophy. In complete cases, toothbrushing frequency, interdental cleaning, dental visit frequency and implant-specific hygiene instruction were assessed. Associations were tested using chi-square, Fisher's exact and non-parametric tests where appropriate. Binary logistic regression identified independent predictors, with significance set at $p < 0.05$.

Results: Among 184 patients, peri-implantitis was diagnosed in 46 patients (25%), peri-implant mucositis in 55 (29.9%) and peri-implant health in 83 (45.1%). Patients aged ≥ 60 years had a higher prevalence of peri-implantitis than younger patients (37.9% and 11.2%, respectively; $p < 0.001$). In complete cases ($n=110$), 73.6% reported interdental cleaning, 78.2% brushed at least twice daily and 47.3% had received implant-specific hygiene instruction. In multivariable analysis adjusted for age, hygiene instruction and alveolar bone atrophy, periodontal disease stage remained independently associated with peri-implantitis ($OR=2.58$; $p=0.017$), while implant-specific hygiene instruction showed a protective tendency ($OR=0.34$; $p=0.056$).

Conclusions: Peri-implantitis was more prevalent in older patients, but adjusted analysis identified periodontal disease severity as the main independent determinant. The protective tendency of implant-specific hygiene instruction suggests that peri-implant disease risk is shaped by both biological susceptibility and modifiable maintenance factors. These findings support periodontal risk assessment and structured supportive implant care.

Keywords: ageing, dental implants, oral hygiene, peri-implantitis, periodontitis