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FOREWORD

We cannot speak of competence and the latest tendencies in contemporary dental medicine unless we are familiar with the avant-garde methods and techniques in the field.

The minimum invasive medicine has won new territory in the light of the latest technologies having impact on each particular clinical entity.

Articles approaching this topic focus on the importance of minimum invasive medicine for each segment of dental medicine, individualizing therapeutic aspects according to the clinical case particularity.

Minimum invasive medicine is reflected both in more conservative medical areas and in surgery through the use of special techniques leading to a successful clinical finality, pleading for the practical use of the biologic principle.

The degree of minimum invasiveness in dental medicine varies according to the particular aspects of the clinical case.

The minimum invasive concept has to be sustained by clinical studies and fundamental sciences, both directions being traceable in pertinent results with a deep practical impact.

Prof. Univ. Dr Norina Forna
The President of Romanian Society of Oral Rehabilitation

LASER IN DENTAL MEDICINE. THE PSYCHOLOGICAL IMPACT IN PRIVAT PRACTICE

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Abstract: The aim of these study is to use the laser anaesthesia, a non-contact technique, in the minimal invaziv treatment of the profound and medium carrious lesions, at different erbium laser parameters. **Material and method:** The study group included 68 patiens with ages between 6 and 20; a two-year study (january 2006 – november 2008) performed in a private practice. The carious lesions treatment was performed with a saphire G6 erbium laser tip. Both laser anaesthesia techniques were used, assessing the patients dental anxiety with Hamilton Anxiety Scale and the intraoperatory sensitivity with the Wong-Baker FACES Pain Rating Scale. **Results:** Before chosing the anaesthesia techniques, 73% of the subjects were diagnosticated with moderate anxiety and a rigid, fear face; 20% severe symptoms, with distracted, tearful face and 7% of the patients had mild anxiety with a happy face. At the end of the treatment, 61,1% of the children and young adults with moderate symptoms of anxiety had a happy, hurts a little bit face; and those with severe anxiety had an indifferent face.

Key words: Laser anaesthesia, Dental structure, Dental anxiety.

INTRODUCTION

Pain is a perception that highlights a physical and functional illness of the body, beeing the trigger point of defensive reactions [1]. The aim of the local anaesthesia is to eliminate these painful conditions, so that the patient eliminates theme [2]. These is possible because of the, minimally, invasive and modern techniques of the aneasthesia: laser non-contact anaethesia [3].

The pain definition of the International Association for Study of Pain [4,5] reflects a lot of these aspects:

- Pain is an unpleasent affective and sensitive experience;
- Pain is associated with a tissue lesion;
- Or it is decribed in terms of the lesion [4,5].

A lot of theories of the effects of laser aneasthesia sustain that the laser radiation bear on the electrical impulses of the dental pulp.

In these study to determine the dental anxiety of the subjects, the practitioner used the Hamilton Anxiety Scale (HAS). The Hamilton Anxiety Scale is a 14-item test measuring the severity of anxiety symptoms. It is also sometimes called the Hamilton Anxiety Rating Scale (HARS). The HAS is used to assess the severity of anxiety symptoms present in children and adults. The HAS was developed by Max Hamilton in 1959. It provides measures of overall anxiety, psychic anxiety (mental agitation and psychological distress), and somatic anxiety (physical complaints related to anxiety). Hamilton developed the HAS to be appropriate for adults and children; although it is most often used for younger adults [4]. Hamilton developed the scale by utilizing the statistical technique of factor analysis. Using this method, he was able to generate a set of symptoms related to anxiety and further determine which symptoms were related to psychic anxiety and which were related to somatic anxiety. The HAS is administered by an interviewer who asks a semi-structured series of questions related to symptoms of anxiety. The interviewer then rates the individuals on a five-point scale

for each of the 14 items. Seven of the items specifically address psychic anxiety and the remaining seven items address somatic anxiety. According to Hamilton, examples of psychic symptoms elicited by the HAS interview include a general anxious mood, heightened fears, feelings of tension, and difficulty concentrating. Examples of somatic symptoms include muscular pain, feelings of weakness, cardiovascular problems, and restlessness.

The Scale calculates a global anxiety score and also a different score for psychic and somatic anxiety.

This study was conducted in order to demonstrate the use of the laser non-contact anaesthesia, at different laser parameters to evaluate the dental anxiety.

MATERIAL AND METHOD

The study included 68 subjects, devided in three different groups, children and young adults with ages between 6-11, 12-14 and 15-20 years. It was a two year study: january 2006 - november 2008. The children and young adults were from urban and rural environment, from Bacau who came to our clinic. The patients dental anxiety was evaluated with the Hamilton scale, before and after the laser anaesthesia treatment of carious lesions. HAS is administrated without limit of time. The assess of the patient begins when the necessary materials and conditions are ready to managed the scale. Depending on the version used, there are either 17 or 21 items for which an interviewer provides ratings. Besides the interview with the depressed patient, other information can be utilized in formulating ratings, such as information gathered from family, friends, and patient records. The interview process was easy going and informal and that there are no specific questions that must be asked. The items are scored on a five-point scale, ranging from zero to four. A score of zero represents an absence of the depressive symptom being measured, a score of one indicates doubt concerning the presence of the symptom, a score of two indicates mild symptoms, a score of three indicates moderate symptoms, and a score of four represents the presence of severe symptoms.

The intraoperatory sensitivity was assess with the Wong-Baker faces pain, in witch the interviewer has to explain to the person that each face is for a person who feels happy because he has no pain (hurt) or sad because he has some or a lot of pain. Face 0 is very happy because he doesn't hurt at all. Face 1 hurts just a little bit. Face 2 hurts a little more. Face 3 hurts even more. Face 4 hurts a whole lot. Face 5 hurts as much as you can image, although you don't have to be crying to feel this bad. Ask the person to choose the face that best describes how he is feeling. Rating scale is recommended for persons age 3 years and older and the instructions are: point to each face using the words to describe the pain intensity. Ask the child to choose face that best describes own pain and record the appropriate number (fig.1) [4,7].

The Wong-Baker FACES Pain Rating Scale

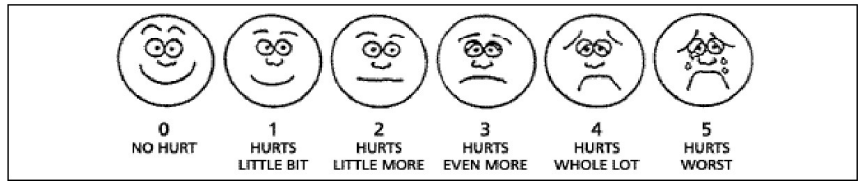

Fig. 1 Scale Wong – Baker

The enamel-dentine laser ablation was done with a G6 sapphire tip of the Er,Cr:YSGG laser, at different parameters: power 2-2,5 -3 watts for the dentine and 3,5-4 watts for the enamel, water 40% and air 80% provided by the manufacturer. The values for the first laser anesthesia technique were power – 5watts, air – 90% and water 90%, the G6 tip was hold at 20 mm distance of the occlusal face of the tooth for 60 seconds (fig.2) [3,5].

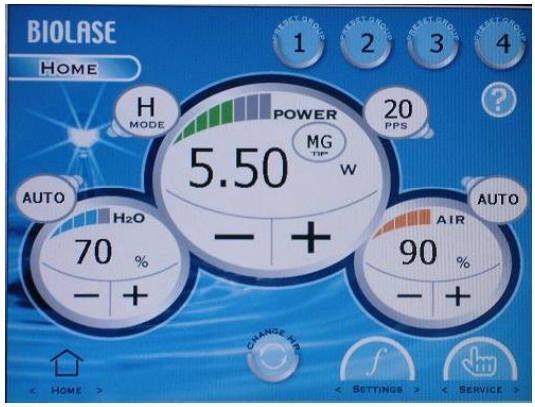

Fig. 2 Laser parameters for the anaesthesia technique – 20 mm distance from the dental structure, Hard mode [3,5]

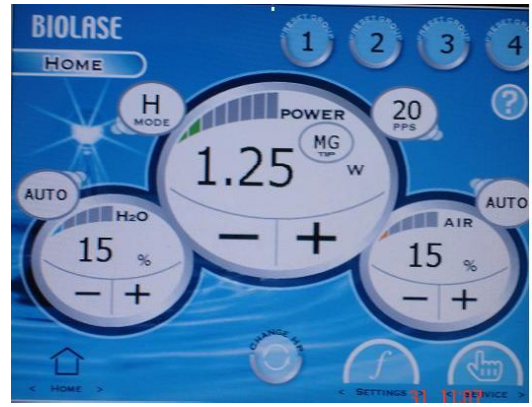

Fig. 3 Laser parameters used for the second anaesthesia technique: 5 mm distance from the dental structure, Hard mode, G6 tip [3,5]

The values for the second laser anaesthesia technique were power – 1,25 watts, water – 15%, air – 15%, tip G6, the distance from the enamel – cement jonction were 5mm, 20 seconds oral, 20 seconds bucal (fig.3) [3,5].

RESULTS

Before the laser treatment of the carious lesions the dentist performed the two laser anaesthesia techniques, based on the distance between the sapphire tip and the tooth structure. In cases in witch the laser anaesthesia did not work, we appeal at the conventional method: puncture. The dental anxiety was registered before and after the laser anaesthesia, at the same time the dentist assessed also the patient sensitivity with the Wong-Baker faces pain Scale.

At the begining of the treatment 73% of the subjects suffer of moderate anxiety, 20% severe and only 7% mild anxiety.

When the non-contact anaesthesia had not work, the puncture method was applied. At the first study group: 6-11 years, prevail the first non-contact anaesthesia (61,3%), the conventional method (30%) and 75% both laser techniques (fig.4).

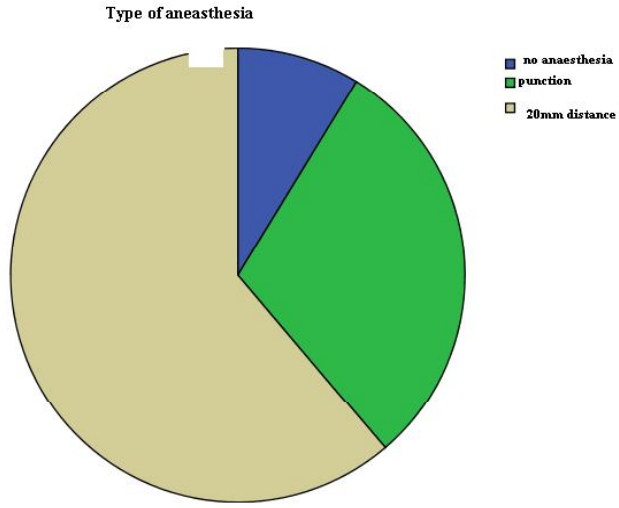

Fig.4 Laser anaesthesia technique used at 6-11 years

After the treatment and after the use of the non-contact anaesthesia at the first group the distribution of dental anxiety vary: 66% mild anxiety, 27,5% moderate and 6,3% severe (fig.5).

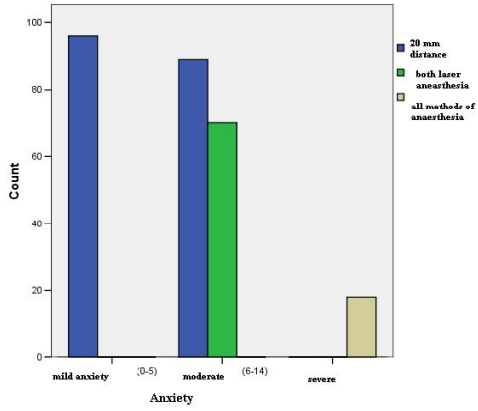

Fig. 5 Dental anxiety and anaesthesia techniques at 6-11 years

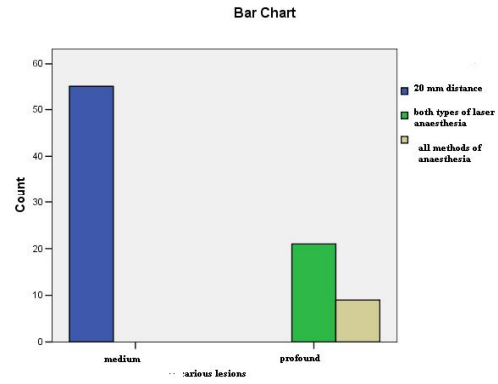

Fig. 6 The anaesthesia techniques used at 12-14 years

In the minimal invasive treatment of the second study group, 64% of the children needed the laser technique at 20 mm distance of the dental structure, 24,7% the dentist used both anaesthesia techniques (fig.6). 10,5% of the subjects the conventional method was used (fig.6).

For the children in the second study group, those with mild anxiety, the dentist applied the non-contact technique at the 20 mm distance from the occlusal face of the tooth.

The patients with 6-14 score of dental anxiety, wanted the first technique in

61,1% and only at 38,9% the distance was diminish. Subjects with a high core of anxiety (>15 on HAS, severe symptoms) needed the puncture method in 10,6% of the cases (fig.7).

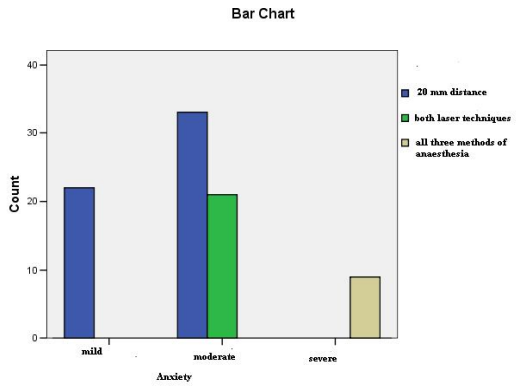

Fig. 7 The anxiety score and the anaesthesia techniques at 12-14 years

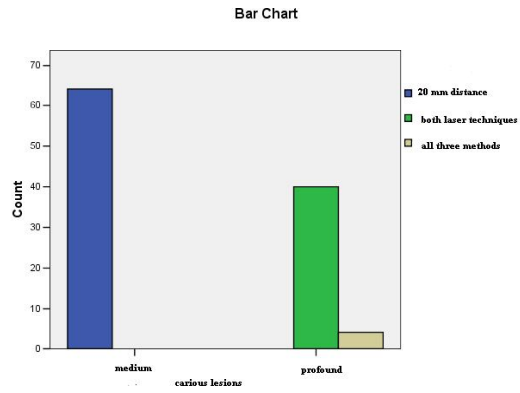

Fig.8 The anaesthesia techniques used at 15-20 years

In case of the young adults (15-20 years) 59,3% had the 20mm distance laser anaesthesia; 37% both techniques and 3,7% conventional method (fig.8).

At the third study group, 19,4% of the subjects were diagnosed with mild anxiety (values between 0-5 HAS) the first technique was used, for 51,8% the anxiety score was low and the second non-contact technique was applied. At the patients with moderate anxiety (score 6-14 HAS), 48,2%, the 5 mm distance anaesthesia was avail. The conventional method was applied in 3,9% of cases (fig.9).

At the begining of the treatment and the use of the anaesthesia techniques 73% of the subjects were diagnosed with moderate anxiety and a rigid face, 20% with severe symptoms, with a tearful, distracted face and 7% had mild anxiety (happy face).

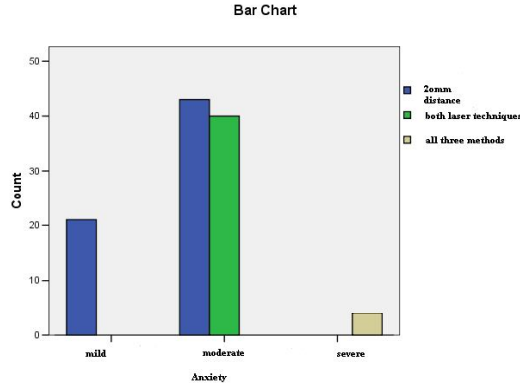

Fig. 9 The dental anxiety and the non-contact laser anaesthesia at the third study group

At the end of the treatment, 61,1% of the children with moderate anxiety (6-15 HAS score) had a happy, smiling face, group two of Wong-baker scale. At the patients with severe symptoms of anxiety, over score 15 of HAS, 10,6%, the dentist applied both laser techniques and the conventional anaesthesia methods, the faces changed from rigid to indifferent. At 15-20 years, 3,9% of the young adults with severe symptoms of dental anxiety, we used all the anaesthesia techniques, the faces were at 0 degree of the Wong-Baker scale, no hurt face [7].

DISCUSSION

The dental medicine was oriented to correlate the importance between the organic and the sensitive part of the body [4]. For the dentist is significant to bear in mind the technique aspects, but also to know the patient behavior [8].

Psychological studies showed that the significance of the teeth and the personal semblance of the face had an important role in life [4]. The dental visit is associated with a severe moment of anxiety, with a general feeling of fear [4].

Anxiety is one of the most common disorder, 6,5% of the world population suffer or have suffered of these disorder [2,4].

In our study, before the treatment the majority of the subjects were diagnosed with moderate dental anxiety, score two of the pain faces scale, a rigid face [7], 20% severe symptoms with a distracted face (score four) and 7% with a mild anxiety with a happy face.

After the use of the laser non-contact anaesthesia, the 20 mm distance from the occlusal face of the tooth, 61,1% of the patients with moderate anxiety had a rigid face, score two of Wong-Baker scale [7]; 38,9% received both laser techniques, score one of pain scale and also the children with severe anxiety, 10,6%, had at the end a smiling face.

Our study results are congruent with the results obtained by Dr. Olivi G. in 2008, his study was conducted on children with ages between 6 and 12 years; 75% of the subjects agreeing with laser treatment, the emotional status diminish.

CONCLUSIONS

The laser anaesthesia abolishes the dental anxiety of the children and young adult patient, or the fear of the conventional methods, having an important role on the psychological impact in dental medicine.

The intensity of the anxiety vary from patient to patient, increasing (73% of our subjects had moderate symptoms) with dental treatments.

The anxiety score decreases, the children diagnosed with moderate and severe anxiety, after the laser non-contact anaesthesia, at the end at the treatment had low values of the scores – 80%.

The emotional status was subjective evaluated, modifies the values after the laser therapy, in 85% of the subjects the faces were happy.

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NON-INVASIVE METHODS OF PARACLINICAL EVALUATION INVOLVED IN ORAL REHABILITATION

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Abstract: The age interval of 18-35 brings together a lot of patients with morpho-functional particularities which decisively influence the therapeutic approach in the field of partial edentation, aspect which includes the correlation of these parameters with the general condition. The aim of this study quantifies the contribution of the non invasive and minimally invasive methods of paraclinical evaluation corroborated with the clinical aspects, a particularly important element being represented by the inter-relation between the general condition – oral pathology. The study group was represented by patients with ages between 18 and 35 years, diagnosed with partial edentation, with various problems of the general condition. The non-invasive therapy and the minimally invasive therapy of diagnostic govern the territory of the adolescent stomatology, determining statistically significant correlations between the general condition reflected in the thermographic trajectories and the oral pathology supported by the classic paraclinical examinations in dental medicine.

Key words*:* edentation, evaluation, thermography, non-invasive methods, young patients.

INTRODUCTION

The age interval of 18-35 brings together a lot of patients with morpho-functional particularities which decisively influence the therapeutic approach in the field of partial edentation, aspect which includes the correlation of these parameters with the general condition. The specific aspects of the prosthetic field undoubtedly bring about non-invasive and minimally invasive treatment methods, basic elements which lead to the elaboration of a precise diagnostic and to the enforcement of an individualized therapeutic plan for this type of patients.

PURPOSE

The aim of this study quantifies the contribution of the non invasive and minimally invasive methods of paraclinical evaluation corroborated with the clinical aspects, a particularly important element being represented by the inter-relation between the general condition – oral pathology, establishing at the same time the type of paraclinical examination which doubles the initial thermographic evaluation in view of elaborating a precise diagnostic and of establishing an individualized treatment plan specific for the 18-35 age group.

MATERIAL AND METHOD

The study group was represented by patients with ages between 18 and 35 years, diagnosed with partial edentation, with various problems of the general condition. In a first stage the clinic examination was conducted according to the classic algorithm, its results indicating the type of non-invasive or minimally invasive examination carried out.

