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Turbulence Laser Medicine and Treatment of Pathological Changes in TMJ due To Trauma From Occlusion

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ABSTRACT

Introduction: *Pathological changes in Temporomandibular joints (TMJ) due to Trauma from Occlusion cause various symptoms of pain, difficulty opening of the mouth, deviations of the mandible, subluxation and luxation, etc. Trauma from disturbed Occlusion leads to a functional deficiency of TMJ, which is accompanied with Neuromuscular and Somatosensory pathology. Electromagnetic energy of laser light has some typical properties which allow abilities to control the severe and chronic disorders in TMJ.*

Goal: *The present clinical research aims to introduce new algorithms for diagnosing complications after Trauma from Occlusion and their impact on the function of TMJ. The aim of this original biomedical, translational and clinical study was to analyse the real effect of combined therapeutic program in depth and basing on clinical observations to suggest new approach guaranteeing high therapeutic efficacy of TMJ Turbulence laser therapy.*

Material and methods: *The method of building models of clinical situations and then classified them into categories of compensative models has been applied. Electromyographicactivity, energy metabolism and the state of increased activity of masseters, as well as TMD diagnosis and therapy, Acugraph meridian energy analysis have been investigated. Approbated Methods for Turbulence Medicine: PDT +TENS, PIFBM, LA and TENS.*

Results and conclusion: *Laser-assisting treatment of TMJ disorders has a high degree of therapeutic efficacy and can be applied widely in daily dental practice. Best results can be obtained by the combined processes of laser photobiomodulation.*

Keywords

Neuromuscular and Somatosensory TMJ pathology, Turbulence Laser Therapy, Models of Clinical situations in TMJ Disorders.

Introduction

Turbulence Laser medicine (TLM) is a non-invasive photodynamic therapy, which is characterized by a turbulent acceleration of the photobiomodulation in the human body, thus achieving excellent healing effect for short periods of time. This new type of modern medicine can be used in all areas of Dentistry such as Myofascial Dysfunctional pain syndrome and Occlusal trauma - pathology ,orthodontic abnormalities, pain reduction (acute and chronic, visceral and neuralgic), biological treatment of dental pulp, periodontal pathology-osteoporosis and bone lesions, teeth mobility, maxillofacial surgery, migraine neuralgia and oral galvanism.[1-3].

It is well known that the high therapeutic efficacy of TLM is achieved by resonant synergistic interaction on soft tissues and hard dental substances of identical and symmetrically coupled oscillators generating light with a specific wavelength of the electromagnetic light spectrum. Semiconductor emitters and High energy crystalline sources of coherent laser radiation are most commonly used in a synergistic combination. The basic principle of turbulent photobiomodulation is the choice of the type of synchronization in the system of synergistic laser sources. The most often preferred turbulent situation is when one part of the system is symmetrically synchronized, while the rest is incoherent.

The high therapeutic efficacy of TLM is due to the resonant aggregation effect of a coherent emitter system (Semiconductor lasers and High energy laser systems) as well as non-coherent LED emitters (cluster probes) in a synergic union. TLM has a very high healing efficiency when ideal cohesive flicker (transition state) is coupled with incoherent oscillation. The choice of resonance frequency and the determination of the magnitude of coherence are two consecutive treatment steps characterized by an uneven frequency response on human hard and soft tissues and thus creating a unique turbulent rotation of synergistic coherent and non-coherent radiation, rapid photoinitiation, activating and accelerating the photobiomodulation process [1-8].

Subject of this perfectly new type of resonant initiated TLM is photon diagnostics of tissue reactions and synergistic guidance of chaotic, non-coherent and ideal coherent radiation in a system of semiconductor and high-energy lasers coupled to the target of irradiation.The aim of this original biomedical, translational and clinical study is examination of the mechanisms of influence and healing efficiency of TLM in acute and chronic inflammatory processes provoking TMJ functional pathology. The main goal of this original biomedical, translational and clinical study was to analyse the real effect of own combined therapeutic program in depth and basing on clinical observations to suggest new approach guaranteeing high therapeutic efficacy of TMJ Turbulence laser therapy.The main objective was clear diagnosis and recommendations for treatment. In order to achieve the goal we had to solve the following tasks:

