

# Periodontal disease and all cause and cardiovascular mortality in hemodialysis patients: a prospective multinational cohort study

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**Background** Oral disease may be associated with increased risks of death due to inflammation or as a general indicator of healthcare practices. We evaluated the association between dental status and the risk of all-cause and cardiovascular mortality in adults on hemodialysis.

**Methods** ORAL-D is a multinational prospective cohort study of consecutive adults receiving hemodialysis in 75 outpatient clinics selected randomly from a collaborative dialysis network in Italy, Hungary, Poland, Argentina, Portugal, France and Spain. A dental surgeon evaluated dental status by using the DMFT (decayed, missing, filled, permanent teeth) score. Quality of dental health was defined based upon WHO criteria as low, moderate and high DMFT scores of <2.6, 2.7-4.4 and >4.4.

We assessed survival at 12 months using centralized mortality data. We conducted analysis with Cox regression controlling for age, gender, depressive symptoms, previous cardiovascular event, clinical performance measures, dialysis prescription and performance indicators.

**Results** 3340 dentate hemodialysis patients in the participating clinics received a complete evaluation for periodontitis and completed follow up. Median follow up was 21.6 (19.5 to 28.4) months and 344 patients (10%) died during follow up. Dental health (DMFT scores) had uncertain associations with all-cause or cardiovascular mortality.

## Association between dental health and risk of all cause and cardiovascular disease

Exposure	Unadjusted risk	p value	Adjusted risk	p value
All-cause mortality				
Low DMFT score (<2.6)	1.36 (0.46-3.96)	0.58	0.63 (0.19-2.08)	0.45
Moderate DMFT score (2.7-4.4)	2.89 (1.14-7.36)	0.03	1.51 (0.58-3.88)	0.40
High DMFT score (>4.4)	5.98 (2.48-14.42)	<0.001	2.07 (0.85-5.07)	0.11
Cardiovascular mortality				
Low DMFT score (<2.6)	1.02 (0.29-3.60)	0.98	0.40 (0.09-1.79)	0.23
Moderate DMFT score (2.7-4.4)	1.76 (0.59-5.19)	0.31	1.02 (0.34-3.05)	0.97
High DMFT score (>4.4)	3.86 (1.44-10.4)	0.007	1.38 (0.50-3.78)	0.54

**Conclusion** Dental health has uncertain associations with all-cause and cardiovascular mortality in patients on hemodialysis. ORALD follow up will be completed by end of 2014.

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