The thermography represents a general non-invasive examination conducted on all the 210 patients of the study group. Subsequent to the identification through statistic methods of the correlative elements between the general condition and the oral pathology, 22 patients were paraclinically evaluated through the plethysmograph in relation with the correlative elements established between the general condition and the clinical aspects of oral pathology, 40 patients were paraclinically evaluated through digital radiography while the rest of the patients were paraclinically evaluated through the specific examinations of the dental medicine such

as orthopantomography, ATM tomography, CT scan.

At the same time, the non-invasive examinations were doubled by classic exams such as orthopantomography or tomography. In order to record the thermograms the CRT 2000 equipment was used.

In order to grasp the whole physiological regulating complex, the measurement shall be conducted in the morning.

RESULTS AND DISCUSSIONS

1. The group structure on age intervals (Fig. 1) divides the patients into two age groups, 18 - 25 and 25 - 35. One should notice a percent of 71.43% for the age interval of 25 - 35, which is an important aspect as on the psychosomatic particularities specific to this interval there is to be noticed a complex oral pathology, at the border between adolescent stomatology and that of the adult. The age interval of 18-25 particular to the stomatology of the adolescents shows the prevalence of the minimally invasive therapeutic solutions, both at the level of the odonto-parodontal support as well as at the mucous bony one.

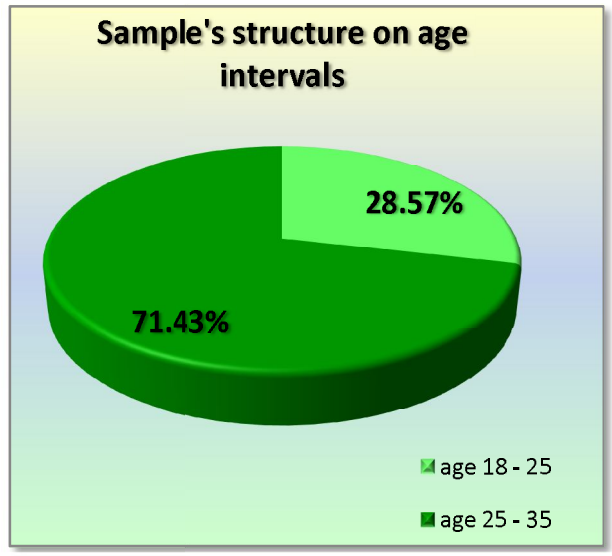

Fig. 1. Graphic representation of the group structure on age intervals.

2. With regards to the distribution of the group according to the gender, one should notice a percent of 57.14 % belonging to the female sex, compared to 42.86 % belonging to the male sex. (Fig. 2). The prevalence of the female sex pleads for the esthetic exigencies which should govern the therapeutic solution chosen in the field of partial edentation, a general index which correlated with the age shall constitute the basis of the indications for the avant-garde solutions represented by the implanto-prosthetic therapy on this group of patients.

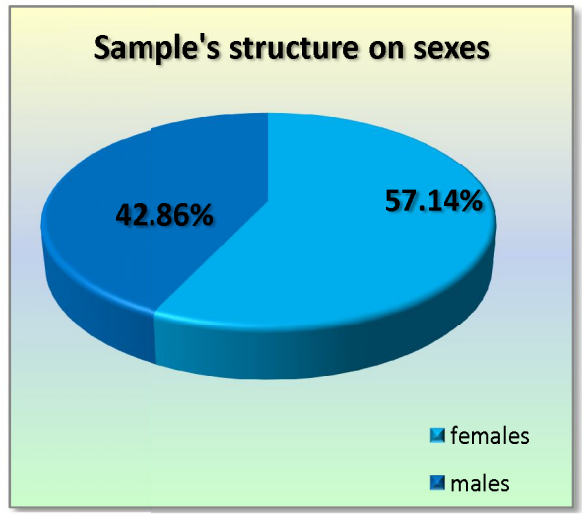

Fig. 2. Graphic representation of the sex structure of the group.

3. The aspects related to the distribution of the group on classes of edentation (Fig. 3) shows the complexity of the pathology identified on the 210 patients with ages between 18-35 gathering the following classes of edentation:

- Class I Kennedy edentations – 60 patients
- Class II Kennedy edentations – 45 patients
- Class III Kennedy edentations – 40 patients
- Class IV Kennedy edentations – 45 patients
- Class V Applegate - 10 patients
- Class VI Applegate - 10 patients

Each class of edentation brings about a specific clinical picture, corroborated with the topography of the edentation, which leads to the individualization of the choice of election embedded on the aspects which are particular to the general condition.

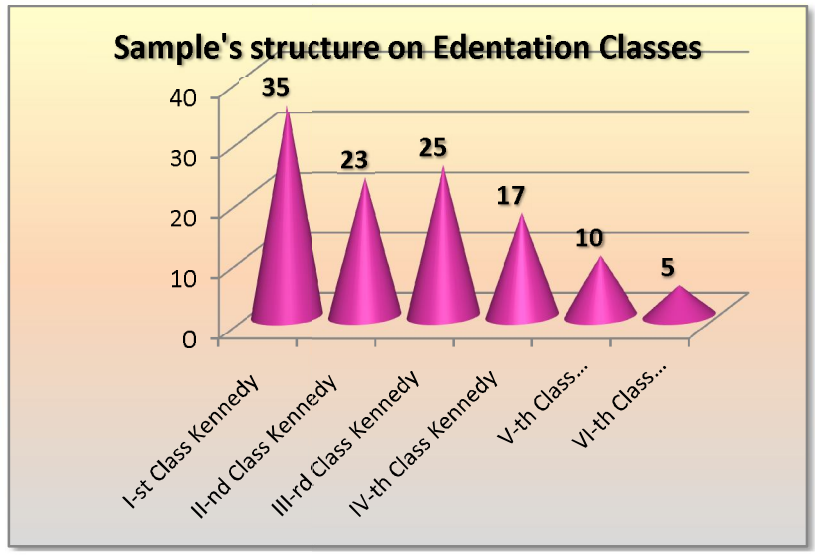

Fig. 3. Distribution of the group on various classes of edentation.

4. Thermography, non-invasive examination which reveals, based on the differences in temperature, the inflictions of the apparatus and the systems of the general condition, accomplishes at the same time the correlative aspects between the general condition and the oral pathology, trajectories of early diagnosis which will be doubled by examinations specific to the affected areas.

The results obtained subsequent to the thermographic evaluation showed the initially hidden character of the general symptomatology, the patient being unaware of the presence of any pathology at the level of the apparatus and systems, factor which could have interfered negatively with the pathology specific to the field of dental medicine. Creating a hierarchy, the link offered by the thermogram between the systems and the dental segment is already known (Fig. 4).

With regard to the modification of the thermal parameters which indicate cardiac problems at a number of 40 patients thermographically investigated, the subsequent doubling by specialty examination was indicated showing the specific clinical entity, this pathology having the greatest percent, followed by the respiratory pathology, the other pathologies having smaller percentages, as shown in the graphic below.

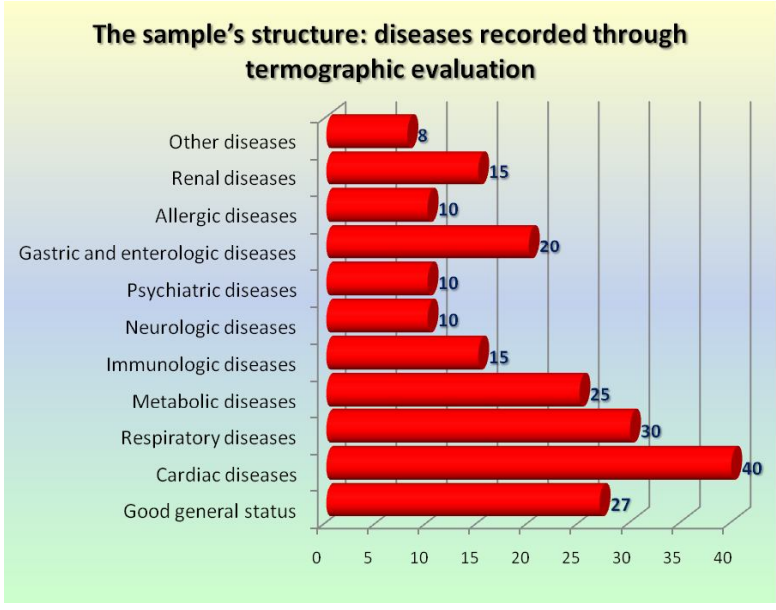

Fig. 4. The structure of the group on affections recorded through thermographic evaluation.

Applied to the general structure of the group under evaluation, we selected representative clinical cases from the point of view of the correlations established between the thermographic trajectories which show the general condition and the trajectories which indicate modifications in the dental measurement area and the cephalic territory.

The fundamental element at the basis of these correlations doubled subsequently by clinical and paraclinical examinations specific to each diagnostic directions is represented by the pre-existent associations between the affectation of the odontal structure and the organic

affectation at the level of which that particular organ is reflected, thus approaching a holistic therapeutic integrant vision at the young patients.

CLINICAL CASE 1:

Patient S.M., 32 years old, with the following antecedents: meningitis (2-3 years) and asthmatiform bronchitis at 4.

Following the thermographic investigation (Fig. 5) a vitality index of 1.8 was observed (relatively small) which indicates a small metabolic activity often associated with the presence of a chronic systemic disease (digestive symptoms, kidney symptomatology) or auto-immune.

The orthopantomographic aspects (Fig. 6) indicates an accentuated retraction at the level of the bony support, mostly maxillary, with ostheitic areas at level 11, 12, 17, 27, clinically and paraclinically quantifiable elements of oral pathology through the summing up of the signs, symptoms and radiological parameters which are reflected in the thermographic evaluation of the general condition. The therapeutic plan aims first at removing the infectious areas, therapeutic stage performed right after the ablation of the fixed metal-acrylic restorations, the metallic infrastructure having negative effects on the local structures and on the general condition, the gaudent being more and more limited in the stomatological practice.

The final therapeutic solution was represented by the overdenture prosthesis at the maxillary level and mandibular partial acrylic prosthesis, transitory stage of prosthesis, the patient being subjected to an implanto-prosthetic therapy after the modification of the parameters which characterize the general and local health (Fig. 7).

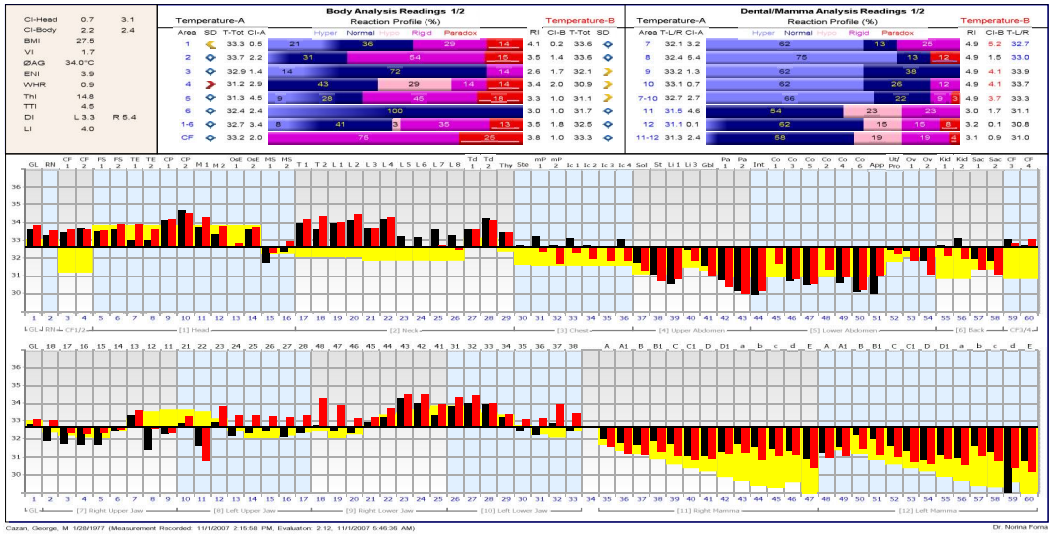

Fig. 5. Thermogram for patient S. M.

Fig. 6. Orthopantomography for patient S. M.

Fig. 7. The therapeutic solution chosen.

The thermogram of this particular clinical case indicates modifications of the thermal parameters at the level of the whole cephalic extremity, reflected in the dental territory in the parodontal pathology, correlated with the modifications induced by the biomaterials type acryl and gaudent, which led to the apparition of inflammatory reactions at the parodontal level.

Subsequent to the removal of the gaudent prosthetic restorations and the initiation of parodontal therapy, at the same time the irrecoverable radicular debris being removed, one should notice the remission of the phenomena of thermographic regulating blockage.

The patient T. F. aged 33, shows maxillary edentation Class II Kennedy with 3 modifications and Class I Kennedy with 1 modification at the mandible (Fig. 8).

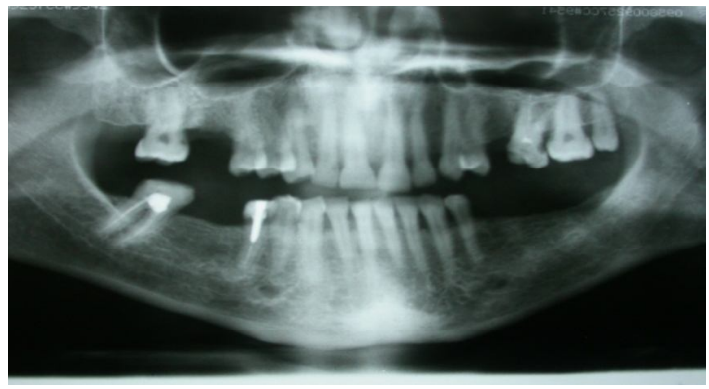

Fig. 8. Orthopantomography patient T.F.

The thermographic trajectory indicates at this stage the optimum general parameters, with the absence of regulating blockages (Fig. 9).

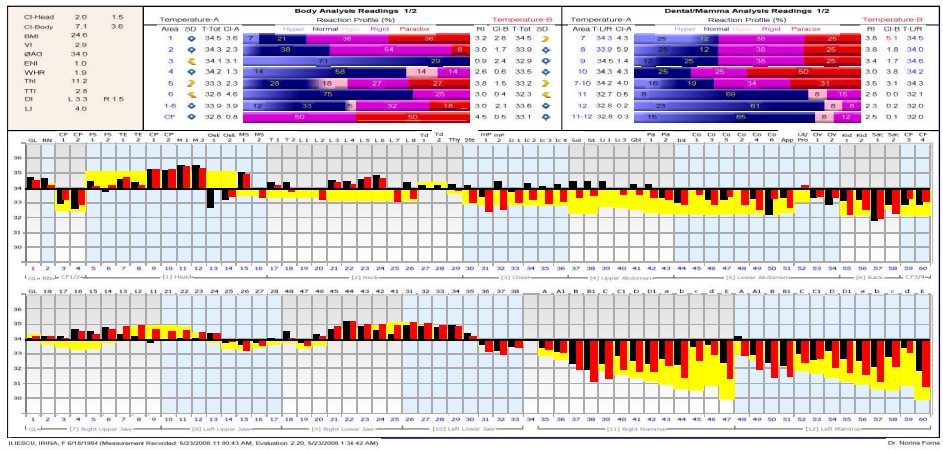

Fig. 9. Thermogram patient T.F.

The therapeutic variant was represented by the implanto-prosthetic solution, at peri-implant level being able to notice after 4 weeks the presence of the newly formed bone (Fig. 10), the trabecular continuity at the level of the surface of the implant, aspects which are obvious on the digital radiography.

The thermogram made post implant indicates slight variations of the thermal parameters, both at the dental level as well as at the general level, aspects which result from the process of aacceptance of the prosthetic substitute and future remodeling. (Fig. 11)

The thermogram at 6 weeks already indicates a regulation of the thermal parameters between the cephalic area and the area of the parameters which characterize the somatic status.

The correlative aspects established between the general condition and the particularities of the oral pathology are obvious and stand at the basis of a targeted diagnostic, being determined on the whole duration of therapy, in agreement with the treatment stages.

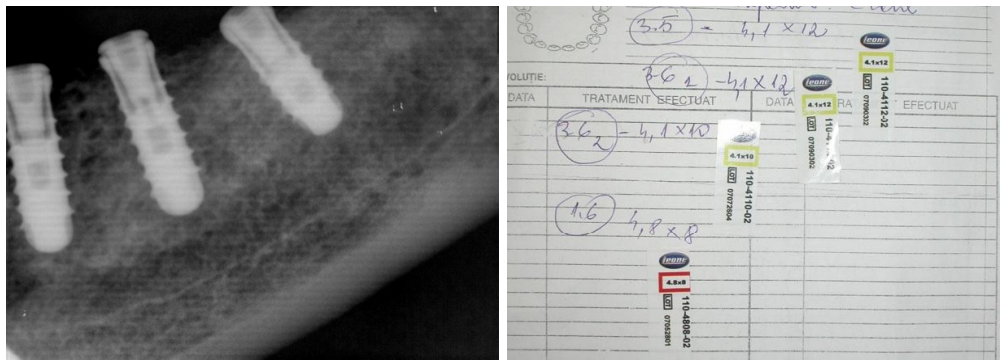

Fig. 10. Aspect of osteo- and periintegration of implants.

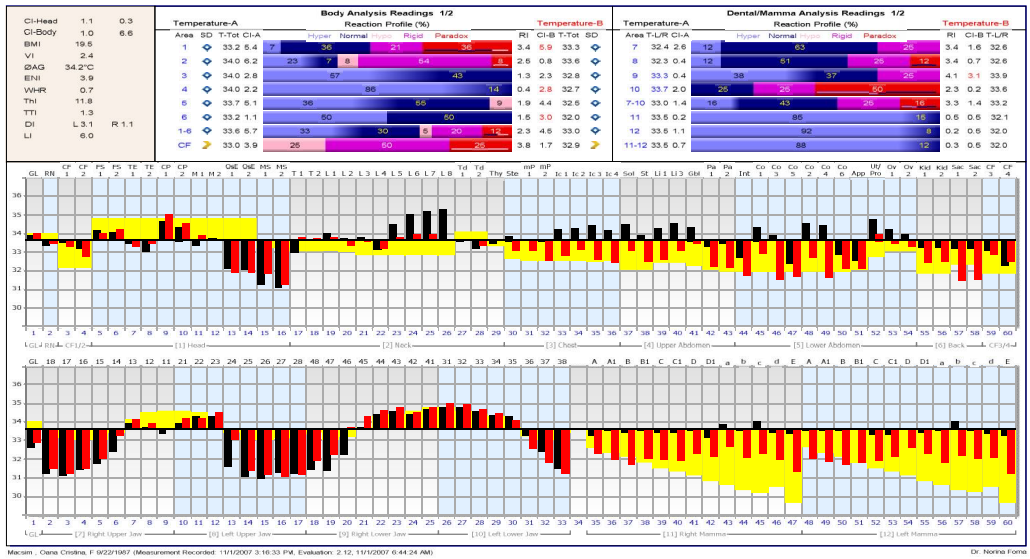

Fig. 11. Thermogram control patient T.F.

CONCLUSIONS

The pathology under investigation, both at an oral level and at a general one pleads for the correlative aspects of the binomial dental unit – affected organ, the modifications of the thermographic trajectories for the somatic area analyzed after the specific therapy being eloquent.

The non-invasive therapy and the minimally invasive therapy of diagnostic govern the territory of the adolescent stomatology, determining statistically significant correlations between the general condition reflected in the thermographic trajectories and the oral pathology supported by the classic paraclinical examinations in dental medicine.

