

PRESENT PRINCIPLES IN APPROACHING THE TREATMENT OF TOOTH DECAYS

C. BOITOR¹, ANCA FRĂȚILĂ¹, MONA IONAȘ¹, A. BELDEAN²

¹“Lucian Blaga” University of Sibiu, ²Student at the Faculty of Dental Medicine

Abstract: In the last 10 years, the evolution of the medical knowledge regarding the reasons for tooth decays occurrence have brought about a major reform in their treatment. These changes resulted in abandoning the concepts of G.W. Black that dominated the XXth Century and in adopting new important changes in the treatment techniques, such as: the minimal invasive technique - Minimal Intervention Dentistry (MID), atraumatic techniques (Atraumatic Restorative Treatment - ART). These new techniques which use new adhesive class materials with remineralization potential and with preventive decay methods, glass ionomer cements (glass ionomer GI), compomers or fluoride ions-releasing adhesive resin materials. Unfortunately, there is no good practice guide unanimously supported, yet. This makes the new principles of treatment not to be fully recognized. In this article, the authors intend to present the concept of the Australian dental medicine school led by Mount GJ and Ngo H.

Keywords: tooth decay, minimal invasive treatment, control of risk factors

Rezumat: În decursul ultimilor 10 ani, evoluția cunoștințelor medicale referitor la cauzele și modalitățile de producere a cariei dentare au determinat o reformă importantă în tratamentul bolii carioase. Aceste schimbări au determinat o abandonare a concepțiilor Black care au dominat secolul XX și adoptarea unor modificări importante a modalităților de tratament caracterizate prin tehnici noi: tehnica minimal invazivă – Minimal Intervention Dentistry (MID), tehnici atraumatice (Atraumatic Restorative Treatment – ART). Aceste noi tehnici folosesc materiale noi din clasa materialelor adezive cu potențial de remineralizare și cu efect cariopreventiv, din clasa cimenturilor ionomere de sticlă (glass ionomer GI), compomerilor sau rășinilor adezive care eliberează ioni de fluor. Din nefericire, nu există încă un ghid de bună practică unanim acceptat, ceea ce face ca noile principii de tratament să nu aibă o recunoaștere deplină. În acest articol autorii intenționează să prezinte concepția școlii stomatologice australiene conduse Mount G.J și Ngo H.

Cuvinte cheie: caria dentară, tratamente minim invazive, controlul factorilor de risc

INTRODUCTION

The evolution of the knowledge regarding the beginning and the evolution of tooth decays brought about a profound revision of the treatment of these lesions in the last decade. Thus, the part of the dentist has also evolved, from a simple accomplishment of restorations to a global approach of the tooth decay, based on:

- a) The management of the risk factors;
- b) The possibility of stabilizing the incipient lesions;
- c) The preservation of the healthy tissues when making minimal invasive interventions as much as possible - MID [1,2]

These changes in the disease approaching methodology led to the abandon of the principles of Black (1908) that dominated the entire XXth century. These principles were based on the physical and mechanical knowledge, which were relatively easy to be accomplished, but which required important sacrifices regarding the healthy tissues.

The modern concepts of approaching the tooth decay are related to the patient, on one hand and to the dentist on the other hand, who may influence the therapeutic decision by his knowledge and experience.

There is a fundamental relation between the main etiologic risk factors, which determine the tooth decay (cariogenous microorganisms, carbohydrates taken from food and the host, plus the action time factor) and the protector factors represented by the oral hygiene, extrinsic fluorine quantity, saliva function quality and food customs. [3]. It is about an equilibrium between the pathologic factors and the protector factors, between demineralization and remineralization that, in case it does not function well, it may produce the demineralization and the tooth decay.

Understanding and interpreting this new method leads to the revision of the treatment plan that, according to the new concepts is based on three essential stages:

1. **The diagnosis stage** that provides the individual establishment of the pathologic or protector factors, such as the incipient decays;
2. **The prophylactic stage** that consists in the readjustment of the equilibrium between the pathological and protector factors. Much interest will be paid on the recommendations of hygiene and

diet, on the remineralization of the incipient lesions and on the preventive and therapeutic sealing.

3. The supervision stage that consists in supervising the incipient injuries, non-invasively treated and possibly, in intercepting new incipient lesions.

A restoration stage may be interpolated between prophylaxis and supervision stages and should be based on the efforts to preserve the healthy tissues, as much as possible.

There are numerous studies that prove the limits of the traditional treatments and plead for the adoption of new principles. [4,5].

A new classification proposed by Mount and Hume [6] is based on the lesions' description taking into account the place of production: 1=groove and fossa, 2=contact areas, 3=cervical area and by taking into account their size: 1=minimum, 2=average, 3=widened, 4=extended, according to table 1.

Based on this classification, Chalmers J.M proposes a therapeutic guide, both for the occlusal lesions and for the proximal ones, emphasized in table 2. (table 1 according to Chalmer) [2].

CONCLUSIONS

The present diagnosis and the decision process proposed for the minimal invasive treatment offers the practitioner precious help in the control of tooth decays

through rehabilitations which should impose a reduced sacrifice of the healthy tissues, longevity of the accomplished treatments and long term reduced costs.

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Table 1. Cavities classification according to Mount and Hume

Localization \ Size	Minimal 1	Average 2	Widened 3	Extended 4
Groove/fossa 1	1.1	1.2	1.3	1.4
Contact area 2	2.1	2.2	2.3	2.4
Dentin 3	3.1	3.2	3.3	3.4

Table 2. Classification of the tooth decays and the treatment options for MID technique, according to Mount and Hume, subsequently amended

Size/Localization	0 Without cavity	1 Minimal	2 Average	3 Widened	4 Extended
1 Groove and fossa	1.0 External remineralization, sealing material	1.1 Removing the sealing affected tissue or GI	1.2 Removing the affected tissue, internal remineralization with GI, GI or composite or amalgam	1.3 Removing the affected tissue, internal remineralization with GI, GI or composite or amalgam	1.4 Pulp vital treatment, internal remineralization with GI, obt. with GI composite or amalgam
2 Contact area	2.0 External remineralization	2.1 Removing the affected tissue, widening the opening (GI or composite), tunnel (GI), cavity (GI, composite or amalgam)	2.2 Removing the affected tissue, internal remineralization with GI, GI or composite or amalgam	2.3 Removing the affected tissue, internal remineralization with GI, GI or composite or amalgam	2.4 Pulp vital treatment, internal remineralization with GI, obt. with GI composite or amalgam
3 Dentin	3.0 External remineralization	3.1 External or internal remineralization and/or removing the affect tissue (GI or composite)	3.2 Removing the affected tissue, internal remineralization with GI, GI or composite or amalgam	3.3 Removing the affected tissue, internal remineralization with GI, GI or composite or amalgam	3.4 Pulp vital treatment, internal remineralization with GI, obt. with GI composite or amalgam