- To create a scientific hypothesis about mechanisms of turbulent laser flow in human body.
- To conduct a clinical study on therapeutic effect of several methods of PDT–Low Energy PDT, High Energy LT or combined methods.
- To build our own comprehensive TLM treatment program to ensure successful healing of TMD, thereby favorably influence of pain syndrome, inflammation and active muscle contractions for to achieve neurosensory regulation and muscle relaxation of the affected areas.
- The main task of this clinical experimental work is to create a new algorithm for control the turbulent activity of the system by symmetrically coupled laser sources with different wavelengths so that the efficiency of laser tissue effect increases.

Main body

Material and Methods

During the last six years we had completed clinical trials based on the criteria of the American Academy of orofacial pain, including the medical history of the patient, neck and jaw muscles palpation, as well as palpation of the side and rear aspects of TMJ, auscultation sounds registration and digital ortopantomograph analysis. The study over the 600 patients (300 women and 300 men), mean age of 47 years was developed. Patients were selected on the main clinical sign of TMJ pain selected in four Clinical criteria of compensation models). They were also divided into four main groups according to the type of the method of PDT. Each group was consisted of 150 people. The main groups were divided into two subgroups - working group (75 men, 8% of 600) and placebo control group (75 men, 8% of 600). Of Table 1 reflected the distribution of patients into groups according to the applied methods of PDT [2-8,10-15,18-25,32,33].

METHOD	LELT = TENS		PIPBM		LASER BIOSYNERGETICS		CTP	
	FEMALE	MALE	FEMALE	MALE	FEMALE	MALE	FEMALE	MALE
WORKING GROUP	37	36	41	42	37	40	38	39
CONTROL GROUP	38	39	34	33	38	35	37	36
PATIENT'S NUMBER	75	75	75	75	75	75	75	75
TOTAL	150		150		150		150	

Figure1: Distribution of patients by group depending of Treatment approach used.

Patient's groups

The first group included 150 patients, of which 75 comprised the working group and were treated with LELT - LA with laser beam in red electromagnetic spectrum in combination with Electro TENS Trigger Point therapy. The remaining 75 people were treated off probe and they studied the placebo effect. In the second group, the number of patients is the same as shown in the table as the patients in the control group were treated by the method of Photo infrared photobyomodulation (PIPBM). Patients in the control group of the third main group were treated by the method of laser byosinergetics and bioenergetics, and patients in the fourth control group we applied our own comprehensive treatment program (CTP).

Laser machines, used during the study - Low-energy diode laser system - Six Touch Screen, Plovdiv, Bulgaria - red tube (wavelength λ = 680 nm, output power - 30mW, continuous operation CW, coherent light), infrared probe (λ = 904nm, output power - 18W, pulse mode to 4000Hz, coherent light) multidiode laser magnetic head, (λ = 904 nm infrared coherent light output - 18W, non-coherent light sources - 3 LED - λ = 830nm, 3 LED - λ = 740 nm). High power diode laser system - Six Lancet, Plovdiv, Bulgaria - λ = 980nm, output power - 7W.Ured to conduct TENS, Plovdiv, Bulgaria, 16 Hz.

Methods applied - 1. LELT - TENS - red surface LA, Six Touch Screen, - red tube (wavelength λ = 680 nm, output power - 30mW, frequency - 20Hz, exposure time to 20 " in the distal acupuncture points (APP) - R1, RP6, E36, F8, GI4 , GI11 and 40Hz, 40 " in facial APP as: TR22, IG18, E6, GI19, T27, J17. LA has held at symmetrical points on the right and left, closing on two unifying meridian - front and rear middle meridian. Next stage was TENS with 16 Hz, in trigger points, exposure time of 15 " in each symmetrically right and left. Procedures were performed two or

three times a week, and the number of visits was between 8 and 12. Preferred optimal dose was 8 - 12, 5 J / cm ². Figure 2, Figure3.

