NON-INVASIVE METHODS OF PARACLINICAL EVALUATION OF THE YOUNG PARTIALLY EDENTED PATIENT

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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 paraclini-

cally 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.

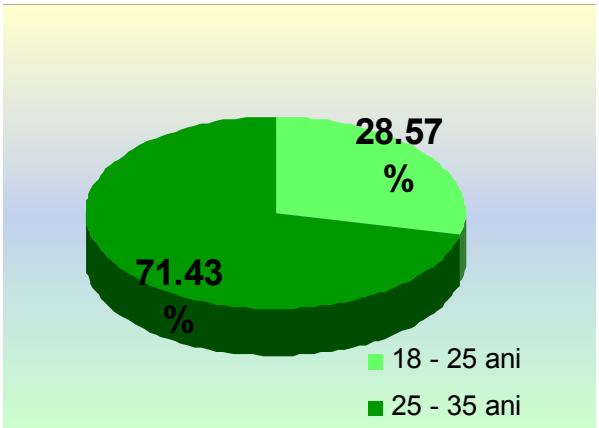

Fig. 1. Graphic representation of the group structure on age intervals.

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.

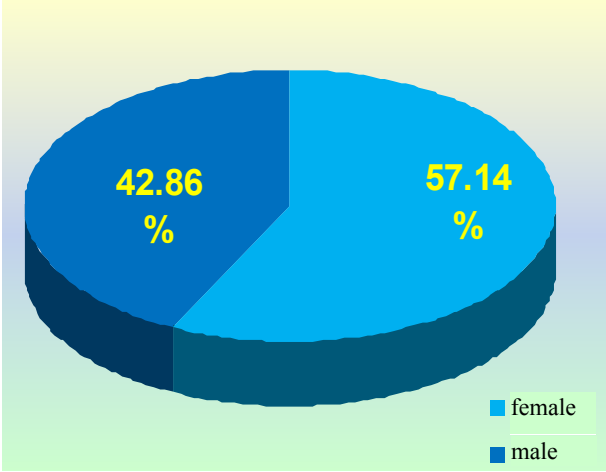

Fig. 2. Graphic representation of the sex structure of the group.

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.

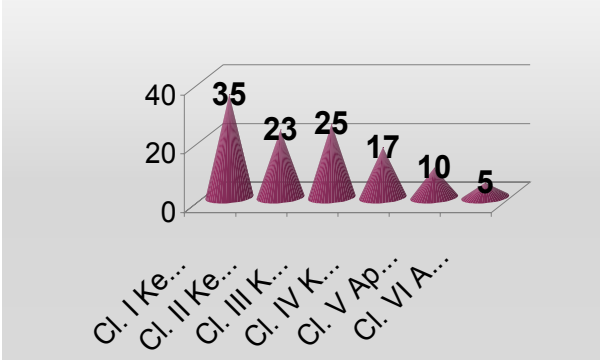

Fig. 3. Distribution of the group on various classes of edentation.

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 regards 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.

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 symptommatology) 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.

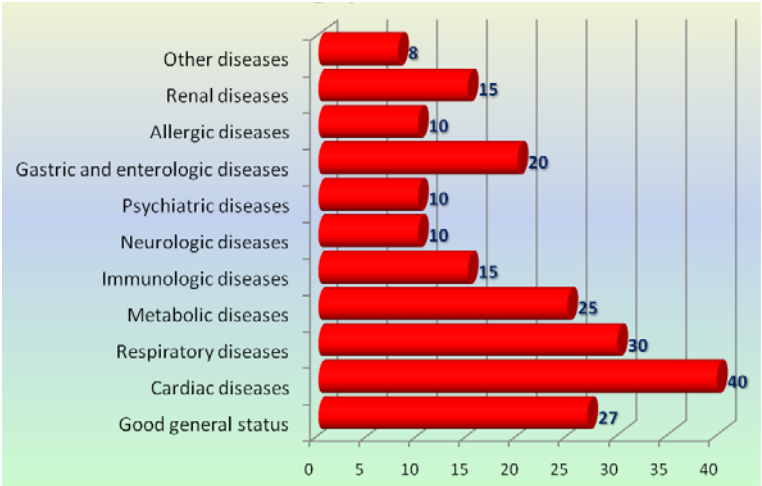

Fig. 4. The structure of the group on affections recorded through thermographic evaluation.

