

Exploring the links between gum disease and poorly controlled diabetes

As the UK gently shifts towards an increasingly older population, more people are retaining their teeth later into their lives. This is resulting in more cases of oral diseases, while medical comorbidities, including diabetes, are also becoming increasingly common.

There is increasing evidence of the two-way relationship between poorly controlled diabetes and oral health (Preshaw et al, 2019). People living with diabetes can develop debilitating oral health conditions, including dry mouth, dental caries and fungal infections, poorer oral healing following dental treatment and increasing severity of periodontal disease. Untreated periodontal disease is a major cause of tooth loss that, in turn, impacts on nutrition, self-esteem and quality of life. Between 40% and 60% of adults are affected by periodontitis, although some of the population remain unaware that they have the condition (Preshaw and Bissett, 2019).

The risk for periodontitis increases by two to three times in people with diabetes and is strongly associated with poor glycaemic control (Preshaw et al, 2019). Evidence shows that there is a bidirectional relationship between periodontitis and diabetes. A hyperglycaemic environment results in an exaggerated immune response to pathogens. Research evidences an increase in inflammatory markers in saliva and gingival crevicular fluid. In the presence of oral bacteria, the immune response of a person with poor glycaemic control leads to accelerated periodontal tissue destruction. Inflammation arising from chronic periodontitis (a severe form of gum disease in which the alveolar bone supporting the teeth begins to deteriorate) has also been found to elevate HbA_{1c} levels and impact on blood glucose levels (Poudel et al, 2018).

In order to provide a high standard of diabetes care, it is important to know where gaps in understanding of the condition exist in people with diabetes and in healthcare professionals. A questionnaire-based survey

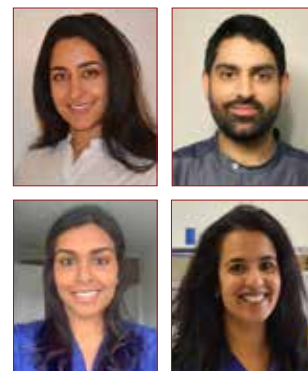
was carried out to assess whether patients attending tier 3 or 4 diabetes clinics at East Surrey Hospital were aware of the links between periodontal disease and diabetes, and whether they had received information about this from their diabetes team or a dental care professional. The key findings were:

- Of people that attended the diabetes clinics, 55% (60 out of 108) were not aware of the relationship between gum disease and diabetes.
- 55% (59/108) visit their dentist at least once a year. Of the whole group surveyed:
 - 66% (71/108) had no discussion with a dentist about the links between diabetes and gum disease.
 - 24% (26/108) recalled discussing the links.
 - 10% (11/108) could not remember whether this had been discussed.
- 28% (30/108) only saw their dentist if they had an urgent issue and 18% (19/108) rarely attended the dentist.
- 73% (79/108) had not received information from their diabetes team on the links between gum disease and diabetes.
- 74% (80/108) would like more information about oral health and diabetes.

A further questionnaire was developed to ascertain if diabetes specialist nurses and doctors at the hospital felt confident discussing basic oral health matters with their patients. Analysis of the completed questionnaires revealed the following:

- Of the specialist diabetes team, 83% (10/12) reported a lack of confidence in discussing the links between oral health and diabetes with their patients.
- 75% (9/12) would like to receive training in delivering oral health advice to patients.

The results of this survey are consistent with national research that shows oral health training for doctors and nurses is limited (Doshi et al,



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Box 1. Key oral-health messages that should be delivered to people with diabetes at their review.

- There is a two-way relationship between poorly controlled diabetes and gum disease.
- People with diabetes should maintain a good standard of oral health and visit their dentist for regular oral health checks.
- Signs that a person may have gum disease include bleeding gums, bad breath and loose teeth.

2016; Binks et al, 2017). A survey conducted by Doshi and colleagues (2019) found that 92% of 146 junior doctors lacked the confidence to diagnose oral conditions considered to be common. Furthermore, 97% felt they would benefit from further training in oral health matters.

The International Diabetes Federation has developed guidelines that recommend that doctors in primary care ask patients about oral self-care and if patients have noticed any signs of gum disease (Lindenmeyer et al, 2013). This should be completed at a basic level by all healthcare professionals caring for people with diabetes. If necessary, medical professionals should seek advice from a dental professional if oral disease is suspected (Lindenmeyer et al, 2013). In the UK, the National Service Framework for Diabetes states that oral health should be taught as part of diabetes education (Lindenmeyer et al, 2013).

The importance of signposting a person with diabetes with poor glycaemic control and/or poor periodontal health to their dentist, therefore, should not be undervalued. Evidence from studies suggests that intensive periodontal therapy can result in clinically significant improvements in HbA_{1c} levels (3–4 mmol/mol at 3–4 months). This reduction is equivalent to adding a second-line medication to a diabetes regimen (Preshaw and Bissett, 2019).

With knowledge amongst patients of the links between gum disease and diabetes being limited, healthcare professionals can help by conveying some key messages on oral health during consultations (see *Box 1*). Furthermore, results of the East Surrey Hospital survey indicated that people with diabetes would prefer printed information leaflets and posters in waiting rooms to receive advice on their oral health. With that

Box 2. Resources on periodontal disease and diabetes.

- British Society of Periodontology and Implant Dentistry (BSP)
 - Gum Health Awareness poster for waiting rooms: bit.ly/3bEAPzv
 - Gum Health Awareness poster for healthcare professionals: bit.ly/3oKA8Ze
- Scottish Dental Clinical Effectiveness Programme (SDCEP)
 - Diabetes and Your Oral Health patient leaflet: bit.ly/3qkGejh
- Diabetes.co.uk web resources for patients
 - Diabetes and Dental Health: bit.ly/39zbgoC

in mind, self-care resources that can be made available to patients are provided in *Box 2*.

Oral health remains an important topic of discussion between healthcare professionals and patients. There are clear links between periodontitis and diabetes, and effective gum therapy can improve glycaemic control. Doctors and dentists must, therefore, work together to manage the care of patients living with diabetes. ■

Binks C, Doshi M, Mann J et al (2017) Standardising the delivery of oral health care practice in hospitals. *Nursing Times* **113**: 18–21

Doshi M, Chay J, Gilbert L et al (2016) *Mouth Care Matters: A guide for hospital healthcare professionals*. Health Education England, Leeds. Available at: bit.ly/3nC7dVR (accessed 12.01.21)

Doshi M, Weeraman M, Mann J (2019) A survey of the knowledge of junior doctors in managing oral conditions in adult inpatients. *Br Dent J* **227**: 393–8

Lindenmeyer A, Bowyer V, Roscoe J et al (2013) Oral health awareness and care preferences in patients with diabetes: a qualitative study. *Fam Pract* **30**: 113–18

Poudel P, Griffiths R, Wong VW et al (2018) Oral health knowledge, attitudes and care practices of people with diabetes: a systematic review. *BMC Public Health* **18**: 577

Preshaw PM, Bissett SM (2019) Periodontitis and diabetes. *Br Dent J* **227**: 577–84



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Key information, advice and resources on the overlooked relationship between type 2 diabetes and gum disease.

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