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MANAGEMENT OF PATIENTS WITH ANXIETY AND DENTAL FEAR

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Abstract: Oral rehabilitation treatment is often challenging if the patient has dental fear and anxiety. The purpose of this study is to observe the extent of behavioral management on dental anxiety and fear. It is based on two questionnaires to assess dental fear and anxiety Dental Fear Survey (DFS) and Modified Dental Anxiety Scale (MDAS). Based on these questionnaires was selected a group of patients with medium and high dental fear and anxiety. In oral rehabilitation treatment was applied a treatment protocol specifically developed for people with dental fear and anxiety. After finishing the treatments we reapplied the questionnaires aiming to see how have changed level of dental anxiety and fear. The results show a lower level of fear and anxiety in patients with medium fear and anxiety (test of significance Wicoxon $p < 0.0001$) but no change in the lot with high anxiety (dental phobia).

Key words: dental anxiety, dental fear, non-pharmacological management, oral rehabilitation.

INTRODUCTION

Fear and anxiety are the major factors in avoiding dental treatment. If a person with dental anxiety needs dental treatment, fear makes the experience to be challenging for both patient and practitioner. For the treatment of the patients with dental anxiety and fear we can use non-pharmacological methods and pharmacological methods such as: oral sedation, inhalation sedation, intravenous conscious sedation, deep intravenous sedation. Patients requiring oral rehabilitation treatment often have a poor oral health and a certain level of dental anxiety. Effective communication and history-taking forms the first part of the psychological management of dental anxious patient. It is appropriate that the first patient-doctor contact to be made in a non-clinical setting, allowing the patient to express their anxiety and to relate past experiences. Some patients welcome a detailed explanation of the procedures to be used in treatment. However the practitioner must first determine whether the patient is willing to know every step of the treatment. In some cases of severe anxiety simply discussing may not be sufficient and some preparatory procedures may be required. These may be termed systematic desensitisation techniques and rely on the patient being coaxed along a hierarchy of progressively more difficult situation. Effective communication is a vital part of non-pharmacological techniques like such as "Tell - Show - Do", desensitisation hierarchy, relaxation and hypnosis. "Tell - Show - Do" - it is a simple way of preparing children and anxious adults for dental treatment. The dentist tells the patient what is to be completed, shows the patient what will be done and then does it [5].

The aim of this study is to observe the influence of non-pharmacological therapy on dental anxiety and fear.

MATERIAL AND METHOD

The study was conducted using 35 subjects with dental anxiety and fear selected from a group of 168 subjects who benefit of oral rehabilitation treatment. Selection criteria were based to the final score obtained in the two scales used Modified Dental Anxiety Scale (MDAS) and Dental Fear Survey (DFS).

MDAS consists of five questions, with answers ranked from one to five corresponding from relaxed situation to extremely anxious with the possibility to

cumulate a minimum score of five points and a maximum of 25 points. A score less or equal to 10 indicates a lack of anxiety, a score between 11-18 indicates the presence of dental anxiety, and a score above 19 indicates the presence of phobia [6]. Dental Fear Survey consists of 20 questions grouped into three sections: the avoidance of dental treatment, somatic symptoms occurring during treatment, the response to treatment in the various stimuli. Each question has five choices of answers, in the end one may accumulate a minimum of 20 points and a maximum of 100. A score of up to 33 (inclusive) indicates the absence of fear or low fear, a score between 34 and 58 - moderate fear, and a score of over 59 (inclusive) indicates high fear [4, 7, 8].

In our study 31 patients were discovered as having dental anxiety/moderate fear and 4 with phobia/high fear.

Analyzing the means for each question in the scales has noted that high scores were recorded for questions related to therapeutic maneuvers and instruments used for dental treatment.

Based on literature suitable and situations considered into the study we developed a protocol for examination and treatment that we applied in the selected group.

1. First contact doctor - patient is often decisive. The doctor will have a friendly attitude and try to be as responsive to issues that patient accused.
2. Because of patients associate white with pain we recommend use of color robe.
3. Waiting room must be welcoming, with posters and information materials, magazines and music in the background. The colors used for both the waiting room walls and the cabinet will give a safety filling.
4. It is recommended to sound proof the treatment room and separate from the waiting space, because anxiety and dental fear is often triggered by noise of dental equipment.
5. First meeting (if it is not an emergency) will be limited to the future schedule of treatment (thus establishing health and anxiety level) treatment planning and explanation of the step be taken in the treatment.
6. At the beginning of each session we will explain to the patient what maneuver will be done and if we should do more extractions (teeth are in different quadrants) we will let the patient choose the tooth to be extracted giving him the feeling that he have control of the treatment.
7. When anesthesia is used before the puncture, is recommended to use a topical anesthesia in order to minimize the effect of puncture. Needles used for anesthesia will be as thin as possible.
8. Most of the patients are just afraid of needle and syringe used for anesthesia, this is often revealed in an interview conducted thoroughly. In these cases we will keep them away from their eyes and at the time of puncture the patient will be advised to close his eyes and think of something pleasant.
9. In the same session we do not make more than one invasive treatments if they are on different arches. We recommend that the polishing and root treatment of the same tooth to performed on same session to relieve the patient of two anesthetics.
10. We know that the anxiety is a consequence of pain felt in the previous treatments, therefore the patients will be assured that the treatment will be made without pain, if it is possible. We know that many patients with dental anxiety reported pain sensitivity even under anesthesia. In these cases we recommend pharmacological method.
11. We know that many patients fear about the pain that may occur after treatment. Every time we explain to patients what the possible after treatment symptoms could be and we will

recommend the use of common anti-inflammatory (ketoprofen, ibuprofen, etc.) and the usual analgesics.

Statistical analysis was performed by using the statistical software GraphPad InStat and NCSS/PASS Dawson edition.

RESULTS

The men age of the group as a study (N = 35) is 31.571 (SD = 13.695) with a minimum 18 and maximum 72 years (Fig. 1). Scores obtained from scales used are: MDAS - minimum 11 and maximum 22 M = 13.857 (SD = 2.799); DFS - minimum 37 and maximum 76 M = 48.629 (SD = 10.367) (Fig. 2). By using Grubbs test we demonstrated that in values recorded in both scale are not outlier.

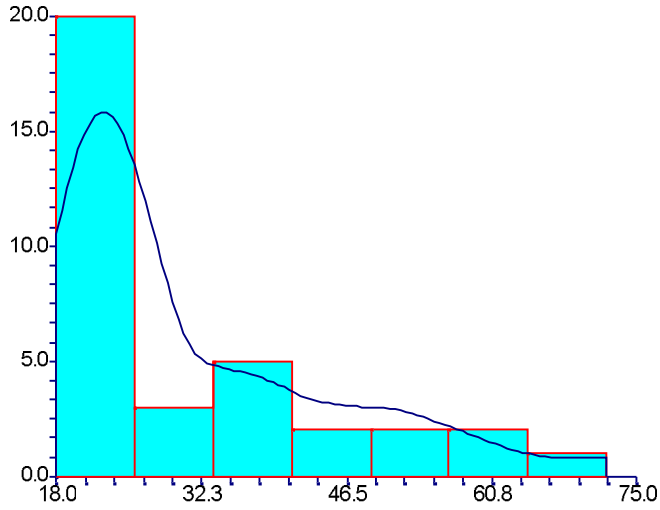

Fig. 1 Graphic representation of age in the study group

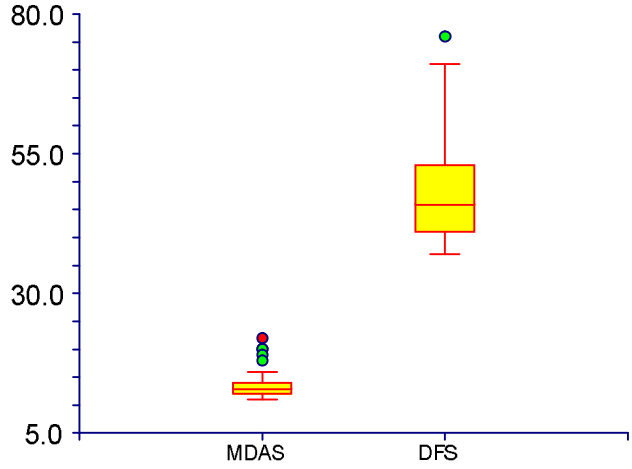

Fig. 2 Representation of scores of two scales before treatment

After completion of treatment after protocol developed we reapplied the scales. And in this case we applied the test of validity Grubbs, after which there were no outliers detected. Descriptive statistics were presented in Table 1 and Fig. 3.

Table I. Descriptive statistics

	MDAS after treatment	DFS after treatment
M	11,714	41,943
SD	2,916	10,287
SEM	0,4929	1,739
Upper limit CI	10,712	38,407
Lower limit CI	12,1717	45,479
Minimum	8	31
Med. (50%)	11	38
Maximum	20	70

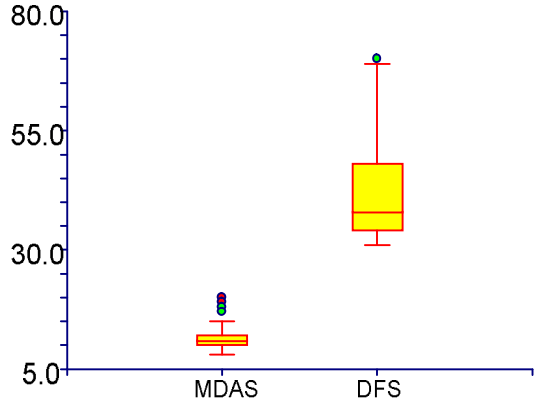

Figure 3. Representation of scores of two scales after treatment

The values obtained do not subscribe to a Gaussian distribution (Kolmogorov Smirnov test). Applying non-parametric test of significance Wilcoxon (paired results, non-parametric) we demonstrated a significant difference between MDAS scores recorded before and after treatment respectively for DFS scores - $p < 0.0001$ (Fig. 4, 5).

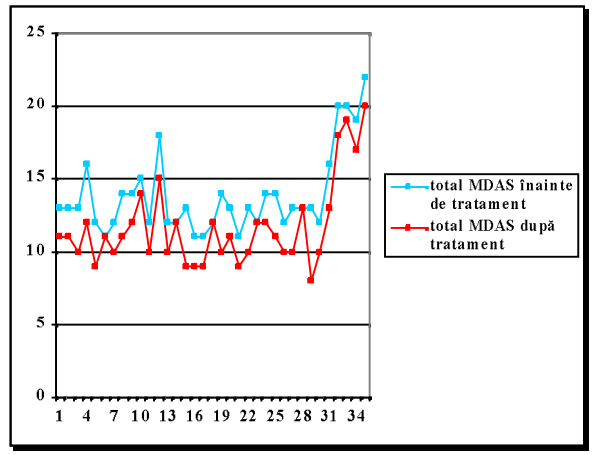

Fig. 4 MDAS scores before and after treatment

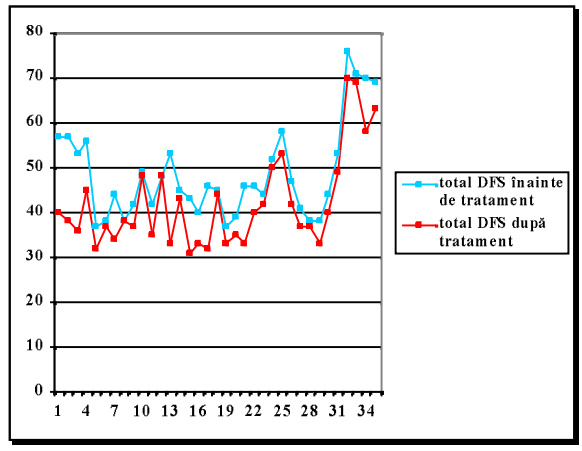

Fig. 5 DFS scores before and after treatment

We applied the Wilcoxon test to determine if there are significant differences between the items of the scales before and after treatment (Table 2). The results show significant differences in the meaning of the scores recorded after treatment are lower.

Table II. Wilcoxon test results for MDAS scale

	Mean MDAS before treatment	Mean MDAS after treatment	P value
Item 1	2,429	2,029	* p <0,0001
Item 2	2,714	2,486	* p=0,0078
Item 3	3,343	2,943	* p=0,0001
Item 4	2,2	1,686	* p<0,0001
Item 5	3,171	2,571	* p<0,0001

*statistically significant

We observe that MDAS scores recorded for each value after treatment was improved, especially for question one, four and five. Similarly we observed an improvement in DFS scores recorded for each question separately (Table 3). Questions one and two that relate to avoidance of dental treatment carried remained at the same score. A statistically not significant difference was recorded for question 10 "How great is your fear - to stay in the waiting room?"

Table III. Wilcoxon test results for DFS scale

	Mean DFS before treatment	Mean MDAS after treatment	P value
Item 1	2,743	2,743	-
Item 2	1,743	1,743	-
Item 3	2,457	2,114	* p=0,0039
Item 4	2,486	2,086	* p=0,001
Item 5	2,371	2,114	* p=0,0078
Item 6	1,400	1,143	* p=0,0156
Item 7	2,629	2,314	* p=0,002
Item 8	1,457	1,200	* p=0,0078
Item 9	2,057	1,886	* p=0,0313
Item 10	2,343	2,200	ns p=0,25
Item 11	2,629	2,371	* p=0,078
Item 12	2,000	1,686	* p=0,001
Item 13	2,057	1,743	* p=0,002
Item 14	2,914	2,371	* p=0,005
Item 15	3,029	2,429	* p <0,0001
Item 16	2,971	2,629	* p=0,0039
Item 17	2,971	2,257	* p <0,0001
Item 18	3,114	2,629	* p=0,0001
Item 19	2,257	1,657	* p<0,0001
Item 20	3,000	2,629	* p=0,0002

* statistically significant; ns - not significant

We have found not significant difference between MDAS and DFS scores before and after treatment in group with dental phobia (Wilcoxon test) - p = 0.1250 (Table 4).

Table IV. MDAS and DFS scores before and after treatment in group with dental phobia

MDAS after treatment	MDAS before treatment	DFS after treatment	DFS before treatment
20	18	76	70
20	19	71	69
19	17	70	58
22	20	69	63

DISCUSSIONS

While the practitioner and their staff may feel that avoiding the issue and just working fast to get patient out of the chair is the best approach, not resolving a patient's anxiety can lengthen appointments, exacerbate pain perception, and reinforce negative attitudes, making subsequent appointments even worse [3]. Our study demonstrates that application of a protocol for examination and treatment on the patients with dental anxiety may reduce the levels of dental anxiety. Treatment protocol could be adapted for behavioral therapy. A comparative study between two methods of dental anxiety management, conducted by Berggren and Linde (1984) shows that behavioral therapy is superior to treatment under general anesthesia. This study showed that the behavioral therapy group revealed better adaptation to the treatment situation as demonstrated by a lower frequency of late cancellation and broken a appointments.

Friedman and colleagues [2] described what they labeled an "iatrosedative technique" as a thematic approach aimed at "making the patient calm by the dentist's behavior, attitude and communicative stance". To reduce anxiety and fear the dentist should: make efforts to avoid pain, give full control to the patient, kept informed the patient. The first step in communication is to determine if the patient is afraid or not. Most times patients want the doctor to ascertain their level of anxiety. There may not always be concordance among the various ways that fear can be expressed (verbal, behavioral, psychological). A patient may say that he is relaxed, yet be gripping the chair, tense, sweating profusely, and/or breathing shallowly. Communication with patients in the terms used must be carefully chosen. Terms which can produce anxiety such as: "give o shot," "cut down a tooth," "have a root canal" or "this may hurt a bit" need to avoid. In their place are recommended terms such as "get the area numb", "remove the tooth", "endodontic treatment" or "pinch or sting a little". It is recommended to avoid the description of instruments used. Only make promises that can be backed. For instance we do not say "Before we start, we will numb you up so you won't feel anything", the patient may perceive sensations such as movement, pressure and this are often interpreted by the patient as indicating insufficient anesthesia, and therefore often are perceived as painful that may be insufficient to indicate that anesthesia and pain as a charge. The physician should let the patient know what sensation will be perceived (egg "You will feel pressure and vibration). A final rule is to ensure that the patient has the means of communicating while the practitioner is working and the patient's mouth is open. An effective method of communication, when the word is not possible, is to signals the practitioner when the discomfort gets too great or if she or he wishes the practitioner to stop. This approach has the added benefit of

giving the patient perception of being in control during the procedure [3].

CONCLUSIONS

1. In the oral rehabilitation treatment is necessary to establish the level of anxiety both by observational method and by interview.

2. By using questionnaires, we discover therapeutic maneuvers that are causing anxiety and fear.

3. Behavioral therapy applied and certain therapeutic protocols are needed when we are dealing with patients with a certain level of anxiety and fear.

4. When we are confronting with dental phobia behavioral method are not enough and we recommended other methods for anxiety reduction (pharmacological, behavioral therapy conducted by physicians specializing in such matters).

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RADIOGRAPHIC STUDY ON MODIFICATIONS INDUCED BY EDENTATION

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Abstract: If you don't replace a lateral missing tooth, you will be looking at a series of changes in the entire mouth. You may have the migration if adjacent teeth and of the antagonist tooth, changing the occlusion, also periodontal problems and cavities. In every one of these cases the prosthetic treatment becomes more difficult. In today's literature we don't have depicted all the consequences of alveolar bone loss. The purpose of this study was to determine the negative modifications registered after the tooth removal. Using radiographic investigations, we calculate the distance between the edentulous's space and adjacent teeth to estimate the changes in the teeth position.

Key words: alveolar bone loss.

INTRODUCTION

Loss of space was significantly associated with alveolar bone loss for the pre-molar but not the molar. Extrusion of the opposing tooth was not significantly associated with any of the other measures. Correlations in TL sample showed the same patterns, but the small sample size prevented any coefficient from being statistically significant. Analysis of changes for pre-and postextraction radiographic measurements showed no statistically significant differences (P = .05) in mean movement for any of the four measurements.

However, small differences consistently indicated that measurements taken from postextraction radiographs may have underestimated tooth movement.

MATERIAL AND METHOD

The study was made on a 19 patients group (13 women and 6 men), age around 24 years. We used radiographic results, recorded before and 6 months after the tooth removal, using a digital scanner and electronic files to archive.

Between the first and last radiographic result we have in all the cases an average of 6,9 months. The Rx analysis has shown no significant difference (0.05) on all parameters. The results are not conclusive because the study group was not large enough.

Thus, changes in tooth position in these cases were examined separately. Finally, we compared change in the cases in which baseline radiographs were taken pre- and postextraction to estimate the amount of undermeasurement of movement that could occur.

Loss of space was significantly associated with alveolar bone loss for the pre-molar but not the molar. Extrusion of the opposing tooth was not significantly associated with any of the other measures. Analysis of changes for pre-and postextraction radiographic measurements showed no statistically significant differences (P = .05) in mean movement for any of the four measurements (Table 1).

Table I. Measurements made and number of cases

Amplitude (A)	0.1 – 1 mm 1.1 – 2 mm 2.1 – 3 mm over 3 mm	5 7 5 2
Changes in the height of opposing teeth (h)	0.1 – 1 mm over 1 mm	11 8
Upper molars (C) 11 cases	0.1 – 1 mm 1.1 – 2 mm 2.1 – 3 mm over 3 mm	6 3 2 -
Upper premolars (C) 8 cases	0.1 – 1 mm 1.1 – 2 mm 2.1 – 3 mm over 3 mm	3 4 1 -

However, small differences consistently indicated that measurements taken from postextraction radiographs may have underestimated tooth movement.

Angular alignment errors that contribute to distortion in radiographic films typically are attributed to film packet placement errors and/or improper tubehead position. In this study, the effect of packet placement errors was considered to be minimal because all clinical films measured were bitewing radiographs exposed using commercially available bitewing tabs attached to conventional periapical films.

For example, in this study, the limitations include potential selection bias and the use of unstandardized radiographs. It is likely that selection bias occurred within this sample of cases, as dentists tend to provide fixed partial dentures to patients for whom they believe the prognosis is relatively good, relegating many of those with a poor prognosis to the untreated category. Thus, many of the patients in this sample may represent those whom the treating dentists felt were not good candidates for restorative care. In contrast, if this was a controlled trial and assignment to the untreated category was truly independent of other factors, the consequences likely would be even less severe. Unstandardized radiographs also can introduce measurement error through the imprecision of selecting "reproducible landmarks" on both baseline and follow-up radiographs. The extent of this error, however, was reduced by using two examiners, with each independently making measurements and requiring a rather strict level of agreement: 0.5 mm. Unstandardized radiographs taken at different angulations also can introduce error in measurements. The average amount of difference between properly oriented and angulated radiographs is less than 0.5mm. These differences suggest that the amount of error introduced by the use of films exposed at rather divergent angles is similar to the amount of error in the measurement process.