LLL Six Laser TS (Bulgaria)	
Red Laser diode: GaAlInAs Wavelength: λ=658nm Laser emitting power: P=30mW Operating mode of the laser diode: Modulated Duty cicle: 50% Frequency modulation : f=20Hz P_{av}=15mW Size of the area (collimator ⌀3mm): S=0.07cm² Time: 20s Energy density: E=4.2 J/cm²	Red Laser diode: GaAlInAs Wavelength: λ=658nm Laser emitting power: P=30mW Operating mode of the laser diode: Modulated Duty cicle: 50% Frequency modulation : f=20Hz P_{av}=15mW Size of the area (collimator ⌀3mm): S=0.07cm² Time: 40s Energy density: E=8.2 J/cm²
Red Laser diode: GaAlInAs Wavelength: λ=658nm Laser emitting power: P=30mW Operating mode of the laser diode: Modulated Duty cicle: 50% Frequency modulation : f=40Hz P_{av}=15mW Size of the area (collimator ⌀3mm): S=0.07cm² Time: 20s Energy density: E=4.2 J/cm²	Red Laser diode: GaAlInAs Wavelength: λ=658nm Laser emitting power: P=30mW Operating mode of the laser diode: Modulated Duty cicle: 50% Frequency modulation : f=40Hz P_{av}=15mW Size of the area (collimator ⌀3mm): S=0.07cm² Time: 40s Energy density: E=8.2 J/cm²

Figure 2: Technical parameters of Low Level Laser machine "Six Touch Screen" (Bulgaria)–Red tube.

Figure 3: Low Level Laser machine "Six Touch Screen" (Bulgaria).

PIPBM-LA, Six Touch Screen, infrared probe (ʎ = 904nm, output power - 18W, pulse mode, 40Hz, 40 "distant in APP of general significance for the organism - RP6, E36, GI4, GI11 and 60Hz to 100 Hz, 1 ' in facial points - IG18, E7, E3, TR20, TR22, GI19, T27, J17, bilaterally symmetrical. PIPBM also involved multidiode (cluster) laser magnetic head - probe, (ʎ = 904 nm infrared coherent light; output power - 18W, non-coherent light sources - 3 LED - ʎ = 830nm, 3 LED - ʎ = 740 nm), which we had fixed on temporomandibular joint area and irradiated bilaterally symmetrical using 1 ' exposure time in each field. Number of visits 4-8, twice a week. Between every 4 exposures, we chose tissue relaxation time from one week to 10 days. The optimal dose was the same as in the first above-mentioned method (Figure 4).

Laser biosynrgetics and bioenergetics approach - our original method in which the first four visits were combined with high energy PIPBM topical treatment in the joints bilaterally symmetrical in continuous mode (CW), according to manufacturer's instructions and therapeutic protocols for the treatment of TMJ, embedded in the software of the laser apparatus. After a relaxation time of 10 days we held after four exposures to the probe of high energy laser, SP mode, in Biological acupuncture points (BAP), mentioned in the description of the method PIPBM. Each BAP irradiation was applied for 1' exposure time. Optimal dose was preferred by 18,5 J/cm² (Figure 5, Figure 6).

LLL Six Laser TS (Bulgaria)	
Infrared Laser diode: GaAs Wavelength: λ=904nm Operating mode of the laser diode: Pulsed Pulsed duration: 200ns (2.10⁻⁸s) Laser emitting power: P_{imp}=18W Frequency modulation : f=20Hz Size of the area (collimator ⌀3mm): S=0.1cm² Time: 20s Energy density: E=0.01 J/cm²	Infrared Laser diode: GaAs Wavelength: λ=904nm Operating mode of the laser diode: Pulsed Pulsed duration: 200ns (2.10⁻⁸s) Laser emitting power: P_{imp}=30W Frequency modulation : f=20Hz Size of the area (collimator ⌀3mm): S=0.1cm² Time: 40s Energy density: E=0.02 J/cm²
Infrared Laser diode: GaAs Wavelength: λ=904nm Operating mode of the laser diode: Pulsed Pulsed duration: 200ns (2.10⁻⁸s) Laser emitting power: P_{imp}=30W Frequency modulation : f=40Hz Size of the area (collimator ⌀3mm): S=0.1cm² Time: 20s Energy density: E=0.02 J/cm²	Infrared Laser diode: GaAs Wavelength: λ=904nm Operating mode of the laser diode: Pulsed Pulsed duration: 200ns (2.10⁻⁸s) Laser emitting power: P_{imp}=30W Frequency modulation : f=40Hz Size of the area (collimator ⌀3mm): S=0.1cm² Time: 40s Energy density: E=0.05 J/cm²

Figure 4: Technical parameters of Low Level Laser machine "Six Touch Screen" (Atlantis, Bulgaria)–Infrared tube.

