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Association with albuminuria and periodontitis and its effects on mortality

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Objectives: Periodontal disease is inflammation of the tissue surrounding teeth, and receives attention for association with cardiovascular disease. Both albuminuria and periodontitis are known to be related with systemic inflammation and recent data showed periodontitis has association with albuminuria. This study aimed to investigate the relationship between albuminuria, periodontitis and mortality.

Methods: To determine the association of periodontitis and albuminuria with all-cause mortality, we used National Health and Nutrition Examination Survey data from 2001 to 2003. Total 7938 Adults aged ≥ 18 years and who performed dental exam were included. The relationship between albuminuria and periodontitis was evaluated using logistic regression and mortality with Cox proportional hazards models

Results: The prevalence of periodontitis was 1065 (13.4%) among study population. In multivariate logistic regression analysis, Ln urine albumin to creatinine ratio (ACR) was associated with periodontitis (OR 1.14, 95% CI 1.09-1.23, $P < 0.001$). During median follow up duration of 12.8 years, all-cause death occurred in 991(12.5%) among 7938 participants. In multivariate Cox regression analysis, periodontitis was independently associated with an increased risk of all cause mortality (HR 1.24, 95% CI 1.07-1.44, $P = 0.005$), as well as Ln ACR (HR 1.22, 95% CI 1.16-1.28, $P < 0.001$). When the patients were divided according to the presence of periodontitis and albuminuria, the groups with periodontitis/no albuminuria (HR 1.27, 95% CI 1.07-1.51, $P = 0.005$), no periodontitis/albuminuria (HR 1.81, 95% CI 1.48-2.22, $P < 0.001$), and periodontitis/albuminuria (HR 2.11, 95% CI 1.64-2.72, $P < 0.001$) had increased risk of mortality compared to the groups with no periodontitis/no albuminuria.

Conclusions: Periodontitis showed positive association with albuminuria and was significant risk factor for mortality as well as albuminuria.