

# On the mortality of patients treated with dental implants: Association to age, degree of tooth loss, and treatment modality

Akademisk avhandling

Som för avläggande av odontologie doktorsexamen vid Sahlgrenska akademien, Göteborgs universitet kommer att offentligens försvaras i hörsal Arvid Carlsson, Medicinaregatan 3, den 29 januari 2021, klockan 9.00.

av Jan Kowar

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## Avhandlingen baseras på följande delarbeten

- I. Kowar J, Stenport V, Jemt T. *Mortality patterns in partially edentulous and edentulous elderly patients treated with dental implants*. Int J Prosthodont. 2014 May-Jun;27(3):250-6
- II. Jemt T, Kowar J, Nilsson M, Stenport V. *Patterns of mortality in patients treated with dental implants: A comparison of patient age groups and corresponding reference populations*. Int J Prosthodont. 2015 Nov-Dec;28(6):569-76
- III. Kowar J, Stenport V, Nilsson M, Jemt T. *Causes of death in implant patients treated in the edentulous jaw: A comparison between 2098 deceased patients and the Swedish national cause of death register*. Int J Dent. 2019 Mar 11;2019:7315081. doi: 10.1155/2019/7315081.
- IV. Kowar J, Stenport V, Nilsson M, Jemt T. *Mortality in edentulous patients: A registry-based cohort study in Sweden comparing 8463 patients treated with removable dentures or implant-supported dental prostheses*. Manuscript Submitted.

**SAHLGRENKA AKADEMIN  
INSTITUTIONEN FÖR ODONTOLOGI**



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## Abstract

Rehabilitation of partially or completely edentulous patients with implant-supported prostheses is a common treatment in dentistry. Clinical studies evaluating this type of treatment have largely focused on technical and biological complications. To date, only a few studies have investigated the survival of edentulous patients and the possible effects of prosthetic treatments and age at time of edentulism.

The overall aim of this thesis was to analyse the mortality of partially or completely edentulous patients in different age groups treated with implant-supported prostheses. The mortality of a large group of patients who were either treated at the Brånemark clinic, Region Västra Götaland (I-III), or in other parts of Sweden (IV) was studied with regard to degree of tooth loss and compared with a reference population matched for age and gender. Comparisons of mortality were performed on the basis of the treatment modality in relation to the degree of tooth loss (I, II) and between two treatments for edentulous patients (IV). Causes of death, as described by ICD10, were analysed in the edentulous patients and compared with the expected frequency of death cause in a reference population (III). The patients' socio-economic situation was extracted from Statistics Sweden and the implant and denture groups were compared (IV).

The results indicated that completely edentulous patients had a higher mortality compared to partially edentulous individuals. Compared to a matched reference population, elderly patients ( $\geq 80$  years) treated with implant-supported prostheses had lower mortality and younger edentulous patients ( $\leq 59$  years) had higher mortality. A majority of the patients died due to diseases in the circulatory system (CVD) and the incidence of CVD-related deaths was highest in the younger patient group. Patients treated with implant-supported prostheses had, in general, a lower ten-year mortality rate compared to patients who received a removable denture irrespective of socioeconomic status.

In Sweden, edentulous patients, especially younger patients, belong to a special group of dentistry patients. As these patients often have poor general health, they should receive special attention. Although this thesis does not assume being treated with implant-supported prosthesis per se causes lower mortality, the thesis does assume it contributes to better nutrition, improved masticatory function, and an increased quality of life.

**Keywords:** Mortality, age, edentulous, dental implant, socioeconomic status.