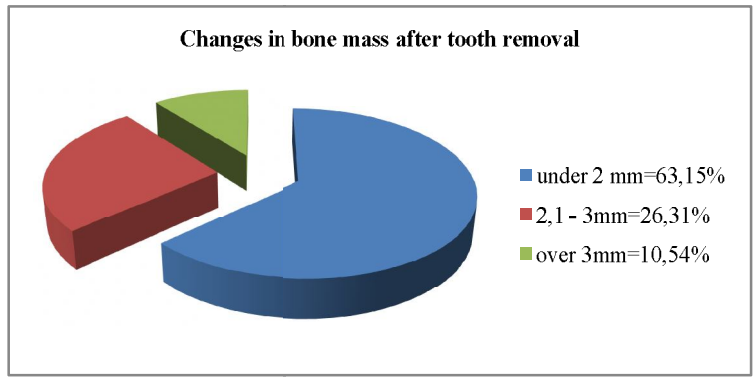

Figure 1. Changes in bone mass after tooth removal

Still, some conclusions could be drawn:

The edentulous space has the tendency for bone loss. This tendency can suggest an even greater risk of losing adjacent teeth. Future studies should try to calculate the bone loss ratio, because it can be a predicting factor of adjacent tooth survival.

We could see some changes in the edentulous space – bone loss, different for molar and premolars.

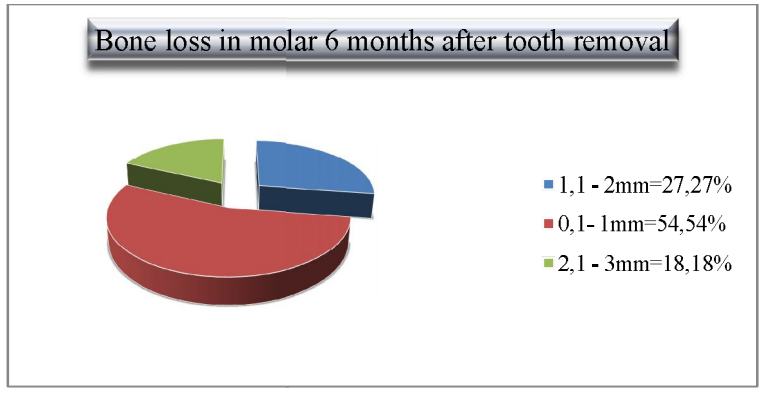

Figure 2. Bone loss in molar, 6 months after tooth removal

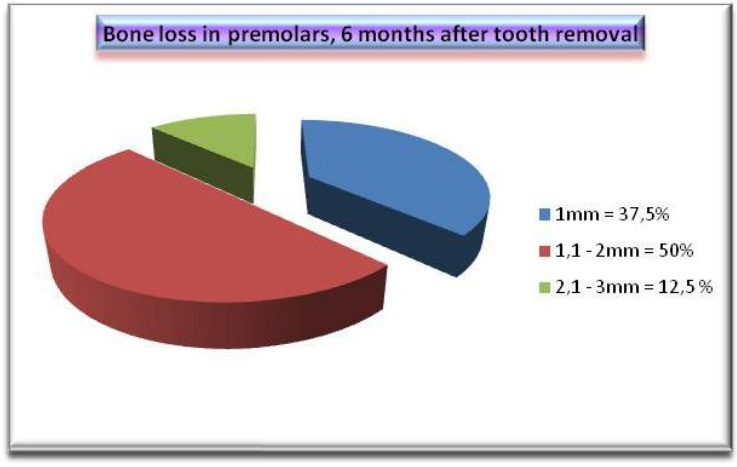

Figure 3. Bone loss in premolars, 6 month after tooth removal

CONCLUSIONS

The effect of untreated edentulous space on adjacent structures is significant in few cases. However, some small number of patients, perhaps 10 percent, experience clinically significant tilting of the teeth adjacent.

These results also suggest that the profession needs to work diligently toward identifying the factors that do predict adverse consequences or that put this small proportion of patients at risk of experiencing arch collapse.

Within the limitations imposed by the design of our study, it appears that arch collapse is not as rapid or severe as conventional wisdom would suggest.

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ASSESSMENT OF ORO-DENTAL HEALTH STATUS USING THE CAO AND EGOHID INDEXES AT THE YOUNG PEOPLE

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Abstract: CAO and CAOS epidemiological indices provide significant information for an overview assessment of dental health but can not make a nuanced type of carious lesions and involvement of the need for treatment. EGOHID system of clinical assessment and restoration of carious lesions provide evidence on lesion topography guided us on the degree of dental damage in motivating action supporting our dental health. The purpose of this study was to evaluate the comparative in terms of dental health indices CAO, CAOS and EGOHID system. *Materials and methods:* The study was conducted on a sample of 122 subjects with a mean age 23.53 years in which data were collected on the type of carious lesion and the type of restoration. Data were collected by clinical examination and observation files recorded according to codes. All patients in the study were informed verbally about the purpose of the study noting their consent. Statistical data processing was performed with SPSS 14.00 for Windows fixing the threshold of statistical significance of $p \leq 0.05$. *Results and discussion:* Comparative analysis of two systems of assessment revealed that significant differences $p \leq 0.05$ for the system of assessment of dental status in the system component EGOHID carious lesions, lesion assessment is accomplished underestimated component CS of CAOS index showing an average of 4.42 (± 4.132) compared with EGOHID-C is the index of the cavity showing an average of 10.38 (± 7.484). *Conclusion:* Data obtained through evaluation of dental caries is higher, providing a concrete image of the orientation dentistry, early diagnosis of dental caries, treatment and hence the technicallity and restorative treatments.

Key words*:* CAO, EGOHID, dental status.

INTRODUCTION

World Health Organization has formulated a definition that dental caries, prevention and prevention methods shall constitute an integral part of restorative treatment, clinical caries as an evolutionary stage that grows from a microscopic lesion that can not be diagnosed with certainty in current clinical means [1,2]. Switching from an early lesion, non-cavitary, cavitary lesion to reverse, irreversible, develops slowly, by disrupting the balance between demineralization and remineralization processes in favor of demineralization [3]. Therefore diagnosis dental decay, apparently simple, it seems practically a difficult decision, therefore, recommended the combination of clinical examination with additional tests. However the assessment of epidemiological indicators is mostly based on clinical examinations which induce more bias in the assessment of early carious lesions that may be an overestimation or underestimation of the presence of injury for the purposes of giving or another function code the examiner. Therefore, refinement of codes carious lesion should be a mandatory step since and conduct therapeutic purposes is different in primary, secundary and tertiary prevention measures. CAO and CAOS epidemiological indices provide significant information for an overview assessment of dental health but can not achieve a nuanced type of carious lesions and involvement of the need for treatment. Nor shall a targeted, individualized treatment strategy on prevention schemes of primary or secondary prevention of treatment patterns.

As the evaluation indices CAO index of caries in all those early carious lesions showing noncavitation remineralization potential and non-invasive treatment we intend to achieve a differentiated based monitoring injury from minor changes in tooth surfaces following with obvious changes of enamel structure, with loss of substance or not located in dental enamel or dentin.

EGOHID system of clinical assessment and restoration of carious lesions was designed to support the collection of global oral health indicators (EGOHID - European Global Oral Health Index Development). This system provides evidence on lesion topography guided us on the degree of dental damage and costs arising from default on it. Data provided by EGOHID system contribute to a strategy of primary prevention and secondary motivating with local, national and European decision makers [4].

EGOHID is a comprehensive evaluation of oral health status, which consists of several sections, namely: identification data and background information of subjects; Questionnaire on dental health, dental fluorosis questionnaires, survey on periodontal health, determination of the presence of oral cancer, orthodontic treatment, prosthetic treatment.

In this study we considered part of the questionnaire on dental health codes for attributed type of restoration present, the type of carious lesions developed. Codes are assigned according to Table 1.

Table I.

Codes for restoration and sealing	**Codes for tooth decay**
0= without sealing and restoration	**0**= surface without lesion
1= partial sealing	**1**= slight modification of the surface, the inspection
2= sealing	**2**= obvious change of surface
3 = discoloration restoration	**3**= cavity in the enamel, dentin without evidence
4 = amalgam restoration	**4**= damage to the enamel-dentin junction
5 = steel crown	**5**= dentin cavity
6= crown , facet ceramics, gold or composite	**6**= extended cavity dentin
7= restoration fractured or missing	
8= temporary restoration	
Missing teeth	
97 = the extracted teeth cause tooth decay	
98 = teeth absent from other causes	
99= teeth that have erupted	
P = implant	

MATERIAL AND METHOD

In designing and running clinical trials have formulated the following hypotheses: the null hypothesis was that there is no difference between the results of dental health evaluation by epidemiologists indices CAO, CAOS and EGOHID system, testable hypothesis tested was that the systems differ them, this translated by statistically significant differences obtained from analysis codes on the questionnaire on dental health.

Patient selection was done among students of III, Faculty of Dentistry, UMF "Gr.T.Popa" Iasi. Following clinical examination were selected a number of 122 subjects with a mean age of 23.53 years, 45 male and 77 female.

Inclusion criteria of patients in the study followed the patients: to provide carious lesions and restorative treatment to highlight the value index and filling cavities. The exclusion criteria were followed: patients who had no carious lesions or dental restorations.

Following clinical examination data were collected on the type of carious lesion and the type of restoration, data were collected through clinical

examination and preparation of charts. The study was clinical type.

All patients in the study were informed verbally about the purpose of the study noting the consent form. The examination was performed in the office of dispensary patients nr.1, outpatient dentistry. Patients were placed in the database according to certain codes. Statistical data processing was done with software for Windows SPSS14.00 settling a threshold of statistical significance of $p \leq 0.05$.

RESULTS AND DISCUSSIONS

Assessment component of the system decay index EGOHID namely EGOHID-C was performed on a tooth surface because can exist at different codes of carious lesions.

The results of comparative analysis of two systems of assessment revealed that the differences statistically significant $p \leq 0.05$ (Table 4) for dental status assessment system through the component EGOHID carious lesions, lesion assessment can be done in CS underestimated component of the index showing an average of 4.42 CAOS (± 4.132) (Fig. 1, Table 2) compared with EGOHID-C (the decay index) an average 10,38 (±7,484) (Table 3).

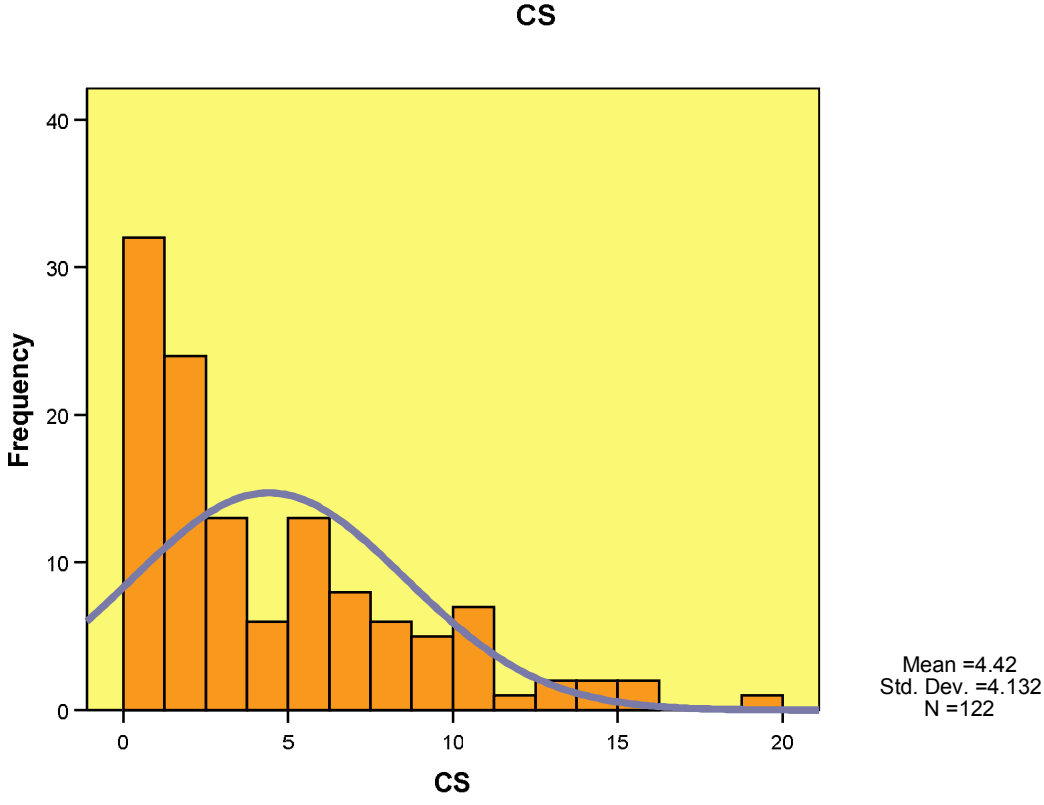

Fig. 1. CS component analysis (mean scores obtained).

Table II. Analysis of CaO and descriptive indices CAOS

	N	Minimum	Maximum	Mean	Std. Deviation
CAO	122	1	29	10,11	5,507
CD	122	0	20	3,76	3,507
AD	122	0	9	,97	1,443
OD	121	0	19	5,49	3,608
CAOs	122	2	62	17,46	11,825
CS	122	0	20	4,42	4,132
AS	122	0	45	4,85	7,110
OS	122	0	40	8,37	7,039
Valid N (listwise)	121				

Differences fall mainly in providing code 01 which represents a slight modification of the surface with an average of 3.72 (± 4.005) and the award code 02 which represents a clear change of the surface with an average of 2.89 (± 2.785).

Component analysis OD 5.49 (± 3.608) (Table 2) compared with EGOHID-R 5.48 (± 3.793) (Table 3) reveals no significant differences statistically however there is a difference in assessment of present sealing part code 10 with an average of 0.07 (± 0.421) and sealing all present, that code 20 with an average of 0.24 (± 0.882) (Table 3).

Table III. Descriptive statistical analysis of system components EGOHID

	N	Minimum	Maximum	Mean	Std. Deviation
EGOHID-C	122	0	37	10,38	7,484
EGOHID-R	122	0	17	5,48	3,793
cod 01	122	0	23	3,72	4,005
cod 02	122	0	18	2,89	2,785
cod 03	122	0	13	2,39	2,671
cod 04	122	0	11	,70	1,520
cod 05	122	0	10	,45	1,234
cod 06	122	0	6	,23	,758
cod 10	122	0	4	,07	,421
cod 20	122	0	6	,24	,882
cod 30	122	0	12	4,24	3,330
cod 40	122	0	10	,57	1,548
cod 50	122	0	5	,07	,477
cod 60	122	0	6	,18	,693
cod 70	122	0	3	,20	,492
cod 80	122	0	3	,13	,444
cod 99	122	0	4	,48	,938
cod98	122	,00	3,00	,2705	,76100
Valid N (listwise)	122				

EGOHID-C -carious lesions,
EGOHID- R-dental restorations 01 - now partly sealed, code 02 - sealed, code 03 - filling, code 04 - amalgam fillings, code 05 - crown, ceramic side, code 07 - fractured fillings or missing, code 08 - filling temporary, code 10 - slight modification of the surface, the inspection, code 20 - obvious change of surface, code 30 -cavity in the enamel, without dentin evidence, code 40 - lesion-enamel-dentin junction, code 50 - dentin cavity, code 60 - extended cavity dentin

Table IV. Application of Nonparametric Chi-square test

	CS	EGOHID-C
Chi-Square(a,b)	93,148	60,803
df	16	26
Asymp. Sig.	,000	,000

a. 0 cells (,0%) have expected frequencies less than 5. The minimum expected cell frequency is 7,2.
b. 27 cells (100,0%) have expected frequencies less than 5. The minimum expected cell frequency is 4,5.

Also in the analysis proposed by Axelsson index CCITN [5] (Caries Index Treatment Needs Community – Community index of treatment needs carious lesions) achieved an average of 4.00 (Table 5) compared with an index value CDs average of 3.76 (± 3.507). The difference is that the clinical examination in the index CAO were not always recorded color changes or other changes in the surface structure present in the form of noncavitation injuries, while the differential analysis of primary enamel lesion component were inserted all early lesions.

Table V. Average evaluation indices of caries index CCITN

	N	Minimum	Maximum	Mean	Std. Deviation
CCITN 1	122	0	16	2,57	2,712
CCITN 2:1	122	0	8	,36	1,076
CCITN 2:2	122	0	14	,53	1,657
CCITN 3:1	122	0	12	,43	1,408
CCITN 3:2	122	0	2	,11	,390
Valid N (listwise)	122				

CONCLUSIONS

Comparative analysis of oro-dental health and CAO EGOHID system provides clinicians and especially the organizers of health evidence on preventive or curative approach tends dental network.

Data obtained through evaluation of dental caries EGOHID are higher, providing a concrete picture of the direction of early diagnosis of dental caries, treatment and hence the technicality and restorative treatments.

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PARACLINICAL STUDY OF THE SALIVA pH MODIFICATIONS FOR THE COMPLETE EDENTULOUS PATIENTS

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Abstract: In practice we have encountered many situations in which all complete edentulous patients, whom we treated with complete dentures had to keep the disturbance caused by the changes occurring prosthetic components in the salivary fluid. Assessment of changes that occur in all complete edentulous patients wears or not, in terms of salivary pH. Material and method: The study was conducted over a period of two years in Clinic Dental Prosthetics, Social Center of the Faculty of Dentistry and the Old people's homes in Constanta. Lot studied was composed of a total of 80 patients in which 40 patients with different types of edentation and 40 complete edentulous patients. As methods we used to determine salivary pH by digital pH meter and salivary strips. Results and conclusions: Changes in salivary pH depends on age, gender, edentation specific features, but considering the impossibility of achieving correlations between indicators in the control group, we can conclude that there are wide individual variations that depend on other factors such as, nutrition, fluid intake, medication daily or occasional, and not least the types of existing prosthetic treatment can induce changes in the quality and quantity of saliva. It may indicate that salivary strips method is less accurate and less subjective, values are determined by a fairly large degree of error. Overall average pH value in batch toothless decreases with age and edentation maturity and is much more increased in female patients. Comparing the two groups, the average pH value decreases from patients with different degrees of edentation at complete edentulous group regardless of age group or gender.

Key words: saliva, pH, complete edentulous.

INTRODUCTION

For elders, in dental assistance activity, all the therapy procedures have to remember the particularities of the senescence, which are able to reduce the capacity of psihocortical adaptation and defense due to variation of ethiopatogenic risk factors, responsible of the systemic diseases. The general and local disturbances are not all present in the same rank for elders but they have to be known because they might influence the treatment plan.

In practice, we met a lot of situations in which the total edentulous patients who we've treated with the help of total acrylic prostheses had disturbances in keeping the prosthetic parts due to quantitative and qualitative changes of the saliva.

In this survey we tried to evaluate the modifications that appear for total edentulous patients with or without prostheses in terms of values for the saliva pH.

MATERIAL AND METHOD

We made this survey in the Dental Prosthetic Clinic, Social Center of Dental Faculty and in Elder House in Constanta for two years. We studied 80 patients from who 40 were partial dentulous and 40 total edentulous. We used two paraclinical methods for determination of saliva pH values: pH-meter (electronic device of pH value determination - Fig. 1) and salivary strips (Fig. 2).

Fig. 1. Electronic pH- meter.

