

CONFERENCE ABSTRACT

Development and evaluation of a decision support system for integration of primary diabetes and periodontal healthcare

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Introduction

There is conflicting evidence for the effect of clinical decision support systems (CDSS) for improving health care. While there have been success stories, other studies have highlighted potential pitfalls for CDSS. It is also uncertain whether and how a CDSS could improve integration of health care. This abstract reports the development and evaluation of a CDSS to improve integration of primary diabetes and periodontal healthcare.

Methods

The CDSS was developed using focus group and individual discussions with general practitioners (GPs) and dentists. These resulted in decision trees which acted as the basic structure for the CDSS. After the development, a case vignette study was conducted to evaluate the impact of the CDSS on decision making. Two sets of vignettes were developed, one set for GPs (n=200) and one set for dentists (n=200). Each participant was presented three different vignettes, with one chosen at random to include support from the CDSS. Logistic regression analysis was performed to assess the influence of the CDSS on the recommended decisions.

Results

The CDSS was developed for both GPs and dentists. Based on risk scores for diabetes and periodontitis, the CDSS gives tailored information, warnings and recommendations to the healthcare providers. The case vignette study showed that if assisted by the CDSS the GPs more often provided information on common risk factors for chronic conditions and dental problems (OR 3.3) and GPs more often provided information regarding the bi-directional relationship between periodontitis and diabetes (OR 1.6). Both groups were also more likely to refer to each other when the CDSS was activated (GP OR 4.1; GP OR 4.3). GPs were also more likely to ask for a patient's HbA1c value when prompted by the CDSS (OR 3.2)

Discussions

A CDSS for cooperation between primary and dental healthcare might provide innovative and novel possibilities to improve integration of healthcare through more awareness and better informed decision making.

Conclusions

We have developed a CDSS to raise awareness among general practitioners and dentists about the bi-directional link between diabetes and periodontitis and to promote integration of primary diabetes and periodontal healthcare.

Lessons learned

The vignette study suggested that the CDSS will help to raise awareness among healthcare providers and facilitates intersectoral cooperation. The CDSS may act as a blue-print for further oral-systemic interaction and integration.

Limitations

The decision trees and CDSS were developed using expert opinions from healthcare providers due to a lack of clinical guidelines for patients suffering from both conditions. These opinions may not be generally representative. The participants in the case vignette study are not a representative sample for GPs and GDPs in Germany, so the results cannot be generalized.

Suggestions for future research

The CDSS could be improved by integration of electronic dental and general health records. For the time being, the necessary information needed by the CDSS can be reported by the patients during the visit. Future research may focus on implementation of this CDSS and exploration of other oral-systemic interactions for which this DSS might be extendable.