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CONFERENCE ABSTRACT

Periodontal treatment and diabetes-related healthcare costs: Results from a large retrospective study

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Introduction

There is a consensus that the incidence, prevalence, progression and severity of periodontal disease (PD) are higher in individuals with diabetes mellitus (DM). Moreover, DM and PD appear to have a bi-directional relationship. Individuals with DM, who also suffer from PD, exhibit more difficulties to stabilize metabolic control and develop other diabetes complications more frequently. Interestingly, for individuals with DM type 2 and PD, intensive periodontal treatment demonstrated to improve glycemic control. Therefore, we hypothesized that periodontal treatment may lead to lower diabetes-related healthcare costs, and aimed to study this in a Dutch population of individuals with DM.

Methods

For this purpose, a large data-based retrospective study was undertaken using claims data of a health insurance company. Data from adults' health insurance policies with additional dental coverage continuously from 2012 to 2018 were extracted. Individuals who received at least one diabetes-related claim reimbursed in 2012 were included in this study. Taking account of unobserved heterogeneity, a series of panel data regression models with patient-level fixed effects were estimated to assess the potential impact of periodontal treatment on diabetes-related healthcare costs.

Results

A total of 39,758 individuals with DM (age range 18-19 years; 45% females) were included in the final analyses. The median diabetes-related healthcare costs in 2012 were €42.74 per quarter of a year (interquartile range €12.45 - €277.03), including diagnoses, treatment, medication, and hospitalization costs. The fixed effect models showed €10.84 [95%CI €-14.86; €-6.83] lower diabetes-related healthcare costs per quarter of a year following periodontal treatment compared to no periodontal treatment. These results held robust across different model specifications which examined potential influences of severity of periodontal treatment and different time spells after periodontal treatment.

Discussions

PD may be seen as the sixth complication of DM, and should therefore receive the appropriate attention in DM patients. It has been shown before that periodontal treatment may have a beneficial effect on HbA1c levels. The results of this study are in line with a previously published study that showed a financial benefit from periodontal treatment in newly-diagnosed diabetes.

Conclusions

This study showed that individuals with DM had lower diabetes-related healthcare costs following periodontal treatment. This implies that periodontal treatment in DM patients may offer a financial benefit, besides the clinical one.

Lessons learned

Periodontal treatment may be financially beneficial in individuals with DM.

Limitations

This study was performed using only claims data of a health insurance company. Clinical data were unavailable, hence the severity of PD and DM and the need for periodontal treatment could not be determined. This may have influenced the study results.

Suggestions for further research

The results of this study must be verified in observational clinical studies in which individuals who have DM or are diagnosed with DM are followed over several years to see whether PD develops and if they are treated, what the effects will be both clinically and financially.