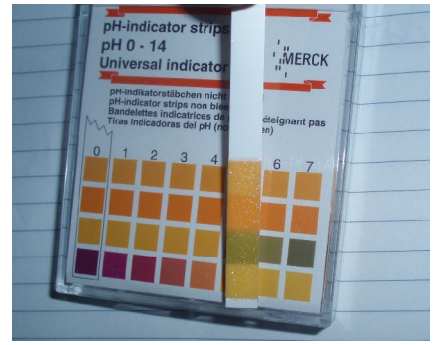

Fig. 2. Salivary strips.

For the first method the patients are asked to issue a small quantity of saliva in a disposable cup in the morning and in food and liquid rest. We do not stimulate the salivary secretion.

After this step we put the electronic device in the disposable cup with the registration tips in the saliva. We measure the pH, put away the tips, wash and disinfect and recalibrate the pH-meter with blank solution with known pH.

The salivary tips have color indicators for the pH. They are marketed in transparent plates with 100 pieces, that contains a measurement scale for the indicator due to specific color.

The working method consisted in applying the strips in patient's oral cavity (patients from the two lots) in the same way, sublingual, for 3-5 seconds. Every strip was numbered and checked with the color scale.

RESULTS

It was made the processing data due to witness lot and complete edentulous lot with the following results:

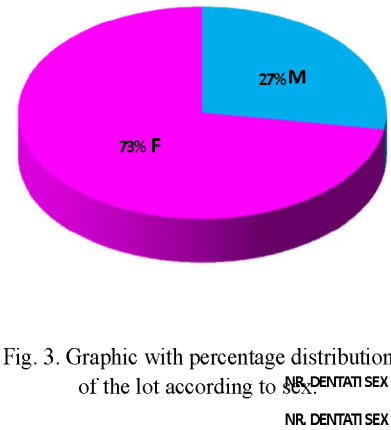

Fig. 3. Graphic with percentage distribution of the lot according to sex.

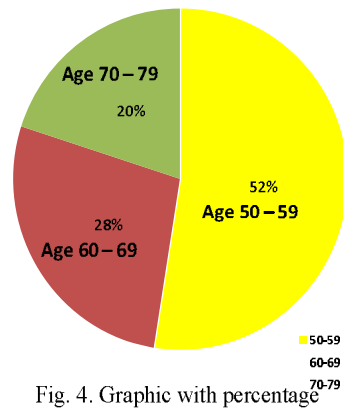

Fig. 4. Graphic with percentage distribution of the lot according to age.

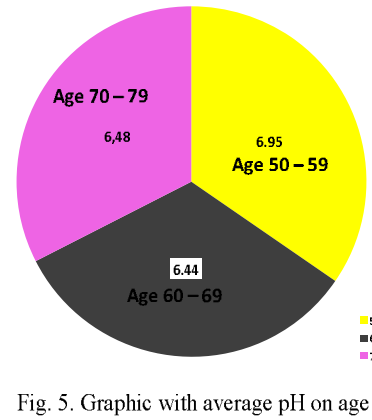

Fig. 5. Graphic with average pH on age groups.

The distribution of the dental lot according to sex is 73% feminine (29 cases) and 27% masculine (11cases) (Fig. 3).

Percentage, the 50-59 years old group is the best represented against the 60-69 years old group and 70-79 years old group, which fulfils physiological and statistically specialty literature data (Fig. 4).

The average of the pH value of the dental lot for 50-59 years old group is 6,95 and for the other two age groups the value

is close. The average pH value for the witness lot can be fitted between the average physiological values of the saliva indicator (Fig. 5).

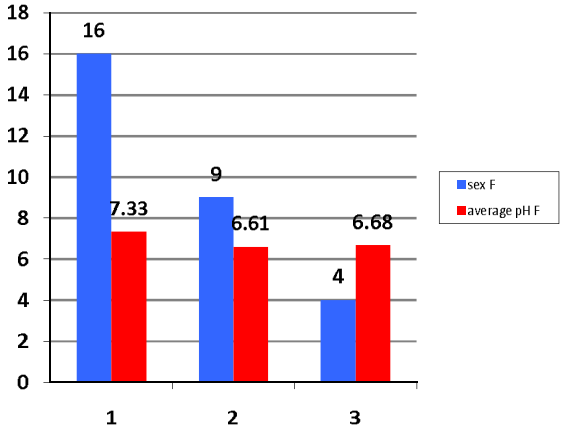

Fig. 6. Variation pH value – female.

According to feminine sex the best representative group is 50-59 years old and the average pH value is the most (7,33) followed by 70-79 years old group with a pH value 6,68 and the 60-69 years old group with a smaller pH value, 6,61 (Fig. 6).

We can infer that the 60-69 years old group, feminine sex, has the smallest average value, due to physiological and pathological conditions that characterize this group.

The variation of the ph according to feminine, masculine sex and age groups within witness lot is:

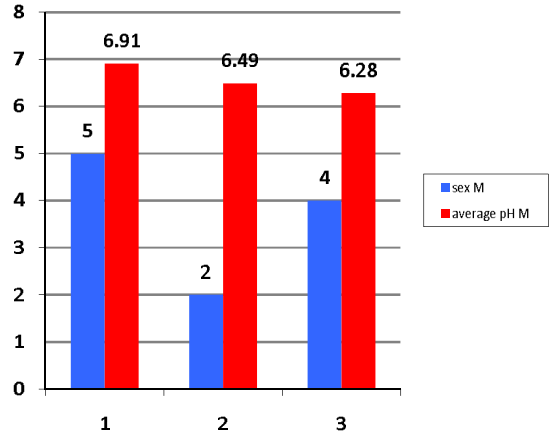

Fig. 7. Variation pH value – male.

The variation of the pH according to masculine sex and age groups within witness lot is showed in Figure 7).

To masculine sex the variation is descending from 50-59 years old group to 70-79 years old group. If the first two age groups the variation fits in the average value described in the literature for the physiological pH, for the third age group this is going to acid values.

Statistical processing of the data according to complete edentulous patients due to the edentation maturity and sex reveals:

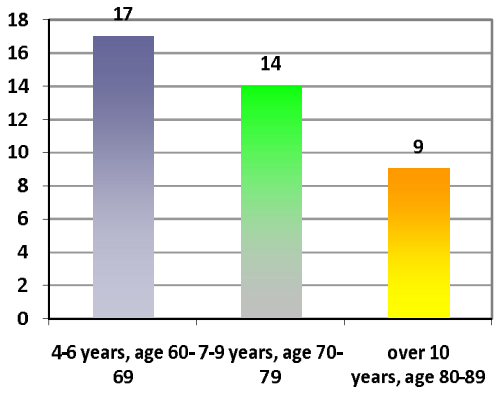

Fig. 8. The distribution of the lot according to age groups and toothless duration.

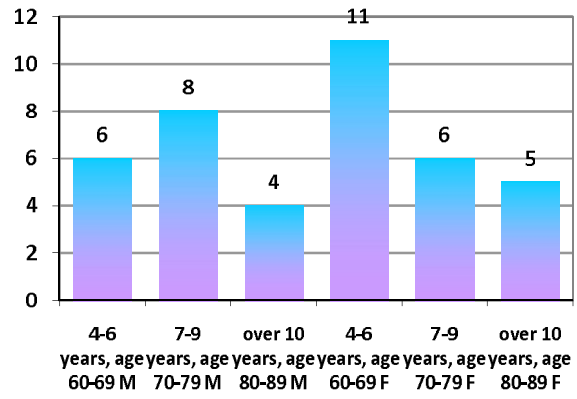

Fig. 9. The distribution of the lot according to age groups, toothless duration and sex.

1. In the 60-69 years old group the toothless duration don't exceed 6 years but as we go forward in age groups (70-79 years old and 80-89 years old) the duration of toothless time is raising and the patients don't have prosthesis many times.

2. Due to the large number of patients from the first age group, we can notice that as we go forward in age the addressability of the patients for the prosthetic treatments is decreasing (Fig. 8).

Comparing the data from the graphic we can notice that the females from the 60-69 years old group have the lowest weight in toothless duration (4-6 years) followed by males from the 70-79 years old group with a toothless duration of 7-9 years. We meet an equal number of female from the 70-79 years old group and males from the 60-69 years old group. In the 80-89 years old group there are more females than males. (Fig. 9).

The average ph value in the edentulous lot according to age and toothless duration is (Fig. 10):

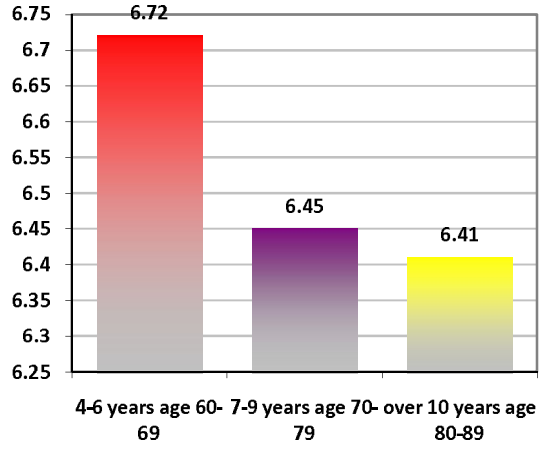

Fig. 10. The average ph value in the edentulous lot according to age and toothless duration.

The average pH values in this lot is decreasing once with the increasing of toothless duration and with age, reaching a value of 6.41 who meets the physiological range indicator of saliva in literature.

The statistic evaluation of average ph values according to sex reveals:

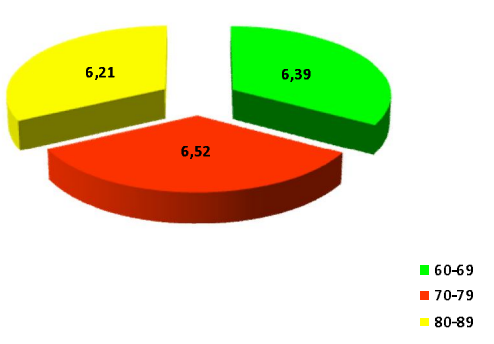

Fig. 11. The statistic evaluation of average ph values at masculine sex.

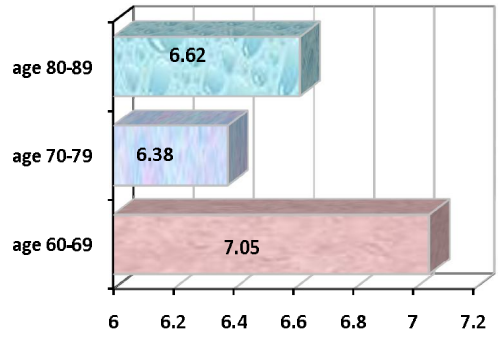

Fig.12. The statistic evaluation of average ph values at feminine sex.

In this lot, the average value is decreasing once with increasing of toothless duration and age, reaching a value of 6.41 who meets the physiological range indicator of saliva in literature.

Unlike the masculine sex, in this case we can notice a major decrease from 60-69 years old group (where the pH value is 7.05) to 70-79 years old group where the value is 6.38. The variation is slightly increasing in the 80-89 years old group (6.62) (Fig. 11, 12).

CONCLUSIONS

The variation of the salivary pH value is according to sex, age, toothless duration but considering the impossibility of realize some correlations between the indicators we studied within the witness lot we can conclude that there are large individuals variations who depend on other factors like food, liquid consumption, daily treatment or occasional, and last but not least existing types of prosthetic treatments who might induces changes of the quantity and the quality of the saliva. We can specify that the strips method is less precise and subjective and the values have a high degree of error. In the complete edentulous lot we obtained the following results:

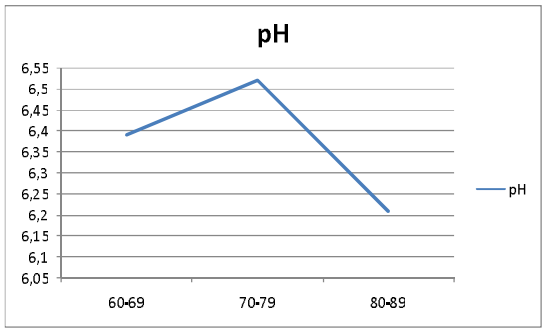

Fig. 13. pH variation at male.

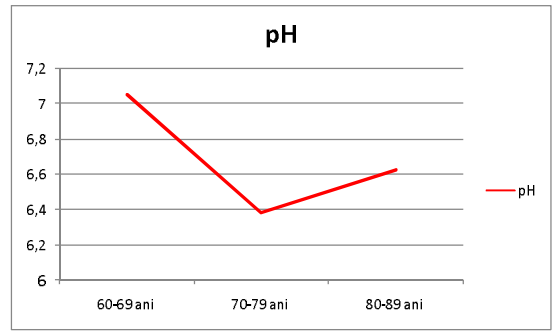

Fig. 14. pH variation at female.

In female patients the pH variation according to age groups has a "V" aspect, with a pronounced decreased from 7.05 (60-69 years old group) to 6.38 (70-79 years old group) following a rise to 6.62 in 80-89 years old group (Fig. 14). Talking about males we noticed a different variation, with a "V" aspect but with the up top. Here we can find a raise of the value from 6.39 (60- 69 years old group) to 6.52 (70 – 79 years old group) and then a decrease to 6.21 (80 - 89 years old group) (Fig.13)

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THE AESTHETIC REHABILITATION OF ANTERIOR TEETH USING ALL-CERAMIC RESTORATIONS – CLINICAL CASES

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Abstract: The morpho-functional rehabilitation is a fundamental principle in any prosthodontic therapy. The all-ceramic fixed restorations offer the best aesthetic results due to the absence of the metal coping. Differences among all-ceramic systems concern issues like technique, resistance and translucency. The mechanical properties of these restorations are enhanced and their susceptibility to fracture is reduced by use of the resin-bonded technique. The complete ceramic crown's major indication concerns the anterior maxillary teeth of most patients, except those with oral parafunctions or deep overbites. The dental preparation is slightly more conservative than that of the metal-ceramic crown, although crown thickness becomes an issue that can influence the crown's resistance. Purpose: In most cases, the purpose is the aesthetic rehabilitation of severely damaged anterior maxillary teeth. Materials and method: The article presents several clinical situations that require prosthodontic treatment for the restoration of anterior teeth. The therapeutical solutions have been elaborated to gain the maximum advantage for the patient according to the bio-psychological and social context, thus proving the method's feasability and excellent clinical results. The study was conducted on 16 patients, of different sex, age and profession, in the Dental Prosthetics Clinic. The materials used were IPS e.max Press ceramic (lithium disilicate glass-ceramic) and PermaCem dual-cured luting cement. Results: Remarkable aesthetic and functional results have been obtained for the anterior maxillary area thus satisfying the most pretentious of patients. The chosen therapeutical plans, using the mentioned materials, have brought harmony to the soft and hard tissues. Conclusions: For a prosthodontic treatment to be successful, it requires a thorough clinical and paraclinical examination of the patient, specific interventions on the bone, gums, teeth and periodontium and a good doctor-patient-dental technician collaboration.

Key words: aesthetics, all-ceramic crown, fixed prosthodontics.

INTRODUCTION

The morpho-functional rehabilitation is a fundamental principle in any prosthodontic therapy. The all-ceramic fixed restorations offer the best aesthetic results due to the absence of the metal coping. Differences among all-ceramic systems concern issues like technique, resistance and translucency. The mechanical properties of these restorations are enhanced and their susceptibility to fracture is reduced by use of the resin-bonded technique. The complete ceramic crown's major indication concerns the anterior maxillary teeth of most patients, except those with oral parafunctions or deep overbites. The dental preparation is slightly more conservative than that of the metal-ceramic crown, although crown thickness becomes an issue that can influence the crown's resistance.

The continuous technological progress of the all-ceramic systems has encouraged the development of numerous fixed prosthodontic rehabilitation techniques, concerning the anterior maxillary teeth. Long term success of the prosthodontic treatment depends largely on doctor-patient communication and the patient's understanding of the limitations of the prosthodontic treatment, but also on interdisciplinary collaboration. Communication can be enhanced by a thorough clinical examination, allowing a correct diagnostic and a thought-out treatment plan for the correction of the aesthetic problems.

MATERIALS AND METHOD

The article presents several difficult clinical situations that require the aesthetic rehabilitation of the maxillary anterior teeth. The therapeutical solutions have

been elaborated to gain the maximum advantage for the patient according to the bio-psychological and social context, thus proving the method's feasability and excellent clinical results. The study was conducted on 16 patients, of different sex, age and profession, in the Dental Prosthetics Clinic, Dental Medicine College, "Ovidius" University of Constanta.

The following materials were used: IPS e.max Press lithium disilicate glass-ceramic for the press technique, PermaCem dual-cure luting cemet, alginate (Ypeen), Dentalon (for temporary restorations), Temp Bond (non-eugenol temporary cement), impregnated retraction cord (ROEKO), condensation silicone Zeta Flow (putty and fluid Elite HD).

The major issues were:

- treatment of the odontal lesions and crown restoration
- establishing the correct shape and location on the incisal margin of the central incisors using temporary restorations and finishing the incisal margin
- insuring a dominant position for the central incisors while respecting the position of the lateral incisors, for a harmonious frontal guidance
- endodontic and periodontal evaluation
- selecting the all-ceramic system according to the expected aesthetic performances
- correct registration of the shade for the future all-ceramic restorations

The tooth preparations have been accomplished with the correct length, width, taper, resistance form and marginal design, with the ultimate purpose of creating long-lasting aesthetic restorations. The vestibular and oral reduction has provided a 1,3 mm of clearance on each surface in order to insure an acceptable thickness of the crown for better resistance and excellent aesthetics. The taper of the preparation should be of 8-10 degrees and it is accomplished for better resistance and maximum preservation of tooth structure. The oral surface is finished, with respect to its morphology. The gingival finish line was prepared as a shoulder or a chamfer for good marginal closure and better aesthetics. The incisal line angles were rounded. The vestibular reduction provided a clearance of 1,3-1,4 mm, to allow the transmission of light through the ceramic layer. For biomechanical reasons, great care was taken to insure that the preparations are perfectly parallel. Temporary restorations are helpful because their breadth can be measured and used to estimate the breadth of the future all-ceramic crown. In order to obtain an acceptable impression, the gingival finish line was registered with the help of a double retraction cord. For biomechanical, aesthetic and biological reasons, the trial of the ceramic coping is an essential stage; this is also the stage when the space for the interdental papilla is verified. The all-ceramic restorations were cemented using a resin-bonding cement.

Clinical case nr. 1:

20 year-old female patient presents herself at the Dental Prosthetics Clinic for aesthetic rehabilitation of the maxillary anterior teeth that were severely damaged by dental caries. The prosthodontic solution: all-ceramic restorations (fig. 1, 2, 3, 4).

Figure 1. Initial clinical aspect

Figure 2. Preparations on the frontal maxillary teeth for all-ceramic restorations

Figure 3. Coping trial

Figure 4. Final clinical aspect

Clinical case nr. 2:

32 year-old female patient presents herself at the Dental Prosthetics Clinic for the aesthetic and functional rehabilitation of the maxillary teeth. After a careful clinical and paraclinical examination, the diagnostic is set: simple and complicated odontal lesions on the maxillary incisor group, class III Kennedy edentation with one modification. The prosthodontic treatment plan implies restoring the central and lateral incisors (1.2, 1.1, 2.1, 2.2) using all-ceramic crowns (IPS e.max Press ceramic) and fixed partial metalo-ceramic restorations for the lateral areas (1.3, 1.4, 1.5, 1.6, 1.7 and respectively 2.3, 2.4, 2.5, 2.6, 2.7) – fig. 5, 6, 7.

Figure 5. Initial clinical aspect

Figure 6. Ceramic coping and metal framework trial

Figure 7. Final clinical aspect

Clinical case nr. 3:

22 year-old female student presents herself at the Dental Prosthetics Clinic with preparations on the superior central incisors (1.1, 1.2) and right lateral incisor (1.2); the preparations were made in a different dental clinic. The prosthodontic treatment implies restoring the prepared teeth using all-ceramic crowns (IPS e.max Press ceramic) – fig. 8, 9.

