Pit and fissure sealants – an update

Abstract

Purpose: To evaluate evidence on pit and fissure sealants available since the publication: Pit and fissure Sealants: Evidence-based guidance on the use of sealants for the prevention and management of pit and fissure caries (2010) and assess whether there is a need to adapt current practice, considering the Covid-19 pandemic.

Process: Search Strategy: PubMed, Cochrane Library, Guideline International Network and Medline through PubMed databases were searched from January 2010 to June 2020. The guidelines that were used as a basis for the original guideline were also searched for updates. Ninety-six relevant papers were identified. *In-vitro* studies and review papers were excluded, and the 35 remaining studies were critically appraised, with results from relevant studies tabulated including the strength of the evidence.

Results

1. Pit and fissure sealants are effective and should be placed on first and second permanent molars.
2. Non-operative cleaning of fissures using a toothbrush or bristle brush is recommended. Mechanical preparation of fissures is not recommended.
3. Patients should be recalled at six-month intervals, or more frequently based on caries risk level.
4. Fluoride application can be considered when pit and fissure sealants cannot be satisfactorily placed and patients recalled within three to six months depending on caries risk level.

   Further research is required to establish:
5. The use of self-etching agents.
6. The use of a bonding agent when placing sealants.

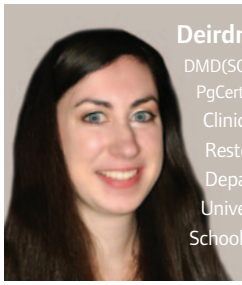
Conclusions: Processes should be put in place to ensure regular updating of guidelines.

Journal of the Irish Dental Association April/May 2021; 67 (2): 93-97

Introduction

The pits and fissures of teeth are susceptible to dental caries.[1-6] It is well known that sealing these surfaces with a resin or glass ionomer sealant can reduce the amount of caries an individual will experience. This decrease in incidence is due to reducing fissure depth allowing easier mechanical cleansing and the physical reduction of the surface area of the tooth that is exposed directly to demineralisation. Ideally, each tooth should be sealed "as soon as sufficiently erupted" to allow a genuine prevention of caries formation. If patients are seen when a tooth is insufficiently erupted, a sealant may not adequately bond due to the presence of crevicular fluid causing moisture contamination from the surrounding gingiva; however, if patients are seen long after tooth eruption the caries risk increases.[7]

A suite of evidence-based guidelines[8] were published jointly by the Oral Health Services Research Centre (OHSRC) University College Cork (UCC), the Health Service Executive (HSE) and funded by the Health Research Board (HRB) (Grant No. S/A013) – Pit and Fissure Sealants: Evidence-based guidance on the use of sealants for the prevention and management of pit and fissure caries (2010), from here on referred to as "the Guideline".



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Acute myeloid leukaemia: an update for dentists

Précis

This report highlights the oral manifestations of leukaemia. It illustrates the classification, the signs and symptoms, and the differential diagnoses of leukaemia that are relevant for a dental practitioner. There is also an example of a case report, which highlights some of the intra-oral presentations of acute myeloid leukaemia (AML).

Abstract

Many systemic diseases exhibit oral involvement. These intra- and extra-oral signs can have diagnostic weighting. Acute myeloid leukaemia (AML) is just one of a number of conditions that can present in the mouth. AML is a haematological malignancy, seen generally in the older population. Cervical lymphadenopathy and gingival enlargement, attributed to AML are the two most common signs that may present in a dental setting.

The case report also demonstrates that the treatment of systemic diseases can resolve the oral complications of the particular disease. In this case report, the treatment of the AML resulted in a resolution of the gingival hyperplasia.

Journal of the Irish Dental Association February/March 2021; 67 (2): 98-101

Introduction

Leukaemia is defined as a malignant, haematological proliferation of white blood cell precursors.[1] Lymphocytes are a subgroup of white blood cells, which originate from lymphoid progenitor cells. Red blood cells and platelets in comparison are derived from myeloid progenitor cells.

The myeloid progenitor cells also produce a subgroup of white blood cells called granulocytes, namely monocytes, neutrophils, basophils and eosinophils. The lymphoid and myeloid progenitors originate from self-renewing stem cells in the bone marrow.[2] Lymphoid cells mature into lymphocytes and regulate the adaptive immune response. They also regulate the production and life cycle of immunoglobulins.[3,4]

In a patient with leukaemia, the balanced ratio of white blood cells, red blood cells and platelets is disproportionate (**Figure 1**). The levels of white blood cells may be unusually high or low and the complete blood count values for red blood cells and platelets are also outside their normal remit. A bone marrow biopsy is a confirmative test for leukaemia. Cytological screening of the defective cells can provide additional information about the malignant cells and their nature.[1,4]

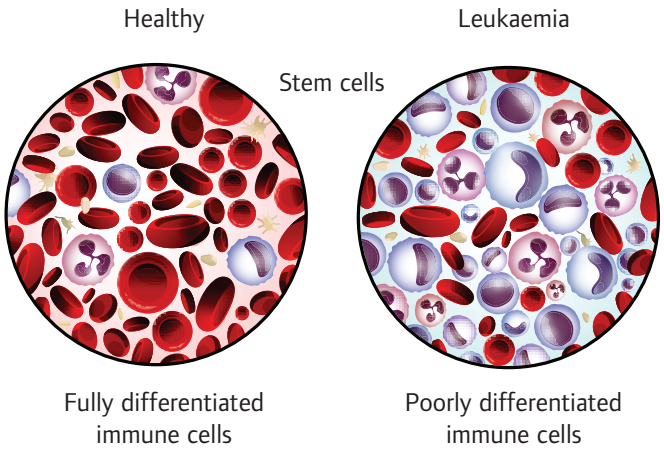

FIGURE 1: A schematic diagram depicting stem cell differentiation in normal and pathological processes.

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