Laser emitting power: P=100mW Operating mode of the laser diode: Pulsed Pulsed duration: 1ms Duty cicle: 50% Frequency modulation : 500Hz Size of the area: S=0.2cm² Time: 20s Energy density: E=5 J/cm²	Laser emitting power: P=100mW Operating mode of the laser diode: Pulsed Pulsed duration: 1ms Duty cicle: 50% Frequency modulation : 500Hz Size of the area: S=0.2cm² Time: 40s Energy density: E=10 J/cm²
Laser emitting power: P=200mW Operating mode of the laser diode: Pulsed Pulsed duration: 1ms Duty cicle: 50% Frequency modulation : 500Hz Size of the area: S=0.2cm² Time: 20s Energy density: E=10 J/cm²	Laser emitting power: P=200mW Operating mode of the laser diode: Pulsed Pulsed duration: 1ms Duty cicle: 50% Frequency modulation : 500Hz Size of the area: S=0.2cm² Time: 40s Energy density: E=20 J/cm²

Figure 5: Technical parameters of Diode laser "Epica" (Biolase, USA) – λ -940nm.

Figure 6: Diode laser " Epica" (Biolase,USA) – λ -940nm.

TLM was created and approbated as own method for the treatment of TMJ disorders, which are characterized by a comprehensive

approach and implemented within 8 visits twice a week. The first four times involved combined PDT - red LA, 8 'optimal dose of 8-12 J / cm ², local impact on TMJ applying HELT, exposure time 1', CW mode, in combination with TENS trigger erektroacupuncture therapy on the Fall magnetic fields or along the Volkevittz lines on the human face. The next four visits included a combined LT -PIPBM, optimal dose - up to 18,5 J / cm² using the "up - in" maximum bioenergetics stimulation, local HELT, 1', SP, trigger TENS electrotherapy and infrared laser magnetic irradiation using cluster probe in the Fall fields or Volkevittz lines (Figure 7, Figure 8).

Figure 7: Technical parameters of cluster probe "Multidiode Head" with permanent magnet (Atlantis, Bulgaria).

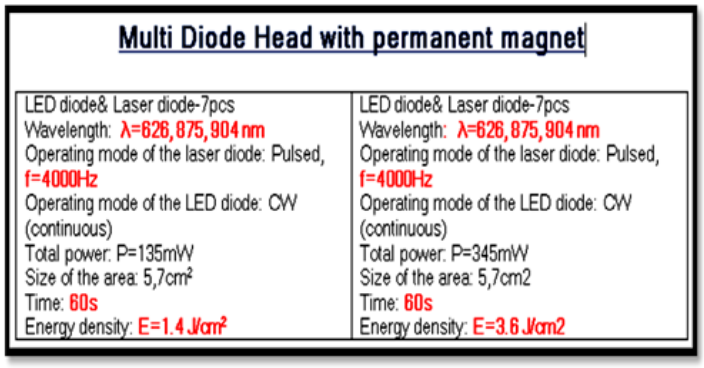

Figure 8: "Multidiode Head" with permanent magnet (Atlantis, Bulgaria).

Results evaluation-a double-blind study was performed in which the main clinical criterion for assessing was pain as a strong subjective symptom. We applied specific diagnostic approach, as recommended by R. Dabner (R. Dubner), J. Friktan (J. Fricton) and J. Metz (J.Metz) [5,6,26].