Figure 8. Initial clinical aspect

Figure 9. Final clinical aspect

Clinical case nr. 4:

36 year-old female patient presents herself at the Dental Prosthetics Clinic wishing to improve her aesthetics. Prosthodontic treatment: the restoration of the superior central and lateral incisors and canines using all-ceramic crowns (IPS e.max Press ceramic) and the restorations of the superior and inferior premolars and molars using metal-ceramic crowns (fig. 10, 11).

Figure 10. Initial clinical aspect

Figure 11. Final clinical aspect

Clinical case nr. 5:

28 year-old female patient presents herself at the Dental Prosthetics Clinic wishing to aesthetically restore her incisors. The prosthodontic treatment implies the restoration of the superior central and lateral incisors using all-ceramic crowns (IPS e.max Press ceramic) – fig. 12, 13.

Figure 12. Initial clinical aspect

Figure 13. Final clinical aspect

RESULTS

Careful manufacturing of the all-ceramic prosthetic elements, along with the use of a resin-bonding cement have contributed to the successful restoration of damaged teeth with exceptional aesthetic results.

DISCUSSIONS

Although the metal-ceramic restorations can be used in most clinical situations, especially in the posterior area, where a greater stress resistance is required, these restorations produce less satisfying aesthetic results. The translucency of the metal-ceramic crowns is altered by the presence of the metalic coping, which blocks light transmission through the restoration. Because of this reason, the all-ceramic crowns set a new standard in aesthetic restorations, difficult to achieve by metal-ceramic crowns.

An assessment of the pacient's expectations and understanding of the possible therapeutic solutions is crucial before commencing any treatment plan.

Obtaining the phonetic, dento-labial and facial parameters by observing the lip movement in relation to the teeth, although only a stage in a more complex series of procedures, consitutes a good starting point for an optimum aesthetic rehabilitation, providing the necessary information to allow the clinician to make the right therapeutical choice in every clinical case.

The careful assessment of all the clinical parameters, from a practical and rational point of view, allows the clinician to improve the quality level of his work, manufacturing restorations that are integrated not only in the oral cavity bun in the pacient's physiognomy.

CONCLUSIONS

This article presents 5 different clinical cases that share the diagnostic: severe damage to the maxillary frontal teeth, with major negative implications concerning the dento-facial aesthetics.

The all-ceramic restorations were the best choice for aesthetic rehabilitation.

All-ceramic crowns represent a great progress in dental aesthetics.

The complex and modern clinical and technical procedures, along with the increasing aesthetic expectations of the patients can only be satisfied through a perfect doctor-patient-technician collaboration.

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ORTHODONTIC MICRO-IMPLANTS – TECHNOLOGY AND CLINICAL APPLICATIONS

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Abstract: The introduction's purpose of orthodontic therapy with micro-implants was to strengthen the skeletal anchorage. Thus, in the specialty literature appeared numerous studies on the evolution of orthodontic micro-implants, technology and diversification of clinical applications. The designs of micro-implants types used in orthodontics are presented, different methods of insertion, the steps of surgical procedures and various areas for placement of orthodontic micro-implants after clinical indications. It is presented an example of a clinical case requiring fixed orthodontic treatment using a micro-implant on the edentulous ridge for solving the problem of orthodontic anchorage.

Key words*:* Orthodontic micro-implants, scheletal anchorage.

INTRODUCTION

The original purpose of placing micro-implants was to achieve maximum control of orthodontic anchorage, a decisive factor in successful treatment. Edward Angle [1] (1900) used for anchorage control equal or opposing forces. Traditionally, orthodontic anchorage was strengthened by increasing the number of teeth bilaterally, using musculature, extra-oral devices or by using the alveolar processes. Anchorage with extra-oral devices was been compromised due to poor patient cooperation in wearing headgear 24 hours a day, and so clinicians have sought other means of anchorage. Intraoral anchorage is ideal, but it was difficult to obtain, because preventing the movement of teeth in both dental arches was not possible. Thus, clinicians have sought a way of using skeletal anchorage.

In 1945, Gainsforth and Higley [2] used for anchoring the vitallium screw in the ramus mandible to push toward distal the maxillary teeth with elastics and Brånemark [3] introduced in 1969 osteointegrated dental implants for repositioning teeth and prosthetic rehabilitation, which had a combining successful orthodontic-restorative management of adult patients with edentulous. These implants were useful in hypodontia, periodontal disease, in pre-surgical tooth movements, in the opening or closing of spaces, but their use had many limitations in routine orthodontic practice.

In the last decade, in Europe and in Asia was used for absolute anchorage a small titanium screw as palatal implant, which represented a less invasive, easily to place, low cost, low risk of complications method with application also on children. In 1970, Linkow [4] is the first to propose using endosseous blade implant in the mandibular molar area as orthodontic skeletal anchorage for the Class II elastics. In 1983, Creekmore and Eklund [5] used the vitallium screw inserted into the maxillary between the upper incisors before the anterior nasal spine. Roberts [6] uses two titanium implants for skeletal anchorage in the retro molar area for closing the extraction space of the lower permanent first molar. Block [7] introduces the palatal implant and Wehrbein [8] the Orthosystem with osteointegrated interface, with three palatine surgical procedures. In 1997, Kanomi [9] used mini-screw for skeletal anchorage in the case of intrusion of the anterior teeth. In 1998, the option of zygomatic skeletal anchorage was introduced, and in 1999 Umemori [10]

comes up with the mini-screw for the deep bite correction.

Birte Melsen [11] (1999) who was the first to used the 2 mm in diameter screw implant called it the mini-implant and Park and Bael [12] (2002) were the first to use the 1.2 mm screw and named it the micro-implant. Kyung [13] in 2003 developed the Absoanchor micro-implants with a specific design for application head screw or the wire ligature or elastic. In 2005 on the U.S. market appear 10 - 15 micro-screw systems for the skeletal anchorage (Absoanchor, Inc. Dental, Daegu, Korea, etc.) used for dental movements, group retraction, molar mesialisation or distalisation, intrusion or extrusion, correction of the occlusion plan, moderate crowding, and vertical control.

USE OF TERMS

There are many terms used for the skeletal anchorage as the skeletal anchorage system, mini-screw, micro-screw, mini-implants, micro-implants, mini-screw implant micro-screw implant, Temporary Anchorage Device (TAD) etc. The micro prefix comes from Greek, and the mini prefix comes from English. Implantologists use the term of mini-implant, and the diameter of the prosthetic mini-implant is bigger than the orthodontic one. For the conventional orthodontic anchorage (trans-palatal bar, lingual arch, etc.), clinicians use the term of TAD. Orthodontists prefer to use the term of micro-implant for the screws implanted as skeletal anchorage.

INDICATIONS OF THE MICRO-IMPLANTS

The orthodontic micro-implants are used as anchorage in edentulous cases when there are not enough teeth for a conventional anchorage, also to replace the extra-oral headgear anchorage with an intra-oral anchorage, in the asymmetrical movement of a group of teeth (distalisation or mesialisation), in the movement of teeth in the edentulous areas with the regeneration of the alveolar bone and the extraction space closure, in the uprighting and lower molar intrusion, the intrusion of upper molars, in the extrusion of the included canines, as an alternative to orthognathic surgery.

MATERIALS AND DESIGN

Micro-implants are made of titanium alloy (Aarhus Mini-Implant is Ti6AL ACC-4V ELI ASTM F 136-02A, the orthodontic mini-implant (IMO) is made of implant steel 1.4441 with biocompatible properties (bioactive bio-inert and bio-tolerate).

The screw is a simple piece that transforms rotational motion into translational motion. The screw consists in a core, helix and a head, which is the most important component of the screw operation. The head is exposed intraoral outside dentition and does not interfere with tooth movement. The head has a hook for attaching orthodontic forces. On the head screw direct forces are applied (spring, coil spring) or indirect (collation elements) between 200-400g. The screw head is differently shaped depending on the type of ligature applied, tensile direction, and three dimensional controls and has effect on stress distribution. Neck screw is a trans-mucosal part and screw body is a sub-periosteum component (Fig. 1).

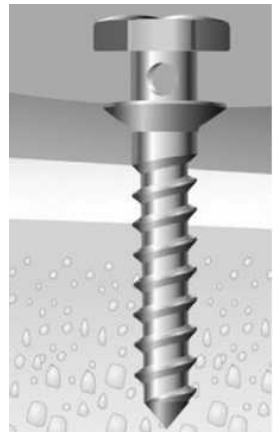

Fig. 1. Orthodontic micro-implant.

Screw length ranges from 5 mm to 12 mm and has an effect on stress distribution. Regular type of screw length is 5 to 7 mm from entering the bone implant interface and 1 mm - soft tissue (neck cylinder). Screw length of long type is 5 to 6 mm from entering the bone and 2 to 4 mm implant interface - soft tissue (neck cylinder). Choice of screw length is usually done on variable conditions after local soft tissue (fixed or mobile oral mucosa thickness measurement), where placement and direction to the bone insertion (diagonal or perpendicular direction).

Screw diameter is ranged from 1.2 mm to 2.7 mm and means the effect of stress distribution in bone. Choice of screw diameter is usually done after the inter-root distance, bone quality and placement are. The mini-screw type implant diameter is 1.4 mm in the center and 1.6 mm in the cervical area, and it is placed in the anterior alveolar area and can tolerate 150g of orthodontic forces. The regular screw type implant diameter is 1.6 mm in center and 2 mm in the cervical area and it is placed in the bone with adequate quality. The large diameter screw type implant is 1.8 mm in the center and 2.2 mm in the cervical area, and it is placed in the bone with poor quality and can tolerate 350g orthodontic forces [13].

THE SURGICAL PROCEDURE TO INSERT ORTHODONTIC MICRO-IMPLANTS

The surgical procedure of the insertion of orthodontic micro-implants must follow the principle of aseptic (instrumentation and ultrasonic or in autoclave sterilized implant), of non traumatic procedure (to avoid tissue necrosis), preoperative examination of implant placement (minimizing injuries in anatomical structures), the premedication for pain control (an analgesic and antibiotic one hour before) and the standard of surgical intervention. Depending on the type of the micro-implant and its placement, the best surgical procedure is chosen. In general, the standard surgery has five major stages: pre-operative examination (site selection, anesthesia and preoperative examination), marking the site of insertion on the gum, perforation of cortical bone, determining

the angle of implantation, the obtaining of implant stability in bone.

The insertion site is selected according to the anatomic conditions and biomechanical requirements and is confirmed by clinical and radiological examination. Local anesthesia is only needed to the site to be inserted, and less than 1/4 dental lidocaine ample per site is enough. Sometimes, only topical anesthesia is enough to insert on the attached gingival area. The effect of anesthesia does not need to be deep, only soft tissue and periosteum should be anesthetized.

The length of the micro-implant is chosen and it is bored periodontal. The horizontal and vertical reference lines on the gums are marked and it is perforated through the periodontal probe, the correct insertion point is set after the treatment plan and simultaneously it is measured the thickness of soft tissue. If insertion of the frenum is nearby, frenectomy will per carry out. If extraction is needed, the implant insertion will be done before the extraction [14].

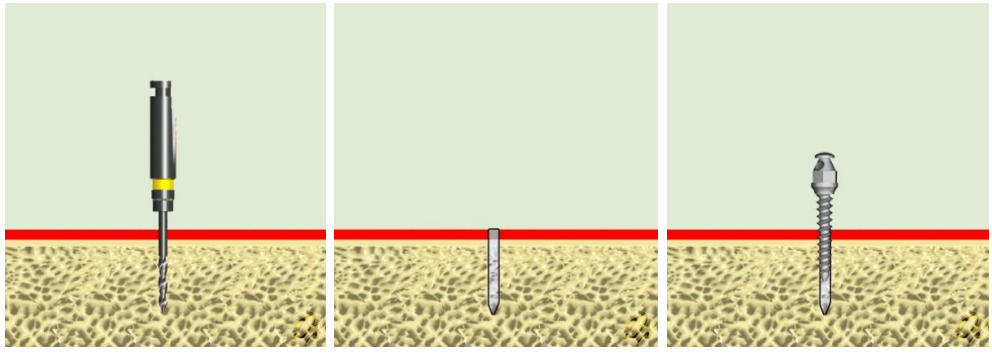

Fig. 2. Pre-drilling (self–tapping) method.

Drilling the cortical bone is the most important stage because it is the most resistant component of the micro-implant insertion. There are three methods of drilling cortical bone: the pre-tapped, self-tapping and self drilling. The pre-tapped method applies when using a small diameter micro-implant, to create a bone tunnel by drilling and the implant is inserted. Perforating the cortical bone it is used the surgical drill or the Orlus micro-implant. The Orlus surgical drill is 4 mm long and it is used in drilling cortical bone by pre-drilling method (self-tapping), and insertion of micro-implant with a minimal vertical force witch avoids fracture. Milling is done with a speed of 500-1000 rpm with intermittent rotations and irrigation with normal saline [13] (Fig. 2).

The drill-free (self-drilling) method is achieved by direct screwing the bone screw (Fig. 3). Drilling cortical bone with Orlus surgical drill reduces surgical trauma and eliminates the dental root injuries. Drilling the cortical bone by pre-drilling method is superior to drill-free one [14].

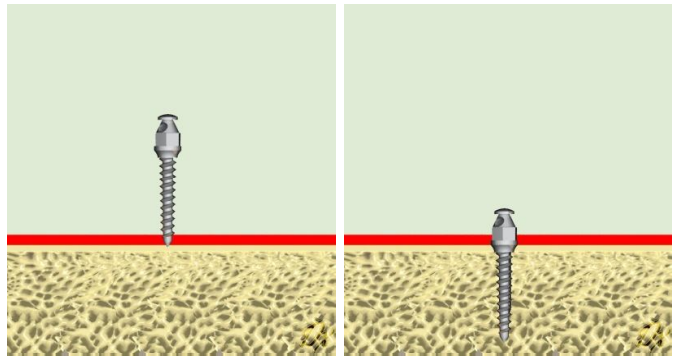

Fig. 3. Drill-free (self-drilling) method.

Insertion of the screw into the bone is done by an implantation angle with an oblique or perpendicular direction on the bone surface. After the method of insertion into the bone, the implant should be inserted into the bone by rotation with a minimum vertical force. Determining the angle of implantation varies by location and space between the dental roots.

Achieving implant stability in bone occurs at the end of the rotating screw driving, when it has sufficient depth and maximum bone contact and implant head is exposed above the gum tissue and thus vibration in the vertical forces are prevented. Applying force on the micro-implant varies from several minutes to eight weeks. Usually orthodontic forces are not applied immediately on the micro-implant.

MICRO-IMPLANTS PLACING IN VARIOUS CLINICAL AREAS

In the maxillary, micro-implants can be placed in the Infrazygomatic crest area, tuberosity area, between the first molar and second molars buccally, between the first premolar and second premolar buccally, between canine and premolar buccally, between incisors facially, in mid palatal area.

In the mandible, micro-implants can be placed in the retro-molar area, between the first molar and second molars buccally, between the first molar and second premolar buccally, between the canine and premolar buccally[14] (Fig. 4).

Fig. 4. Micro-implants placed in different areas.

CLINICAL CASE

Patient of 25 years with Class I Angle malocclusion and evolution towards Class III malocclusion with lower dental crowding, jaw left laterodeviation of the mandible, bilateral intercalate edentulous jaw and upper front conjunct prosthetics device (Fig. 5).

Fig. 5. Intraoral aspect.

With fixed orthodontic appliance, the lower arch was aligned (Fig. 6).

Fig. 6. Lower arch alignment.

Due to lack of distal mandibular left anchor (no molars), it was decided to use a micro-implant on the edentulous ridge. The insertion of the micro-implant technique was used for self-tapping method (Fig. 7).

Fig. 7. The kit and insertion of the micro-implant.

After 14 days, orthodontic forces were applied on the micro-implant to distalisation of the premolars and to correct the front reverse occlusion (Fig. 8).

Fig. 8. Application of chain elastic on the micro-implant.

FAILURES AND PROBLEMS

Failures and problems that may occur may be due to the screw (wrong choice, fracture, gingival infection, excessive application of force), the operator (applying excessive pressure screw, pushing the total bone screw, wrong implant angle, wide tunnel milling, septic technique, tissue damage or nerve root), the patient (low bone density, thin mucus, systemic diseases, anti-epilepsy medication, smoking excessive, mouth breathing, poor hygiene, radiation, diabetes, osteoporosis).

ADVANTAGES AND DISADVANTAGES OF THE MICRO-IMPLANTS

Micro-implants have numerous advantages: continuous power, the mechanism is simple, the results are the ones that are expected to be, time is reduced by 40% during treatment, reduced number of extractions and patient's cooperation is minimal.

Micro-implants have some drawbacks: high cost of micro-implant, failure 10%, problems in selecting patients with bone quality, micro-implant acceptance by the patient, the degree of education and culture.

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OCCLUSAL, DENTO-ALVEOLAR AND DENTAL CHARACTERISTICS IN CLASS II ANGLE DIVISION 1 AND CLASS II DIVISION 2 ANOMALIES

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Abstract:
The aim of the study is focused to: Identifying the dental, dental-alveolar and occlusion characteristics in the class II/2 subdivision and II/2 Angle subdivision and determining the differences between the two clinical forms.
Matherial and method. The study regarding the dental, dental alveolar and dental occlusion characteristics was carried out on plaster models of dental-alveolar arches in 62 patients orthodontically untreated, who were diagnosed with the class II/1 Angle malocclusion, class II/2 Angle, respectively, 40 females (64.5%) and 22 males (35.5%), with the age average of 10.4804 years and a standard deviation of 1.6939.
Results and discussion. The dental occlusion showed a large variability in all the three space directions, the sagittal rest position is significant for the class II/1 Angle subdivision, with a certain point, canine distal drift, thus confirming the opinion which became classic: the canine point is a more stable point than the molar point, justifying the clinician's orientation according to this point. The statistically relevant overlap and the data we achieved pertain to the class II/2 subdivision.
Conclusions. Awareness of the dental arch characteristics, of dental occlusion help establishing therapeutic objectives and evaluating, short-, medium- and long-term post treatment results.

Key words: class II/1 Angle subdivision, occlusion, orthodontic diagnosis, malocclusion.

INTRODUCTION

Establishing an orthodontic diagnosis and a treatment strategy means awareness of characteristics of a dento-maxillary anomaly, identification and quantification of modifications occurred at skeletal, dental and muscle level.

The dental arch is defined by two elements: size and shape[14,15]. The interest in the knowledge of this stomatognathic system sector is determined by: the interrelations establishing between the dental arch and the craniofacial structures [4,11], by the fact that the dental arch often reacts, compensating for the disequilibrium at the skeletal level and last but not least the interarch tooth-size harmony has consequences on the dental occlusion.

The conducted research[1,2] highlight the correlations between the facial pattern and the dental arch. Thus, the dolichocephalous shows a long and narrow face and the dental arcade is narrowed, while the brachycephalous has a shorter and wide face, and the dental arcade is larger. Several studies focused on studying the relation between the craniofacial structures and the size of the dental arch in the malocclusion subjects, finding that the maxillary dental arch in the class II/1 malocclusion is narrower in the dolichocephalous and larger in the brachycephalous, while the size and form of the mandibular arch is the same in all the three facial types (mesocephalic, brachycephalic, dolichocephalic).

Other authors followed up the characteristics of the dental arch by comparison to the class II/1 and class II/2 malocclusion, in the subjects not undergoing orthodontic treatments [5,6,7,8]. While Moorrees[5] finds intercanine distances in the maxillary and the mandible, larger than in the control, in class II/2 and smaller in class II/1, Buschang[6] et colab., Wallow[7] and collaborators, Peck[8] and collaborators find in their studies a smaller intercanine distance compared to the average.

Other researches focus on the characteristics of the dental arch in the class II malocclusion compared to the dental arch of children not prone to the dental-maxillary anomaly, highlighting almost insignificant differences [9,10,11]. In contrast therewith, Staley[12] finds larger intermolar and canine distances in the normally-developed children compared to those in the II Angle class.

