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Low levels of antibodies for the oral bacterium *Tannerella forsythia* predict cardiovascular disease mortality in men with myocardial infarction: a prospective cohort study

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Abstract

Antibody levels to periodontal pathogens in prediction of cardiovascular disease (CVD) mortality were explored using data from a health survey in Oslo in 2000 (Oslo II-study) with 12 1/2 years follow-up. IgG antibodies to four common periodontal pathogens; *Tannerella forsythia* (TF), *Porphyromonas gingivalis* (PG), and *Treponema denticola* (TD) all termed collectively the "red complex", and *Aggregatibacter actinomycetemcomitans* (AA) were analysed. The study sample consisted of 1172 men drawn from a cohort of 6,530 men who participated in the Oslo II-study, where they provided information on medical and dental history. Of the study sample, 548 men had reported prior myocardial infarction (MI) at baseline whereas the remaining 624 men were randomly drawn from the ostensibly healthy participants for comparative analyses. Dental anamnestic information included tooth extractions and oral infections. An inverse relation was found for trend by the quartile risk level of TF predicting CVD mortality, p-value for trend = 0.017. Comparison of the first to fourth quartile of TF antibodies resulted in hazard ratio (HR) =1.82, 95% confidence interval 1.12-2.94, p=0.015, adjusted for age, education, diabetes, daily smoking, and systolic blood pressure. Specificity comparing decile 1 to deciles 2-10 of TF predicting mortality was 92.3%. We found an increased HR by low levels of antibodies to the bacterium *T. forsythia* predicting CVD mortality in a 12 ½ years follow-up in persons who had

experienced an MI but not among non-MI men. This novel finding constitutes a plausible causal link between oral infections and CVD mortality.

Keywords

Cardiovascular disease; Mortality; Prospective cohort; ELISA; Oral microbiota

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