The diagnostic process included the following steps - assessment of pain by VAS, assessment of functional pathology and pain according diagnostic indices ,evaluation of the stimulation signals and the corresponding biological response according to the theory of signals recognizing called Signal Detection Theory–SDT; electrophysiological measurements-EDI, electrode voltages in the mouth (EHD), maps of the brain (EEG) and clinical examinations. Assessment on a visual analogue scale (VAS) was carried out after direct palpation of the lateral condyle of the field, the area of the ear canal, and the external auditory canal on the most painful side before treatment. All persons were asked to indicate the level of pain on a scale with frequency from 0 to 10 (0 indicates no pain, 10 indicates severe pain).

The main clinical signs were compared provoking pain in APP, trigger points and areas around the TMJ, and symmetry expression of highly subjective symptom - pain. Figure 1 presents photographs of the most common methods we employed for the diagnosis and treatment of TMJ disorders-magnetic laser therapy using cluster multidiode head–biosynergetis approach in combination of both coherent and incoherent laser diode light (Figure 9-A), and trigger point therapy that were performed as with using TENS unit (Figure 9-B) and as well as and sometimes with a red or infrared laser probe. This happened in the cases of very strong pain symptoms in the anterior temporal muscle, in the interest of patient comfort. Figure 9- C is given to present a model of the metric method–measuring of the physiological rest before and after each procedure, and the maximum opening registration of the active jaw in the same order - before and after each PDT.

Figure 9: A) Irradiation with Multidiode head cluster probe; **B)** TENS in Trigger Points/ zones; **C)** Physiological occlusal rest measurement.

Results

The results assessment using the score was conducted by our scientific and practical studies on the influence of laser radiation in the cases of TMJ disorders in all 600 patients, allowed us to do a diagnostic prediction of the direction of flow of the healing biostimulation processes, and to make early and late evaluation of the therapeutic effect of the laser radiation supplied by combined methods. Analysis by VAS and patients index of strong subjective pain symptoms of patients before, during and at the end of the procedures showed some variation in different groups.

During the first visit (1) we have been held only diagnostic evaluation and 95% of all 300 people were treated with laser operating in 4 subgroups - 285 people) determined the pain as 10. As can be seen from the graphs, changes in pain syndrome have evolved differently, but by applying of all the four methods excellent analgesic effect of PDT was achieved. During the treatment of the patients in the first working group by LELT - LA (75 men, 8% of 600) in red electromagnetic spectrum combined with Electro TENS Trigger Points Therapy, all patients reported rapid disappearance of pain immediately after the first procedure, but up to the fourth procedure pain gradually has been grew and became very strong especially between the fourth and sixth visit.

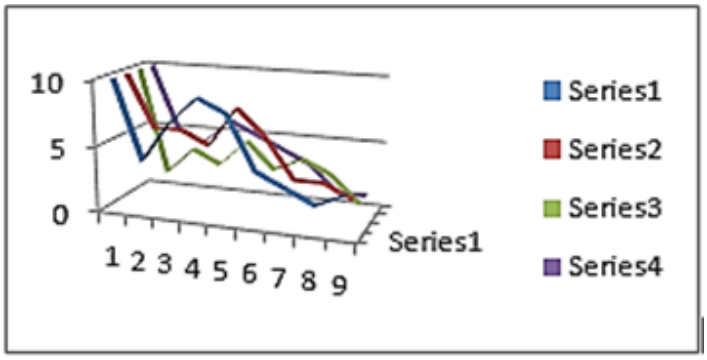

Figure 10: Development of the pain strong subjective symptoms for the patients of each of the four working groups.

The VAS analysis is indicated that we have achieved the most evenly and permanently reduce of the pain sensations in a third group of patients (75 men, 8% of 600). (Series 3 on the chart) These patients were treated by the method of Bioenergetics and synergetic phenomenon of the laser beam, but some fluctuations between the fourth and seventh visit were recorded. The chart for the fourth group of patients (75 men, 8% of 600) treated with CTP proves the unimpressive rapid pain decrease after the fourth visit, which did not show any abnormalities and increasing trends of painful symptoms. In practice, patients after the fourth irradiation reported that they feel healthy and had no interference by the end of treatment. Of Fig. 3 is reflected cumulative analgesic effect of established methods of PDT in patients with TMD and it is clear that the complex laser therapy is characterized by very strong analgesic effect.