The great diversity of the clinical forms within the Angle class II malocclusion explains the interest of researchers and clinicians in identifying the modifications of the dental arch in II/1 and II/2 Angle subdivisions as well as of the differences existing between the same. The researches conducted by Fulya[13] et al. find differentiations regarding the mandibular intercanine distance, which is smaller in the class II/2 subdivision. Hence, our study aims thereat.

PURPOSE

Identifying the dental, dental-alveolar and occlusion characteristics in the class II/2 subdivision and II/2 Angle subdivision and determining the differences between the two clinical forms.

WORK MATERIAL AND METHOD

The study regarding the dental, dental alveolar and dental occlusion characteristics was carried out on plaster models of dental-alveolar arches in 62 patients orthodontically untreated, who were diagnosed with the class II/1 Angle malocclusion, class II/2 Angle, respectively, 40 females (64.5%) and 22 males (35.5%), with the age average of 10.4804 years and a standard deviation of 1.6939. (fig. 1)

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As regards the frequency, according to the two subdivisions of the class II Angle, the distribution was: 35 subjects with class II/1 Angle anomaly (56.5%) and 27 subjects with the class II/2 Angle.

The impressions of dental alveolar arcades were performed by the same clinician, and the models were cast and processed by the same dental technician.

The clinical case was comprised in the study further to compliance with the following criteria:

1. lack of orthodontic treatment history;
2. presence of permanent teeth for the measurements points;
3. distal drift canine and molar reports for both study groups;
4. protrusion of incisor group, associated with sagittal inoclusion over 3-4 mm, without vertical open overlap, for class II/1 subdivision

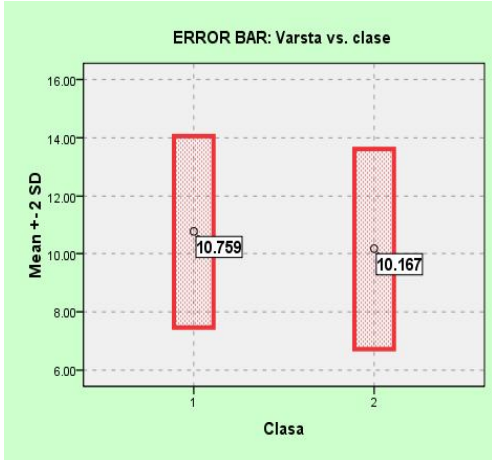

Fig. 1.

Fig. 2.

5. retrusion of incisor group (at least for the two central incisors) and a high overlap degree, for the class II/2 subdivision.

The measurements were conducted by two independent examiners, the differences being identified by a third examiner who also established the error average.

Used points and lines:

Points:

- the intersection of the two pairs of palatal rugae on the palatine raphe;
- mesial/distal point of the incisor's crown (at maximum convexity);
- point in the maxillary right/left intercuspidal pit P1;
- point central pit of M1;
- Prostion;
- The mandibular contact point P1-P2;
- The tip of the M1 mandibular central vestibular cusp;
- The intersection of the median line with the interpremolar line;
- The intersection of the median line with the line of the mesial faces line of M1;

Used lines:

For the maxillary and mandibular dental alveolar arch:

[1]. Median line;
[2]. Interpremolar line (P1 right/left);
[3]. Molar line (M1 right/left);
[4]. Premolar length;
[5]. Molar length;

Following measurements the following data were collected and tabulated:

I. – the mesial-distal diameter of the four maxillary, mandibular, respectively, incisors;

II.- the premolar diameter, the molar diameter, the premolar length, the molar length of the jaw dental arch and mandible;

III. – the depth of the palatal arch at M1 level.

IV. The dental occlusion was evaluated in the three space directions.

A number of 26 indicators were recorded; the ideal values for the width and length parameters of the dental arch were calculated and the differences between the measured and the calculated measures were performed.

V. The data basis was created in computer-based system. The statistical processing was conducted by using SPSS 16.0 (Statistical Package for the Social Sciences).

We used descriptive statistics analysis methods for the presentation of the two clinical forms, consisting of the analysis of the distribution's central trend and the variant or dispersion indicators.

In order to test whether there are statistically relevant differences between the values of these parameters, determined by the patient pertaining to class II/1 or class II/2 Angle, we priorly checked the

nature of the distribution of the tested parameters' value. If the values of the tested parameters observed the standard rule, we used the "t" test in order to analyze the differences between the two subdivisions and when the values of the tested parameters did not abide by the standard rule we used the non parameter Mann-Whitney Test.

RESULTS AND DISCUSSIONS

Dental characteristics:

Sum of incisor: it showed an average of 31,6210 with standard deviation of 2,04796; in class II/1 the value of the average was of 31,6143 and in class II/2 of 31,6296. (Fig.2). (Tab.1)

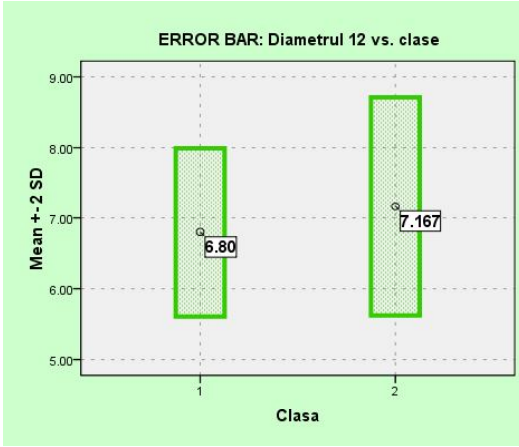

Fig.3.

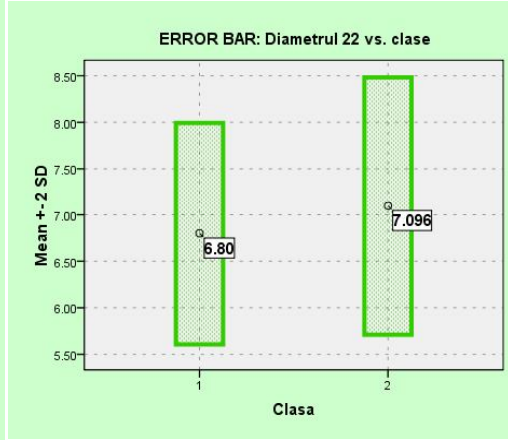

Fig.4.

Lateral incisor (12): it had an overall maximum diameter of 6,9597 with a standard deviation of 0,6971

In class II/1 Angle lateral incisor (12) shows 6,8 mm and in class II/2 7,1667.(Fig.3).(Tab.1)

The right lateral incisor (22) shows an overall average of 6,9262 with a standard deviation of 0,6508. In class II/1 the average was of 6,8 and in class II/2 Angle of 7,0962.(Fig.4).(Tab.1)

The central incisor (11) shows an average of 8,9194 for the entire batch, with a standard deviation of 0,58108, in class II/1 the value was of 8,9857, in class II/2 of 8,8333.(Fig.5).(Tab.1)

The central incisor (21), it has an overall average 8,9274 mm with the standard deviation of 0,5495. In class II/1, the average is of 9,000 mm and in class II/2 of 8,333 mm. (Fig.6).(Tab.1).

The tests show statistically significant differences between the class II/1 subdivisions and class II/2 subdivision, with regard to lateral incisor (12-22) (p=0,044), higher in class II/2 subdivision.

II. Characteristics of dental alveolar arch:

II1 a) width of the maxillary arch at premolar level – see Tab.1. The difference compared to the necessary value an average for the entire group of -4,5183, with a standard deviation of 3,4998; in class II/1 subdivision of the value of the average difference value was of -5,1886, and of -3,3747 in class II/2 with standard deviation of 3,5269 and 3,2369. In conclusion, the maxillary arch is narrowed at premolar level more in II/1 than in II/2.

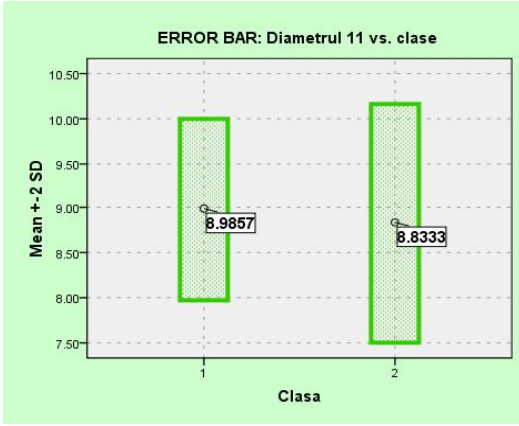

Fig.5.

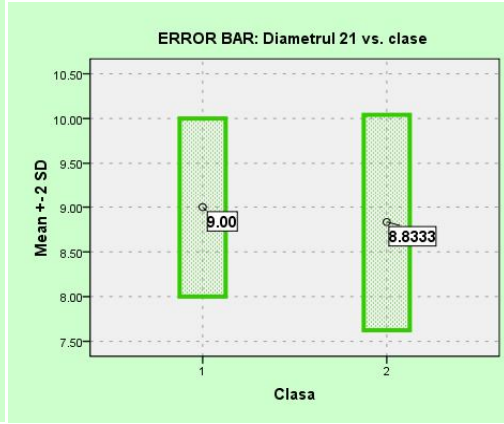

Fig.6.

Arch length at molar level

The global average of this parameter was of 45,9828mm, with a standard deviation of 2,8376; in class II/1 subdivision was of 45,3235mm and 46,9167mm in class II/2, with a standard deviation of 2,5904 and 2,9623.(Fig.7).(Tab.1).

The difference compared to the value ensuring the dental alveolar equilibrium is of -2,6988 overall, with a standard deviation of 3,9889; of -3,000 in class II/1 subdivision, respectively -1,8471 in class II/2, with standard deviations of 3,9541 and 3,9763.

II.1 b) the length of the maxillary arch at premolar level

The overall average of the arch length was of 18,9674mm, with standard deviation of 2,2494; in class II/1 the average was of 19,6552 and of 17,7941 in class II/2, with standard deviations 2,0402 respectively 2,1510.

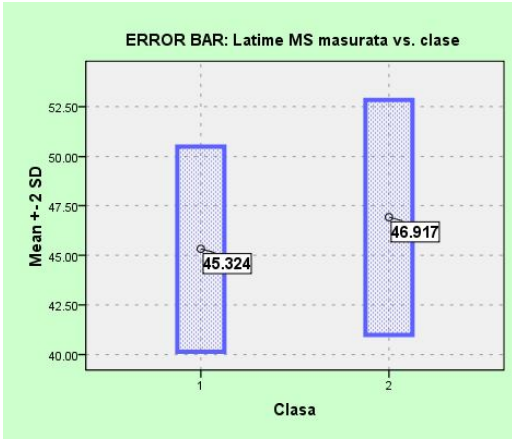

Fig.7.

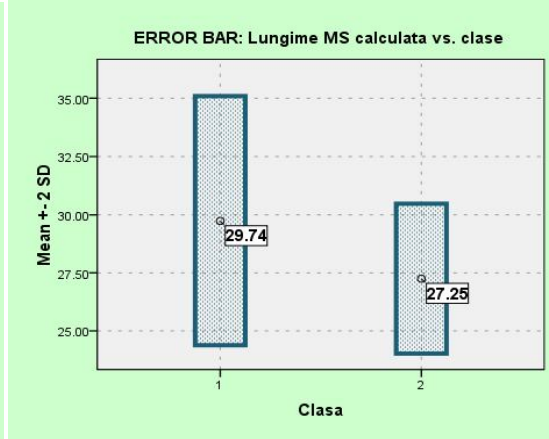

Fig.8.

The difference compared to the ideal value shows an overall average of 0,7598, with a standard deviation of 2,2390. in subdivision II/1 the difference was of 0,0031 and of -2,0506 in class II/2.

The arch length at molar level

The batch overall average at molar level was of 28,7069, with a standard deviation of 2,5939. Within the subdivisions, the average of 26,006 in II/1 and of 25,625 in II/2, with standard deviations of 2,6777 and 1,6151.

The difference compared to the ideal value is of 2,7805, overall, with a standard deviation of 2,7134. In subdivisions the average was of 3,5671 and of 1,663 in II/2 subdivision, with standard deviations of 2,7399 and 2,2945.

Statistically relevant differences are found between cls.II/1 and cls.II/2 Angle subdivisions at the molar width level (p=0,034); the arch is narrowed in class II/1.

Statically relevant differences are found between class II/1 and class II/2 Angle subdivisions with regard to the arch length both at molar level (p=0,005), and molar level (p=0,000); in cls.II/1 the arch is longer.

II.2 a) The width of dental arch at premolar level – see Tab.1.The difference compared to ideal value in the studied batch was of -1,491. In class II/1 subdivision it was of -0,9548, in class II/2 being of -2,3419, with standard deviations of 3,6244 and 3,8556.

The width at molar level – see Tab.1. The difference compared to the ideal value shows an average of 1,9186, with a standard deviation of 4,4781. In class II/1 the average difference is of -2,2562, and in class II/2 it is of -1,4290, with standard deviations of 4,6772 and 4,2423.

II.2 b) The length of mandibular arch at premolar level –see Tab.1.The difference compared to the ideal values is of -0,7751 for the overall batch, with a standard deviation of 1,9132. In the class II/1 subdivision, the difference of -0,3576 and of -0,8975 in II/2, with standard deviations of 1,7884 and 2,1488. The differences are lower between II/1 and II/2, with a *discrete shortening in II/2 at premolar level.*

The length of the mandibular arch at molar level – see Tab.1.The difference compared to the ideal value is of 2,0841 for the entire batch, with a standard deviation of 2,6358. In II/1 subdivisions the difference was of 1,6172, 2,6995 respectively in II/2 subdivision, with a standard deviation of 2,6559 and 2,5374.

The length of the dental arch at premolar level is statistically relevant p=0,004, lower in class II/2.

III. The depth of the palatal arch shows an average of 8,1441 for the entire studied group, with a standard deviation of 3,2043. In the II/1 subdivision, the average of the palatal arch depth was of 8,7941 and of 7,2600 in II/2, with a standard deviation of 3,3555, 2,8141, respectively.

With regard to the overlap degree, the differences are statistically relevant between II/1 and II/2, p=0,000, the highest overlap degree being in the II/2 subdivision.

The differences are statistically relevant from the point of view of the sagittal inocclusion, p=0,000, the highest sagittal inocclusion pertaining to class II/1.

The distal drift degree of the canine is statistically relevant between II/1 and II/2.

The results achieved by us highlight a statistically relevant difference between the class II/1 and II/2 malocclusion subdivision with regard to the dental system: the maxillary lateral incisor is higher in the II/2 subdivision than in II/1. Our data contrast to those achieved by Peck[8] et collab., who find in class II/2 malocclusion smaller teeth and normally-developed maxillaries. We consider the differences occurring between our and the results achieved by Peck[8] et collab. to be originating in the genetic background of each population, the fact that the teeth recognize a strong genetic control being known, the class II/2 malocclusion being one of the anomalies in whose etiopathogeny, the genetic factor has a prevailing role.

With regard to the differences found at the dental arch level, the batch we investigated shows a narrowed maxillary dental arch at molar level and elongated at premolar-molar level, in II/1 subdivision. Our data agree with the results achieved by

Moorrrees[5], Buschang[6], Wallow[7] and Fulya[13] et collab. At the same time they conform the research conducted by McNamara[16,17], who considers that in class II/1 malocclusion there is a cross component to be influencing the treatment algorithm.

From a therapeutic point of view, the conclusion regarding the narrowing of the class II/1 maxillary arch pleads for posterior maxillary expansion/disjunction, in order to be able to harmonize the dental arches for obtaining an eugnathic occlusion. With regard to the mandibular arch, it proves more stability compared to the maxillary arch, which is also highlighted in the studies of Kanashiro[3] et collab.,Kageyama[4] et collab. As in the studies of Fulya[13] et collab., a reduction in width and relevant of the premolar length is found, which is evidenced in the studies conducted by Pancherz et collab. We consider the shortening of the mandibular arch in the canine-premolar 1 region a consequence of the high overlap degree, which causes lower dentoalveolar retrusion and lower lip pressure in class II/2 malocclusion.

With regard to the palatal arch, we have not found a deep or very deep arch, which confirm the classical data (Dorobăţ, Stanciu[18]): the deep arch is not a patognomonic symptom for class II malocclusion, without excluding the possibility of the said phenomenon' existence.

The dental occlusion showed a large variability in all the three space directions, the sagittal rest position is significant for the class II/1 Angle subdivision, with a certain point, canine distal drift, thus confirming the opinion which became classic: the canine point is a more stable point than the molar point, justifying the clinician's orientation according to this point. The statistically relevant overlap and the data we achieved pertain to the class II/2 subdivision.

One item to be pointed out is the fact, that, generally, the development deficiencies occurred symmetrically.

The value of the identification and quantification of the II/2 subdivision characteristics are relevant in order to establish an accurate and complete diagnosis, to reach the therapeutic objectives and to evaluate the post treatment results.

Based on the results achieved the following **conclusions** could be drawn**:**

1. Statistically relevant differences are found between II/1 and II/2 subdivisions at the maxillary lateral incisor, (larger in II/2), as an expression of the genetic determinant.

2. The maxillary dental arch is narrowed and elongated in the II/1 subdivision. The mandibular dental arch is shortened in the posterior part (premolar length).

3. Statistically relevant differences are established by the dental occlusion, in the meaning that the II/1 subdivision show sagittal occlusion, while class II/2 shows a high overlap degree.

4. Awareness of the dental arch characteristics, of dental occlusion help establishing therapeutic objectives and evaluating, short-, medium- and long-term post treatment results.

Table I – Values of the dental parameters and of the maxillary/mandibular dental arch

PARAMETERS	AVERAGE VALUES / STANDARD DEVIATIONS					
	Average-batch		II/1 subdivision		II/2 subdivision	
	average	st. dev.	average	st. dev.	average	st. dev.
SI	31,6120	2,0479	31,6143	1,6719	31,6296	2,4868
Il (1.2)	6,9597	0,6971	6,8000	0,5965	7,1667	0,7721
Il (2.2)	6,9262	0,6508	6,8000	0,5965	7,0962	0,6931
Ic (1.1)	8,9194	0,58108	8,9857	0,5709	8,8333	0,66506
Ic (2.1)	8,9274	0,5495	9,000	0,5000	8,333	0,6044
Maxi L_1/L_2						
L_1 PM	34,500	2,5429	34,1034	2,7947	35,1765	1,93602
L_1 M	45,9828	2,8376	45,3235	2,5904	46,9167	2,9623
L_2 PM	18,9674	2,2494	19,6552	2,0402	17,7941	2,1510
L_2 M	28,7069	2,5939	26,006	2,6777	25,625	1,6151
Mand l_1/l_2						
l_1 PM	39,7683	3,3318	38,9200	2,8419	35,9688	3,3189
l_1 M	46,8571	3,4278	45,1810	3,8755	45,8771	2,7198
l_2 PM	16,9024	1,6553	17,1200	1,6411	16,5625	1,6720
l_2 M	23,7745	2,0719	23,4828	2,2459	24,1591	1,7954
Palatal arch	8,1441	3,2043	8,7941	3,3555	7,2600	2,8141

Key

SI = sum of incisors
Il = lateral incisor
Ic = central incisor
L_1 = width of maxillary dental arch
L_2 = length of maxillary dental arch
l_1 = width of mandibular dental arch

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OSTEOPLASTY OF THE MAXILLARY BONE DEFECTS THROUGH MENTALIS AUTOTRANSPLANTS

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Abstract: In this study we have used the method of osteoplasty of the alveolar processes by means of mentalis autotransplants. We have analysed and assessed this method in order to enable a bone pre-implanting offer. The authors of this study have applied this method on 14 patients (6 men, 8 women) aged 21-57 years old, during the performing of the operations. In this study the success rate of these operations has registered 71,43%. Relying on these data we can conclude that these methods are not perfect yet, therefore they require to be continuously studied.

Key words: autotransplantation, osteoplasty, mandible.

