

Letters to the Editor

The impact of diabetes on treatment in general dental practice

I am disappointed that a peer-reviewed article within a journal of clinical excellence has, within it, some inaccuracies.¹ The article is unclear at times with regards to whether the authors are referring to patients with Type 1 (T1) or Type 2 (T2) Diabetes Mellitus (DM) and, more concerning, is that understanding of DM by the authors is incorrect in the opening statement of the article.

The main presentation of DM is that the undiagnosed or inadequately controlled patient is hyperglycaemic, with a blood glucose elevated over normal physiological range for a period of time, and not hypoglycaemic due to reduced transfer of glucose into muscle cells as the authors state. Indeed, it is hyperglycaemia from which the majority of diabetic complications arise. The name Diabetes Mellitus originates from ancient Greek which literally translates as 'Sweet/Honey urine' due to the excessive glucose within the body.

The glycated haemoglobin test (HbA1c) is the most appropriate measure of long term glycaemic control, with a value of over 48 mmol/mol (6.5%) being indicative of DM, although in acute situations a random venous plasma glucose of >11.1 mmol/l would be diagnostic.²

It is important to recognize that the diabetes-related problem of the most acute onset within general dental practice will be hypoglycaemia, a blood glucose of <4 mmol/l, in those patients either on insulin or some categories of oral hypoglycaemic drugs (namely the sulphonylureas), and dentists need to be aware of how to manage such a medical emergency when it occurs.

Other statements are incorrect: patients with T1DM do not need to restrict diet in refined carbohydrate in order to live a full and meaningful life with their condition. Indeed, often they depend on glucose to correct episodes of hypoglycaemia. The current NICE guidelines support structured education on clinically proven programmes such as 'DAFNE-Dose Adjustment For Normal Eating'; teaching those with T1DM how

to adjust their insulin needs for normal carbohydrate consumption, in line with the recommendation for multiple daily injection basal-bolus insulin regimens.^{3,4}

References

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Authors' response

Firstly, we would like to thank you for taking the time to read our article¹ and sharing your thoughts on the topic. We would like to clarify that the focus of the article was to share knowledge and understanding of the impact of diabetes on routine treatment in *general dental practice* with the readership. The article was not intended to explore diabetes as a condition beyond the depth of the opening introduction; nor was it the intent to explore medical emergencies such as diabetic ketoacidosis or hyperosmolar hyperglycaemic state.

We appreciate that raised blood glucose is the most important presenting clinical 'sign' of diabetes. However, in the

following context 'Polyuria, polydipsia, polyphagia, along with hypoglycaemic episodes are the most common presentations of the disease';² we were referring to the common presenting symptoms of diabetes rather than clinical signs. We believe that patients are unlikely to present with recordings of hyperglycaemia to their general medical or dental practitioner. Thus, we consider it actually much more important for a general dental practitioner suspecting diabetes mellitus to enquire about these symptoms.

We are pleased that you drew attention to alternative methods of diagnosing diabetes other than HbA1c. The World Health Organization and Diabetes UK³ currently recommends other methods, such as the presence of diabetic symptoms (eg polyuria, polydipsia and unexplained weight loss) plus: a random venous glucose ≥ 11.0 mmol/l, a fasting plasma glucose ≥ 7.0 mmol/l or two-hour plasma glucose concentrations ≥ 11.1 mmol/l two hours following an oral glucose tolerance test. However, this was not explored further as we do not believe it is relevant to the daily practice of general dental practitioners. However, we appreciate the importance of HbA1c as a measure of long-term control and its importance on surgical consent; hence, we recommended in the oral surgery section of the article to assess HbA1c prior to surgical treatment.

We appreciate the importance of the point relating to the lack of discussion regarding hypoglycaemia presenting in general dental practice. However, we did not cover specific detail relating to the diagnosis and management of medical emergencies in the main body of the text; discussing this topic (which was not the intention of the article) and the impact of raised blood sugar on routine dental treatment would not do justice to either within the provided word limit. We would direct readers to this article by Greenwood and Meechan⁴ for guidance on medical emergencies presenting in the dental practice.

We apologize if certain statements were ambiguous. This article aimed to be a broad narrative review rather than an in-depth systematic review of available information. On review we

have noticed one error in the text which we apologize for: the sentence reading '1 in 16 people in the UK being currently undiagnosed' should actually read '1 in 16 people in the UK being currently diagnosed or undiagnosed'.

We appreciate the comment regarding NICE guidance and recommendation on dietary requirements as schemes such as DAFNE are extremely important tools in the management of diabetes. However, we did not cover dietary restrictions relating to quality of life in detail as we felt that it was outside of the scope of everyday general dental practice.

Thank you very much for your comments and we appreciate your interest in the article.

References

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Early eruption of a mandibular third molar in a 13-year-old female

Dental eruption is a dynamic and complex biological and physiological process that spans over several years and includes the formation of teeth and their migration in the jaws until they erupt in the mouth in their final functional position. Variation in the normal

teeth eruption pattern is a common finding, but significant deviation from the established norms should alert us for some diagnostic procedures to be taken for assessment of the patient health and development.

Although permanent teeth eruption is under significant genetic control, various general factors such as gender, socioeconomic status, craniofacial morphology and body composition can influence this process. Most significant disturbances in teeth emergence is caused by systemic diseases; hypothyroidism, HIV, hypoparathyroidism and syndromes such as Down's syndrome, SOTO's syndrome, to name but a few.^{1–3}

Case report

A 13-year-old female patient visited the outpatient department with a complaint of pain in the left lower posterior region during the previous 6 months. She gave the history of intermittent medication from



Figure 1. A partially erupted tooth-like structure in the third quadrant region.



Figure 2. OPG of the third molars and root formation of both the mandibular third molars near completion.

unregistered/unqualified medical practitioners for pain control.

Her dental examination revealed a partially erupted tooth-like structure in the third quadrant region which was tender on palpation (Figure 1). Her medical history was non-significant and her growth pattern was found to be normal. The father of the patient gave a similar history of early tooth eruption.

A panoramic radiograph was ordered which showed the presence of the third molars and root formation of both the mandibular third molars, which were near completion (Figure 2).

Blood investigations were normal and vital parameters were within normal range. Her menstrual history dated back one year.

Treatment was planned to remove the left lower third molar surgically, which was uneventful.

Discussion

Certain syndromes result in failed or delayed dentition as there are many regulatory mechanisms that are involved in dentition and are also active in other developmental processes.⁴

There are certain genetic disorders that affect teeth eruption. Most of them are reported to delay permanent teeth eruption, others are associated with complete failure of teeth to erupt.

Genetic disorders can be divided into disorders that affect enamel formation and/or the tooth follicle (eg amelogenesis imperfecta, Hurler's syndrome, mucopolysaccharidosis VI) and disorders that