CONTENT

A Study of cortisol in saliva and evaluation of the cortisol in children with diabetes

*M. Rashkova [*], Toneva N.[*], S. Targova[*], K. Koprivarova[**], M. Konstantinova[**], Y. Staykova***

The importance of cortisol in human body is defined by its participation in the homeostasis of the most complex hormonal system - hypothalamic-pituitary-adrenal axis (HPA) which is of great importance to the immune system control and metabolism and is also a key factor for the brain-body connection. All these cortisol influenced mechanisms in the body processes are closely related to homeostasis in the oral environment.

The purpose of the study is to examine salivary cortisol as part of the evaluation of the oral risk environment in children with diabetes compared to healthy children.

The study was conducted with 103 children divided into two groups: a control group of 71 healthy children and a group of 32 children with type 1 diabetes at the age between 11 and 14. Saliva was taken for cortisol evaluation, blood serum for cortisol in the blood and the oral status and saliva were examined.

Methods: ELISA methods for evaluation of the cortisol and Siga in the saliva and SalivaCheck GC for its physicochemical properties were used. The oral status was evaluated by clinical study and the use of different indexes.

Results: Children with diabetes are with liquid oral environment with high risk of patch cumulation and development of patch associated gingivitis, modified by the system disease. Higher levels of salivary cortisol are monitored in children with diabetes compared to healthy children, but they are within the normal limits. There is a correlation between the serum and salivary cortisol in children with diabetes. The correlation between HbA_{1c} and pH of the saliva in children with diabetes is an evidence for the connection between the acidity in saliva and diabetes control. The easy non-invasive method for cortisol evaluation in saliva allows continuous hormone control of children at risk (with chronic stress, diabetes, etc.).

Key words: hormonal system hypothalamus-pituitary-adrenal axis, cortisol, diabetes, saliva, ELISA, oral environment, non-invasive diagnostic, glycosylated hemoglobin, pH, buffering capacity.

*MU- Sofia, Faculty of Dental Medicine, Department of Paediatric Dentistry;
**MU - Sofia, Clinic of EDCG, Department of Paediatric Medicine.

Healing parameters of non-steroidal anti-inflammatory agents' assisted nonsurgical therapy of chronic periodontitis

Christina Popova, Antoaneta Mlachkova**

Introduction: Mechanical periodontal therapy is well substantiated and there are available evidences for efficacy of conventional periodontal therapy in great percentage of people with this disease. At the same time the limits of nonsurgical treatment of severe

periodontitis are emphasized and the first place is taken by the intensity of the destructive host response, aggravated by periodontal pathogens bacterial load. These established facts are on the basis of researching the additional therapeutic approach that are aimed at modifying host tissues response and regulate the balance between quantity and activity of destructive and beneficial mediators of inflammation.

In the last decades are studied different medicaments that showed successful modulation of host response in treatment of inflammatory diseases and their mechanism of action leads to decrease of expression and activity of important for periodontitis mediators.

Aim: The research has an aim for clinical evaluation of chronic periodontitis healing in conditions of assisted with non-steroidal anti-inflammatory agents mechanical therapy in comparison to conventional initial therapy.

Results: It is demonstrated that NSAIDs - assisted therapy of chronic periodontitis has advantages over conventional by statistically significant differences – at the end of the therapy the percentage of shallow pockets is increased (PD<3 mm)-($p<0.001$), and pockets with PD 3-5 mm are reduces also in great percentage. Statistically significant differences between values of clinical attachment loss are found in the group with additional Aulin® administration for CAL 3-4 mm and for CAL>5 mm ($p<0.05$).

Conclusion: The results exhibit better outcomes of nonsurgical therapy for chronic periodontitis with additional Aulin®, which is demonstrated by statistically significant improvements of parameters of periodontitis.

Keywords: severe periodontitis, host modulation, conventional therapy, NSAIDs, parameters of periodontitis

*MU- Sofia, Faculty of Dental Medicine, Department of Periodontology

New methods of control of tooth bleaching

Tz. Uzunov*, I. Angelov**, V. Manatareva**, A. Gisbrecht, S. Valkanov*******

New methods of control of tooth bleaching stages through simultaneous measurements of a reflected light and a fluorescence signal are proposed. It is shown that the bleaching process leads to significant changes in the intensity of a scattered signal and also in the shape and intensity of the fluorescence spectra. Experimental data illustrate that the bleaching process causes essential changes in the teeth discoloration in short time as 8-10 min from the beginning of the application procedure. The continuation of the treatment is not necessary moreover the probability of the enamel destroy increases considerably. The proposed optical back control of tooth surface is a base for development of a practical set up to control the duration of the bleaching procedure.