INTRODUCTION

Prosthetic rehabilitation of the patients by means of dental endosseous implants is one of the modern methods in the stomatological therapy. Due to the development of modern technologies of the implant manufacturing, improvement of the surgical methods of their placement, minimal complications, oral implantology extends its area of confidence among both doctors and patients Nowadays oral implantology has attained remarkable achievements, although a series of surgical, esthetic, biological problems is still unsolved. Among these problems, the extremely important ones are those caused by the bone atrophy [1, 2, 3]. Severe bone atrophy of the bone tissue sometimes causes difficulties at dental implants placement. Sometimes it is almost impossible to place them. In these cases doctors recommend to their patients, sometimes even insist on treatment by means of the mobile prostheses. These prostheses are hardly accepted by the majority of patients. Due to patients`demand and due to specialists`enthusiasm, nowadays severe maxillary atrophies are minutely studied in order to assess the implantologic treatment.

In the last years a lot of methods in the field of stomatological assistance were worked out. These methods comprise the osteoplasty of the alveolar process (xeno-, allo-, auto – or combined transplantation, bone expansion through „osteosplitting", controlled bone regeneration, elevation through augmentation of the nasal floor of the maxillary sinus – „sinuslifting", transposition of the mandibular canal, etc.). Their purpose is to increase the bone volume which is necessary for implantation [4,5]. In the study we will dwell on the method of osteoplasty of the alveolar processes with mentalis autotransplants.

Transplant – is called an excerpt of tissue or organ, transferred from a region (donor cite) to another (recipient cite) to remove the structural and/or functional defect. Autogenous bone transplant is so far the only sourse of osteogenic cells. It is considered to be „a golden standard" in oro-maxillo-facial reconstructive surgeries [3,6].

PURPOSE OF THE STUDY

To assess the method of osteoplasty of the alveolar processes with mentalis bone transplants for creation of the preimplantory bone offer**.**

MATERIAL AND METHODS

During 2006-2009 the authors of this study, by means of this method, performed operations on 14 patients (6 men, 8 women) aged 21/57 years in order to create a preimplantory bone offer. The mean age was 38.33 years. Creation of the bone offer at the level of the alveolar apophysis by means of bone grafts usage can be carried out by collecting them from different neighbouring donor cites: mentalis, ramus, the coronoid maxillary tuber, bone sawdust at milling. In this study we transplanted the bone from the mentalis region. As recipient area for osteoplasty of the alveolar processes was: mandible in 8 cases, of which 6 cases in the posterior region, while in 2 cases in the anterior region; maxilla in 6 cases, of which 2 cases in the anterior region, while 4 cases in the posterior region.

Surgical technique

Anesthesia can be local, enhanced local or general one. In our study 10 patients were subjected to local anesthesia, 2 emotional patients received enhanced local anesthesia, while 2 other patients underwent general anesthesia due to a massive intervention. Thus, anesthesia will be chosen depending on the duration and amplitude of the intervention, as well as the patient's desire.

Intraoperatory hemorrhage was diminished through infiltrative anesthesia of the soft tissues from the region of intervention, by means of anesthetic solution containing vasoconstrictors.

Access. Two techniques of incision can be used in the dental region both in the donor cite and in the recipient one:

1. Incision through the gingival sulcus requires more prolonged time, more delicate manipulations to protect the edges of the flap and papillae. This access is less traumatic due to maintainance of the integrity of the periosteum and muscles. Subsequently, an insignificant manifestation of the edema and post-operatory pain is recorded.

2. Incision through the vestibular access is done directing it 5 mm apically from the region of the keratinized gum by sectioning the mucous membrane, muscles and periosteum by a movement. In the edentulous regions the incision is done on the alveolar ridge in the region of the keratinized mucous membrane. Some other vertical incisions will be done to mobilize the flap towards the vestibule in order to prevent impairment of the soft tissues during the surgical manipulations. Lifting of the mucoperiosteal flap will be carried out carefully, through exposure of the bone relief and the neighbouring anatomical formations initially of the recipient cite, then of the donor cite.

The recipient cite will be the first examined to determine the size of the defect or the degree of atrophy and the bone volume necessary for the transplantation. The assessment will be carried out by means of a ruler or through modelling a foil pattern and its transfer on the bone surface of the donor cite.

Taking the transplant. Milling of the cortical-spongy graft is carried out by means of the cylindrical mills, according to the transferred pattern. It is compulsory to do the irrigation with the antiseptic solution or physiological serum to prevent bone combustion. The bone graft is detached by means of a chisel and a hammer. To prevent the impairment of the anatomical formations we will comply with the „5" figure rule [3], which consists in placing the site of the osteotomy 5 mm below the apex of the tooth roots, 5 mm medially the vasculonervous mentalis bundle, 5 mm upper the basal edge. We enlarged the obtained defect with the alloplastic material „Colapol CP-3LM".

Adjustment and fixation of the transplant. The bone graft has to be adjusted as well as possible in the recipient cite to obtain a maximum surface of contact. Rigid fixation of the transplant

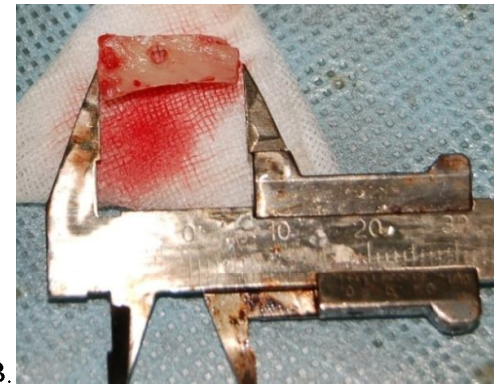
will be done by means of one or two screws.

To stimulate the osteointegration of the transplant, compactosteotomy in the cortical area of the recipient lodge will be carried out before its fixation. The bone sawdust collected during the milling or the spongy one from the donor cite combined with the alloplastic material (Colapol CP-3LM, or Tricalciufosfat) will replace the defect and will outline the relief of the alveolar ridge. The protection membrane is applied.

Wound closure. Suturing has to be done hermetically. To exclude the flap tension we have carried out periostomy of mobilization. The wound is sutured in the recipient cite, then in the donor one, using non-traumatic wire Nr.4-5. The needle is preferred to be round in section.

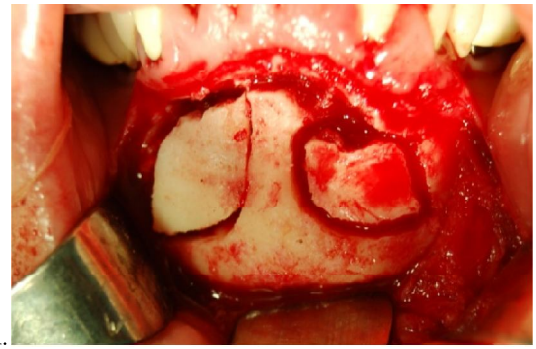
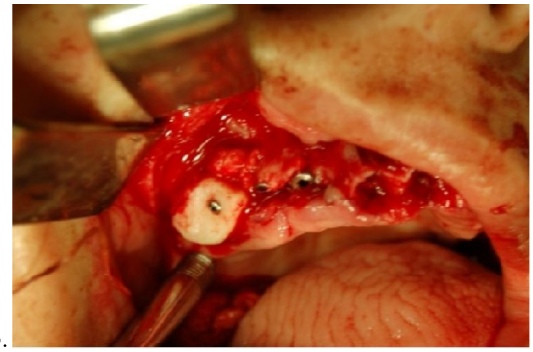
RESULTS AND DISCUSSIONS

The bone volume obtained from the mentalis region was different in those 14 patients, taking into consideration their anatomical peculiarities, presence or absence of the teeth in this region. We will collect a regular shaped transplant with a moderate volume in the dentulous patient, if we stick to the „5" figure rule (Pic.1).

A.  B. 

Pic.1. Volume of the mentalis transplant in patient V is 17 x5x6mm. A. Donor cite. B. Assessment of the bone volume

According to the bibliographic sources [1,3] the mean dimension of the mentalis cortico-spongy transplant is approximately 20,9x9,9x6,9 mm. A bigger volume will be collected from the edentulous patients or from those with concomitant diseases [7]. Ex.: One patient was diagnosed with Chronic Granulomatous Periodontitis of teeth 43,42,41,31,32,33. We combined the collection of the mentalis transplant with the operation of „Apical resection of teeth 43,42,41,31,32,33". Thus, we did the osteotomy line upper, obtaining a bigger bone volume (Pic.2).

A.  B. 

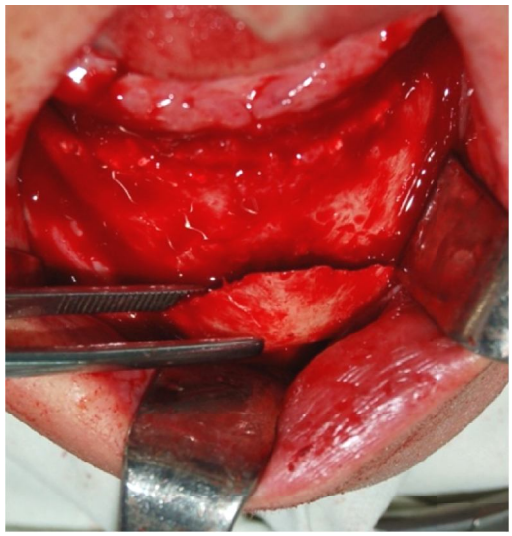
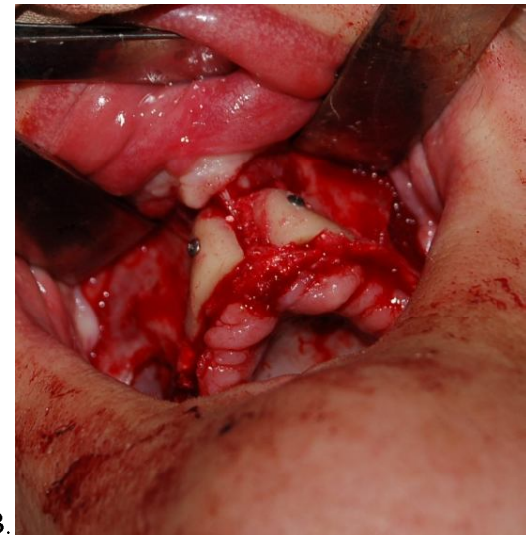
Pic.2. A bigger volume of the mentalis transplant was obtained through combination of osteotomy for its collection with the operation „Apical resection of the frontal teeth on the mandible". A. Donor cite. B. Maxilla – recipient cite.

Another patient with diagnosis „Mandibular prognathism" underwent the operation "Modelling resection of the mentalis prominence", thus, being obtained a bigger volume of bone (Pic.3). Maxillary osteoplasty was carried out in both cases, they requiring transplants with a bigger volume of bone.

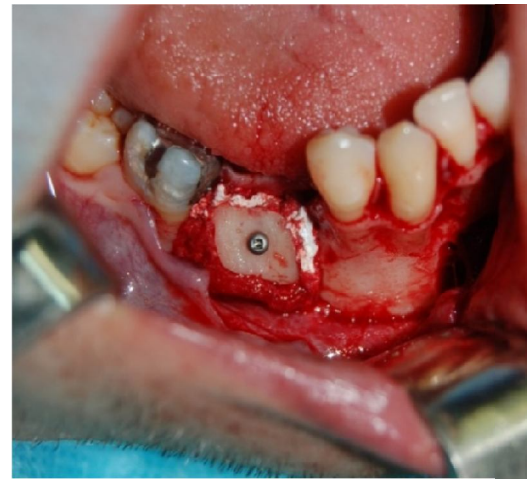
In other cases the transplant dimensions were correlated with the size and shape of the defect. In small defects, the size and shape of the obtainend transplant will correspond as close as posible in order to adapt them more presicely, increasing the surface of transplant – bone contact (Pic.4).

10 patients have reported insignificant post-operatory pain which required analgesics. Of these 10 patients, 6 patients had pain in the recipient cite, 2 patients - in both regions, 2 patients had pain in the donor cite, while 4 patients did not have a painful syndrome. In all patients the post-operatory edema was moderate and it did not cause any discomfort.

Speaking about intra-operatory and post-operatory complications we would like to dwell on a frequent subject of discussions in the medical literature, regarding this theme [1]. The high advantages osteoplasty with autotransplants is opposed to a high frequency of complications. According to the data of ofther authors [2,3] the success rate in these operations is approximately 81-97%, while in our study it constitued 71.43%. These contradictory data have proved that these methods are not perfect yet and they require a continuous study.

A.  B. 

Pic.3. Operation « Modelling resection of the mentalis prominence » enabled us to obtain a bigger bone volume. A. Donor cite. B. Maxillary area – recipient cite.

A.  B. 

Pic.4. The mentalis transplant corresponds to the defect according to its dimension and shape. A. Donor cite. B. Recipient cite

In our study the intra-operatory complications (teeth damage, impairment of the vasculonervous bundle) have been avoided. Post-operatory complications were the following:

Diffuse haematoma was recorded in one case. This complication did not present any danger. It was a complete resorption (Pic.5A). The wound dehiscence (Pic.5B) with suppuration in the recipient cite in the 7th post-operatory day was recorded in 3 patients on the mandible and in 1 patient on the maxilla. Despite the thorough antiseptic care, we were forced to remove the transplants in these 4 cases. The cause of the wound dehiscence after the operation was the

insufficiency of soft tissues for covering a bigger volume of transplanted bone.

Periostomies carried out to mobilize the flap were not sufficient for their tensionless suture. The flap's thickness below 2mm was not sufficient either. There were no complications in other 10 cases, the recovery was good.

A.  B. 

Pic.5. Post-operatory complications. A. Diffuse haematoma. B. Wound dehiscence

The advanced resorption of the transplants occured in those 4 cases of wound dehiscence. In the rest of 10 cases, at the stage of implantation in 4-6 months, there was no significant resorption of the transplants. This method enabled us to obtain an increase of the bone offer horizontally, from 2mm before theoperation to 6mm after 4-6 months. There was also assessed a vertical bone growth of 2 mm, in 2 patients on the mandible and in 1 on the maxilla.

CONCLUSION

Having analysed the obtained results we can state: mentalis as a donor cite is favorable due to efficacy and security of the manipulations in this region; an average volume of bone can be collected from the mentalis cite; the mentalis area represents a well visible operatory field sufficient for surgical manipulations; there is insignificant post-operatory pain; absence of skin scars.

The advantages are: simplicity of the procedure, minor probability of septic complications, foreseeable result, reduced cost of the materials.

Disadvantages: a significant resorption of the transplant is possible, reduced possibilities in vertically increase of offer.

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Vol. 1, No. 2, April 2009

THE FIRST INTERNATIONAL CONGRESS OF THE ROMANIAN ASSOCIATION FOR EDUCATION THE DAYS OF DENTAL MEDICINE, IASI-CHISINAU

The first Congress of the Romanian Dental Association for Education, which is a member of the Romanian Medical Association, of the European Dental Association for Education, as well as of the Confederation of the Partial or Total French Origin Deans was organized between 1-4 of April and reunited academic spirit with practical preoccupation and international character due to the partnership with the Faculty of Dental Medecine from Chisinau.

The first day of the Congress was dedicated to the official opening of the Moldavian scientific event, when two academic conferences were held namely "The Physician Status in the Romanian Society" delivered by the Sc D and University Prof and Rector Vasile Astarastoaie and "France-at the Core of Our Identity" –ScD and University Prof Dan Haulica.

At the festive opening were also present official members of local administration and cultural life such as the prefect Viorel Lupu, the deputy mayor and engineer Gabriel Grigore, the president of the Public Health Department of Iasi, Vasile Cepoi, as well as the representatives of Arabian, American and French Cultural Centres.

The symposium entitled "Francophone Influences in Romanian Academic Life" was held on the same day and reunited on common ground representatives of French National Academy of Dento-Alveolar Surgery such as Professor Pierre Laforgue, the President of the French Academy 2008, Prof ScD Marysette Folliguet 2009, Professor Phillipe Pirnay, member of the French National Academy of Dento-Alveolar Surgery, the general secretary of the French Odontologic Comission of Ethics Michel Jourde, the secretary of the French National Academy, with well known representatives of the Romanian academic life namely academician Balaceanu Stolnici, professor Constantin Ionescu Targoviste, academician Dan Haulica, academician Cristina Glavce.

Such events successfully combine academic presence and scientific spirit. The symposium "Francophone Influences in the Romanian Academic Life" reunited both and highlighted the presence of the eternal francophone spirit in the academic life. It was an opportunity for the Romanian Academy to benefit from the presence of great personalities of the French Academy, continuing the tradition of the French presence in the Romanian spiritual life and to point to the Romanian presence in the French cultural life as well.

The topics developed during the event bridged the French and Romanian academic spirit and contributed to the development of French –Romanian medical collaboration (Sc D and University Prof Constantin Ionescu Targoviste), focused on the aspect of medical privacy policy viewed in the light of the use of medical informatics (Sc D and University Prof Vasile Astarastoaie), and presented detailed dental aspects of antropogenesis (academician Balaceanu Stolnici). There were also presented the aims of the French Academy of Dento-Alveolar Surgery (Pr.Pierre Lafforgue), organizational aspects of orodental health (Pr.Marysette Folliguet). Important aspects approached during the symposium were the Rapport of the French Academy of Dento-Alveolar Surgery with respect to articulary protheses (Pr. Yves Commissionat) and a survey of 50 years of anthropological and dental research developed at the Romanian Academy Institute Francis Rainer (academician Cristina Glavce)

An element of novelty was the great number of hands on and live interventions highlighting the organizers, preoccupation for the practical aspects of our activity and meeting the 600 participants, expectations.

The new manner of addressing, reuniting conferences held by outstanding personalities of European Stomatology, practical demonstrations in each aspect of dental medicine and live interventions presented by means of telemedicine linked practice and theory in dental medicine.

Live interventions were focused on implanto-prosthetics and implant application and were developed at the section of implanto-prothetic rehabilitation of the Clinical Educational Base from the Dental Medicine Faculty. The video transmission equipment allowed for a detailed, interactive and real time transmission.

The practical impact of the method was focused on in the answers to the participants, questions asked during the intervention contributing to problem clarification in a manner different from the other already existing ones.

The hands on provided for the possibility of practical demonstration in endodonty, gathering data on the treatment of curved canals by means of flexible Protaper and the use of Zeiss microscope and focusing on the implant prothesing stage by using MISS implants and the new types of Pentamix automatically mixed polyeteric materials. They paid special attention to surgical techniques of implantology and to means of using BIO OSS and BIO GIDE membranes.

Another original element was the international character of the Congress, which was organized in partnership with The University N T from Chisinau, the result of a collaboration started long time ago, and the starting point for new future common directions of research based on international research projects ,aspect which were discussed during the Congress held at Chisinau.

The scientific presentations held during the congress were reunited in a volume dedicated to this scientific event as a supplement of the Medico Surgical Magazine which includes over 100 scientific works.

The 51 lectures held by important names of national and international dental medicine , the over 100 oral communications delivered on each clinical aspect of dental medicine the over 40 posters , 5 hands on and 3 firm presentations , round tables on radiological and legislative aspects of dental medicine provide an accurate image of the importance of the scientific program and of the congress dimension as it included the presence of 50 foreign guests, all prestigious names in dental medicine and academic life. All these aspects make from this event a real landmark in the field.

Professor Norina Forna
Dean of Faculty of Dental Medicine,
„Gr. T. Popa University of Medicine and Pharmacy

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- Select appropriate crown and trial fit.

Crown Preparation:

- Seat crown on preparation. Mark gingival contour using a pencil. Remove crown and trim 1.0 mm below line using a 3M™ ESPE™ Crown Scissors, bur or stone.


1

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2

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3

- Line crown with acrylic or resin material to enhance fit and extend wear.


4

1 of 2

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5

- Seat crown on moistened preparation. Allow provisional material to set according to manufacturer's directions.

6

- Remove from mouth and trim to finish line using a carbide bur. Smooth and polish as required, using 3M™ ESPE™ Sof-Lex™ Finishing and Polishing Discs and rubber wheel.

7

Crown Cementation:

- Mix cement and fill crown, assuring voids are not present in cement.

8

- Seat crown and allow cement to set. Remove excess cement with scaler or explorer. Floss interproximal areas.

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