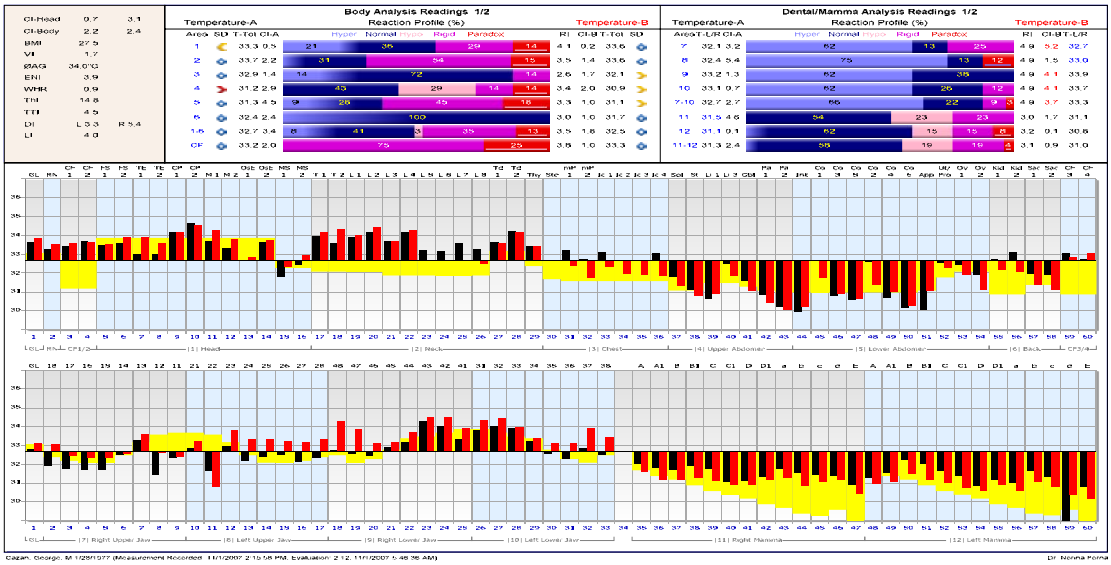

Fig. 5. Thermogram for patient S.M.

Fig. 6. Orthopantomography for patient S.M.

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).

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).

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

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).

Fig. 7. The therapeutic solution chosen.

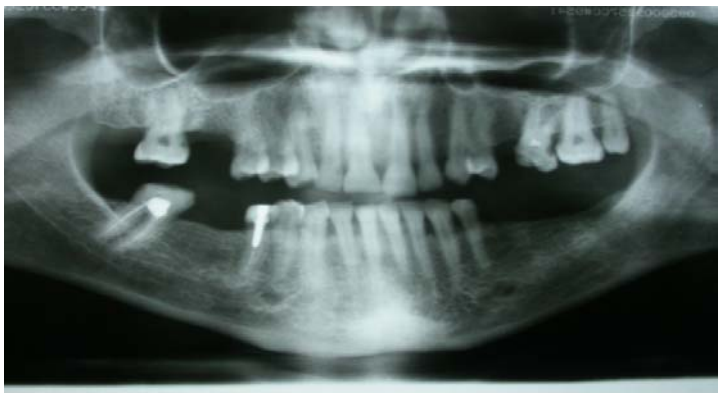

Fig. 8. Orthopantomography patient T.F.

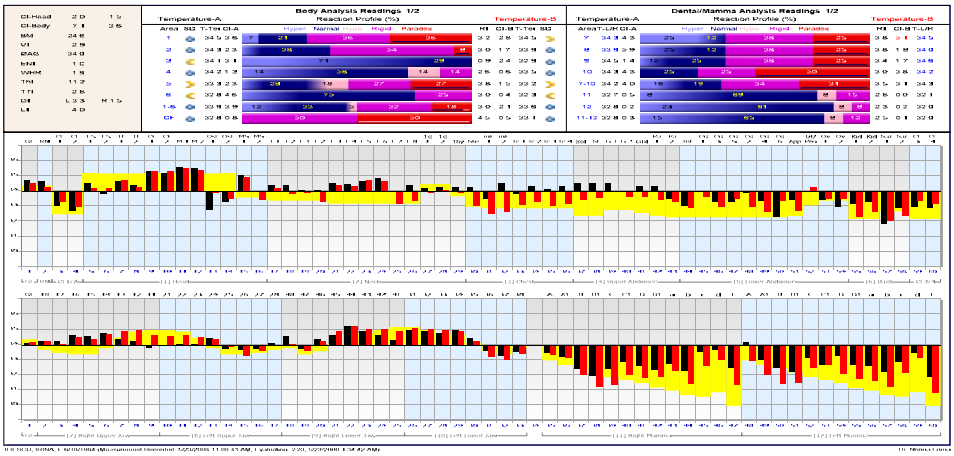

Fig. 9. Thermogram patient T.F.