*MU – Sofia, Faculty of Dental Medicine, Department of Periodontology
**BAS, Institute of Organic Chemistry
***BAS, Institute of Electronics
****BAS, Institute of Metallography

Lifelong learning - duty or privilege for the dental professionalist?

Continuing education - duty or privilege for the dental schools?

L. Katrova, Hr. Kissov***

The purpose of this study was to demonstrate how the institutions and individual dentists keep professional standards through improving proficiency and how both continuing education and lifelong learning contribute to meeting expectations for quality of practice.

Methods: Data had been collected within a longitudinal study of the re-professionaization process between 1995 and 2009. The questionnaire had to reflect as well: the interest in, the preferences for, and the attitude towards continuing education events of practicing dentists in Bulgaria and their willingness to invest money and time in life-long professional learning. Results showed that: The portion of dentists attending short continuing education courses increased (from 48,50% in 1995 to 67,6% 2009) while the number of specializing dentists decreased. Most frequently attended courses are in the domains of: dental materials, implantology, parodontology (from 18,50% in 1995 to 38% in 2009). The gender and age are not influencing significantly the choice of dentists. For the majority of dentists the average investment in learning is 1-3% of dentists' income. The portion of investing 1-3% in CE and LLL forms changed from 22,2% in 1995 то 30,6% in 2009. The trend is toward increase of investment in lifelong learning. The average time devoted by majority of dentists annually is 1-2 weeks. Most of dentists score as "good" the quality of continuing education courses (from 36,40% in 1995 до 39,8% in 2009).

Conclusions: 1. Continuing education has become a core philosophy of the professionalism. 2.The forms of continuing education has gradually changed from purely theoretical into practical ones. 3. The length goes shorter. 4. Licensing power of professional bodies had been strengthened.

Key words: continuing dental education (CDE), lifelong learning (LLL), investment in learning, dental fields' preference.

*MU- Sofia, Faculty of Dental Medicine, Department of Dental Public Health
** MU- Plovdiv, Faculty of Dental Medicine, Department of Prosthetic Dentistry

Effect of treating apical periodontitis on IL-4, IL-10 levels and Th1/Th2 cytokine profile in peripheral blood

M. Cekova, D. Stankulova**, M. Nikolova**, A. Kisselova**

The studies which show the chronic apical periodontitis (CAP) as a major factor influencing the system health, although few, give a strong arguments in this direction. Their meaning should be discussed in connection with the changes which these diseases could induce in remote structures of the body based on inflammatory mediator's release. A large number of investigations demonstrate the increase of inflammatory markers (mainly IL-6 and C-reactive protein) in situ in the apical periodontal lesions. There are few studies about the

anti-inflammatory cytokine level changes after endodontic treatment. The aim of the current investigation is to determine the changes in serological markers of the systematic inflammation, in particular – the main anti-inflammatory cytokines – IL-4 and IL-10, as well as the relation of the Th1/Th2 cytokine profile after nonsurgical endodontic treatment of the apical periodontitis. Systematically healthy individuals (n=33) with apical periodontitis have taken part in the study. With the aim of flowcytometry IL-4 and IL-10 were investigated before and 6 months after treatment. Six months after nonsurgical treatment we found significantly increased levels of IL-4 ($p<0.05$) and IL-10 ($p<0.05$) in the serum of the examined individuals (n=17) in comparison to the healthy controls, as well as in comparison with the patients before endo-treatment. The current results confirm other publications which also prove that the treatment of apical periodontitis leads to reduction of the system inflammation. The possibility for the microbal flora from the pulpal and periodontal inflammatory sites to infiltrate the system circulation and to cause different complications is still topic of controversy.

Key words: Apical periodontitis, cytokines Il-4, IL-10, endodontic treatment, systemic inflammation

* MU- Sofia, Faculty of Dental Medicine, Department of Imaging and Oral Diagnostics
**National Center of Infectious and Parasitic Diseases, Sofia, Central Laboratory of Immunology

Burning mouth syndrome (BMS)

Clinical features, diagnosis, treatment. Part two

R. Velikova*, A. Kisselova*

The patients who present with a Burning mouth syndrome are a challenge to all clinicians both medical and dental. Burning mouth syndrome (BMS) has been defined as a burning pain of the tongue or other oral mucous membranes in an individual who exhibits no clinical signs and no related laboratory findings. This article discusses our current understanding of the clinical features, diagnosis and management of BMS. Treatable secondary causes should be investigated before diagnosing primary BMS. Topical clonazepam and cognitive therapy has been proven efficacious in some patients.

Key words: burning mouth syndrome, algorithm, treatment.

* MU- Sofia, Faculty of Dental Medicine, Department of Imaging and Oral Diagnostics

Accuracy of linear measurements of dry mandibles investigated by digital volume tomography with different exposure time

D. Yovchev *, J. Indjova**

Purpose: The purpose of this study was to evaluate the accuracy of linear measurements on the images of dry mandibles produced by cone-beam computerized tomography (CBCT) scanned with different duration of exposure.

