

Coronary heart disease patients with no teeth have nearly double risk of death

16 December 2015

Coronary heart disease patients with no teeth have nearly double the risk of death as those with all of their teeth, according to research published today in the *European Journal of Preventive Cardiology*. The study in more than 15 000 patients from 39 countries found that levels of tooth loss were linearly associated with increasing death rates.

"The positive effects of brushing and flossing are well established."

"The relationship between dental health, particularly periodontal (gum) disease, and [cardiovascular disease](#) has received increasing attention over the past 20 years," said lead author Dr Ola Vedin, cardiologist at Uppsala University Hospital and Uppsala Clinical Research Center in Uppsala, Sweden. "But it has been insufficiently investigated among patients with established [coronary heart disease](#) who are at especially high risk of adverse events and [death](#) and in need of intensive prevention measures."

This was the first study to prospectively assess the relationship between tooth loss and outcomes in patients with coronary heart disease. The study included 15 456 patients from 39 countries on five continents from the STABILITY trial.² At the beginning of the study patients completed a questionnaire about lifestyle factors (smoking, physical activity, etc), psychosocial factors and number of teeth in five categories (26-32 [considered all teeth remaining], 20-25, 15-19, 1-14 and none).

Patients were followed for an average of 3.7 years. Associations between tooth loss and outcomes were calculated after adjusting for [cardiovascular risk factors](#) and socioeconomic status. The primary outcome was major cardiovascular events (a composite of cardiovascular death, myocardial infarction and stroke).

Patients with a high level of tooth loss were older,

smokers, female, less active and more likely to have diabetes, higher blood pressure, higher [body mass index](#) and lower education. During follow up there were 1 543 major cardiovascular events, 705 cardiovascular deaths, 1 120 deaths from any cause and 301 strokes.

After adjusting for cardiovascular [risk factors](#) and socioeconomic status, every increase in category of tooth loss was associated with a 6% [increased risk](#) of major cardiovascular events, 17% increased risk of cardiovascular death, 16% increased risk of all-cause death and 14% increased risk of stroke.

Compared to those with all of their teeth, after adjusting for risk factors and socioeconomic status, the group with no teeth had a 27% increased risk of major cardiovascular events, 85% increased risk of cardiovascular death, 81% increased risk of all-cause death and 67% increased risk of stroke.

"The risk increase was gradual, with the highest risk in those with no remaining teeth," said Dr Vedin. "For example the risks of [cardiovascular death](#) and all-cause death were almost double to those with all teeth remaining. Heart disease and gum disease share many risk factors such as smoking and diabetes but we adjusted for these in our analysis and found a seemingly independent relationship between the two conditions."

"Many patients in the study had lost teeth so we are not talking about a few individuals here," continued Dr Vedin. "Around 16% of patients had no teeth and roughly 40% were missing half of their teeth."

During the study period 746 patients had a myocardial infarction. There was a 7% increased risk of myocardial infarction for every increase in tooth loss but this was not significant after adjustment for risk factors and [socioeconomic status](#). Dr Vedin said: "We found no association between number of teeth and risk of myocardial infarction. This was puzzling since we had robust

associations with other cardiovascular outcomes, including stroke."

Gum disease is one of the most common causes of tooth loss. The inflammation from gum disease is thought to trigger the atherosclerotic process and may explain the associations observed in the study. Poor dental hygiene is one of the strongest risk factors for gum disease.

"This was an observational study so we cannot conclude that gum disease directly causes adverse events in heart patients," said Dr Vedin. "But [tooth loss](#) could be an easy and inexpensive way to identify patients at higher risk who need more intense prevention efforts. While we can't yet advise [patients](#) to look after their [teeth](#) to lower their cardiovascular risk, the positive effects of brushing and flossing are well established. The potential for additional positive effects on cardiovascular health would be a bonus."

More information: Vedin O, Hagström E, Budaj A, Denchev S, Harrington RA, Koenig W, Soffer J, Sritara P, Stebbins A, Stewart RHA, Swart HP, Viigimaa M, Vinereanu D, Wallentin L, White HD, Held C on behalf of the STABILITY Investigators. Tooth loss is independently associated with poor outcomes in stable coronary heart disease. *European Journal of Preventive Cardiology*. 2015; DOI: [10.1177/2047487315621978](https://doi.org/10.1177/2047487315621978)

Provided by European Society of Cardiology

APA citation: Coronary heart disease patients with no teeth have nearly double risk of death (2015, December 16) retrieved 21 September 2022 from <https://medicalxpress.com/news/2015-12-coronary-heart-disease-patients-teeth.html>

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