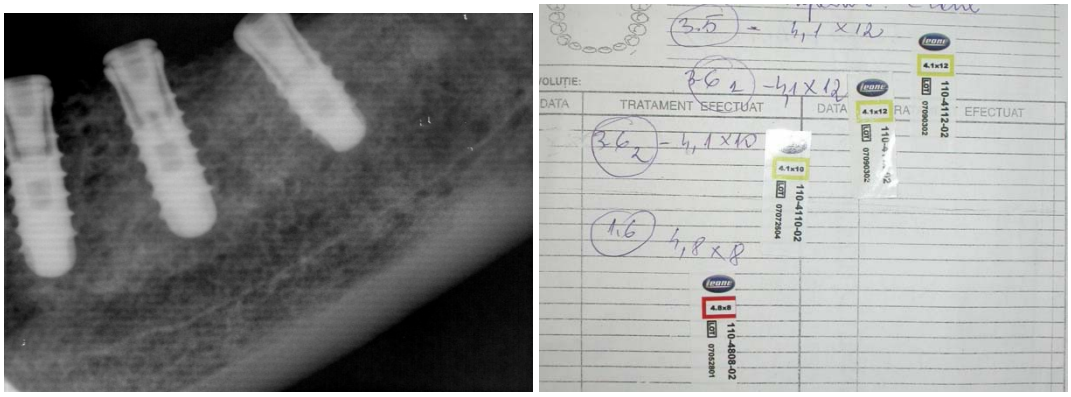

Fig. 10. Aspect of osteo- and periintegration of implants.

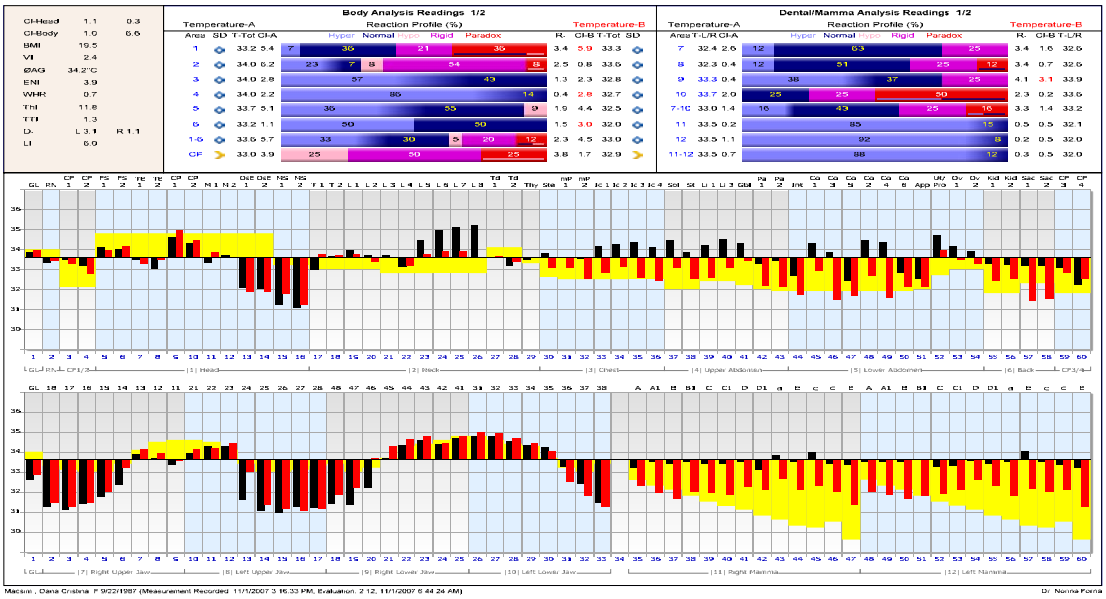

Fig. 11. Thermogram control patient T.F.

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.

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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