Materials and Methods: Dry human mandibles (n=3) were examined by cone-beam computerized tomography (CBCT) on 20 s and 40 seconds exposure times. The distances between anatomical reference points were measured by digital caliper on the dry mandibles and from CBCT images using software tool. Deviations on the CBCT images were calculated in mm and percentages based on the actual measurement values obtained from the dry mandibles.

Results: Deviations in mm for measurements on images obtained at 40 sec exposure (120 KV, 3,8 mAh) ranged from 0 to 0.3 mm (mean value 0.01 mm , + / - 0.04 mm. Relative deviation (in %) for measurements in the images of 40 sec ranged from 0 to 1.22% (average 0.02%, + / - 0,15) and at 20 seconds from 0 - 1.33% (mean value 0.03%, + / - 0,16). In the images obtained after 20 seconds exposure time (120 KV, 3, 8 mAh) deviations in linear measurements ranged from 0 to 0.3 mm (mean 0.01 mm, + / - 0.04 mm).

Conclusions: This study confirmed that CBCT has the potential to be an accurate, non-invasive, practical method to reliably determine distances. The survey shows, that no statistically significant difference in measurements on images obtained after exposure of 20 seconds. This reveals a potential for significant reduction of patient dose compared with exposure of 40 seconds for used in this study CBCT system.Additional studies needs to investigate linear accuracy of CBCT in real clinical conditions with different exposure settings.

*MU- Sofia, Faculty of Dental Medicine, Department of Imaging and Oral Diagnostics
** MU- Sofia, Faculty of Dental Medicine, Department of Oral and Maxillofacial Surgery

Analysis of the characteristics of the chewing process. Rationale for the parameters and principles of the in vitro chewing simulator

I.Chakalov*

The creation of an in vitro wear simulator requires a detailed understanding of the chewing process. The device should as precisely as possible reproduce the processes occurring in the mouth during function in order to achieve realistic results. This article discusses some of the most important features of the chewing process and outlines a frame of parameters and construction principles that shall be included in the creation of a Bulgarian in vitro chewing simulator.

** MU- Sofia, Faculty of Dental Medicine, Department of Prosthetic Dentistry

An attempt to improve diagnostics of contact allergy due to dental composite materials

I.Stoeva, R. Velikova*, A. Kisselova**

An increasing frequency of contact allergy to dental composite materials among dental patients and dental stuff is registered during the last three decades. The wide range of commercial dental composite materials currently used in Bulgaria often makes difficult the opportune preparation of allergens for patch test diagnostics. We attempt to improve diagnostics of contact allergy due to dental composite materials by classifying the basic sensitizing components after the materials safety data sheets and facilitate the choice of appropriate allergens.

* MU- Sofia, Faculty of Dental Medicine, Department of Imaging and Oral Diagnostics

Tongue – reflection of the health status. Index system of coating

Vl. Panov, A. Krasteva***

There are different systems and indexes reflecting dental status, oral hygiene status, condition of the gums, mobility of teeth, but in dental questionnaires rarely we can find an index system reflecting the status of the tongue. We investigate the tongue because it is a "mirror" of diseases, and it is the first part of the gastrointestinal tract. These indexes could be used in patients complaining of unpleasant breath, halitosis, psevdohalitosis, halitofobiya.

Key words: tongue, coating, indexes

*MU- Varna, Faculty of Dental Medicine
** MU- Sofia, Faculty of Dental Medicine, Department of Imaging and Oral Diagnostics

Desinfection of dental impression materials – review

Vl. Panov, A. Krasteva***

With ever-increasing incidence of HIV, the severe consequences of infection with hepatitis B and C, dentists, technicians and operators must follow the rules for disinfection and sterilization. Dentures, orthodontic appliances, dental impressions, dental materials and other tools (dental spoons, prosthetic bites, extracted teeth, plaster model, equipment) for dental laboratory may be contaminated with bacteria, viruses and fungi and represent potential sources of infection. All of them must be thoroughly cleaned of blood and saliva to decontaminated with disinfectant and rinsed before being sent to the laboratory or outside of the dental cabinet to break the possible route of transmission of various infections among dentists, dental technicians and patients.

Each patient must be considered as a risk and potentially infectious, which requires strict and accurate compliance for disinfection and sterilization.

We directed our attention to this very delicate problem, focusing on universally accepted principles, disinfection protocols, the obligations of dentists and dental technicians.

Key words: disinfection, dental impression, infection

*MU- Varna, Faculty of Dental Medicine
** MU- Sofia, Faculty of Dental Medicine, Department of Imaging and Oral Diagnostics