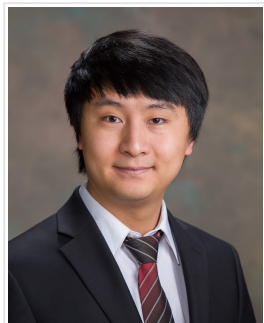


Retrospective Evaluation of Periodontal Disease among Patients with Chronic Kidney Disease Utilizing Combined Electronic Dental-Medical Record Data



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Background: Systematic review of the literature found evidence of an association between periodontal disease (PD) and chronic kidney disease (CKD), though biological mechanisms remain undefined. Marshfield Clinic (MC) patients with CKD and ≥ 5 years of periodontal data were assessed to: 1) estimate the PD prevalence among patients with CKD; and 2) assess trends in renal function measures for potential association with PD episodes.

Methods: Interrogation of the MC electronic health records was undertaken to characterize PD prevalence in the defined cohort (n=904). Prevalence of PD and other chronic comorbidities was compared between a focused subset of patients with: a) PD predating CKD diagnosis; and b) a minimum of 20 teeth, and age and gender-matched controls (n=348, per group). Longitudinal trends in a separate subset of subjects with available microalbuminuria and eGFR data (n=255), were assessed for potential associations with PD severity over time. Of those patients, n=153 (60%) had a history of moderate/severe PD.

Results: Moderate/severe PD was present in 68% of MC patients (n=613/904) with CKD and ≥ 5 years of periodontal data. Moderate/severe PD prevalence was similar among the CKD sub-cohort and matched controls (p=0.5). CKD patients, compared to controls, had higher percentages of comorbidities including diabetes (49% vs 16%), hypertension (87% vs 51%), and hypercholesterolemia (39% vs 26%). Moderate/severe PD episodes paralleled increase in microalbuminuria and/or decline in eGFR in 24/153 patients (16%). A greater increase in microalbuminuria per unit of time was noted among moderate/severe PD cases compared to those with healthy/mild PD, though the trend did not achieve statistical significance (p = 0.2).

Conclusions: PD prevalence was comparable among patients with and without CKD. High rates of chronic comorbidities in CKD patients may contribute to PD, CKD, or both. Analysis of longitudinal renal data suggested potential interactions between PD episodes and decline in renal function.