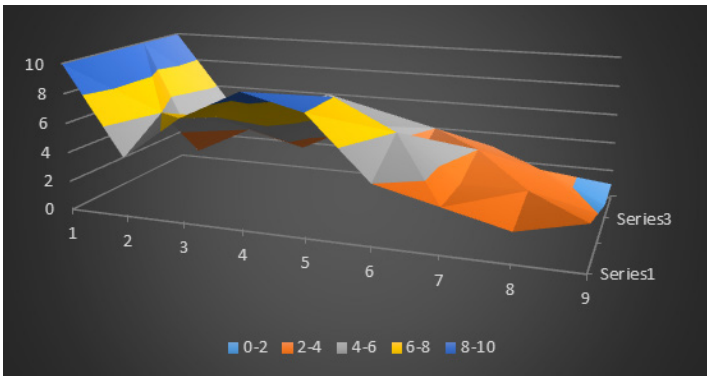

Figure 11: Graphic 3-D analysis of the supreme analgesic effect of combined PDT in cases of TMJ disorders.

A metric analysis of the level of the maximum active opening of the lower jaw during the TMC to PDT, and the diagnostic method in accordance with clinical indices were applied. Figure 12 presents a graphical muscle relaxant effects of the main methods of PDT have been approbated during the study: 1 - infrared multidiode cluster probe, 2 - TENS, 3 - red LA + TENS, 4 - PIPBM, 5 - Bioenergetics phenomenon, 6 - CTP.

Through electrophysiological signal evaluation of the human body by the method of SDT we get the idea of the stage and extent of the disease, received orientation on what e reactivity of the organism at the time of treatment. In Figure 5 graphically the dynamics of changes in the symmetrical pulp sensitivity test during PDT is depicted.

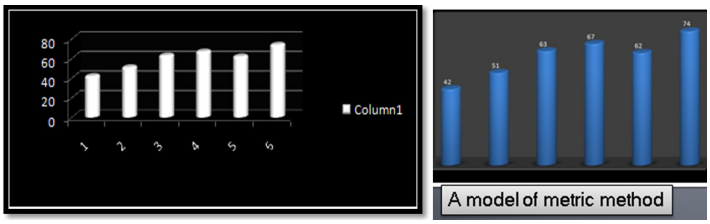

Figure 12: Maximum inward opening of the mandible - effect of the laser myorelaxation.

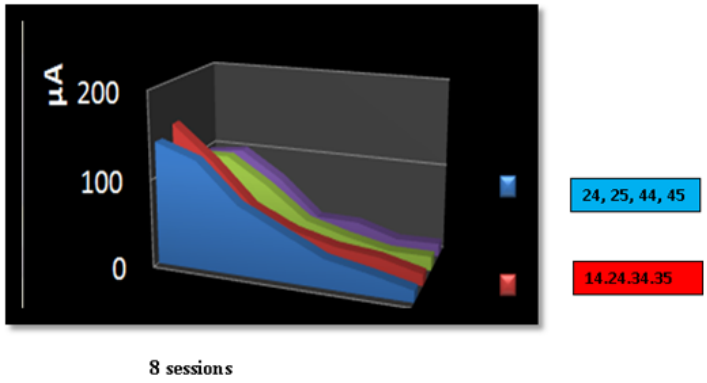

Figure 13: Dynamics of symmetrical changes in electro pulp sensitivity tests (EPST) during PDT before and after every session.

Changes in EPST give us information about the extent of reactivity in the peripheral nervous system. Before treatment in premolar in the four quadrants have registered parabiosis their dental pulp in varying degrees in 504 patients (84% of all surveyed 600 people). The normal values of their vitality are measured after PDT, as shown in Figure 13. Dynamic changes in the EPST orient us to the sensitivity of the central nervous system. The main clinical criterion for assessing the outcome of the treatment was symmetrical adjustment of the values of the bilateral upper and lower jaw.

Figure 14 presents a graphical diagram of the electrophysiological changes symmetrical bilaterally left and right of patients after the biosinergetics program. Applying this method we achieved the highest degree of bilateral symmetry neuromuscular regulation of both TMJ.

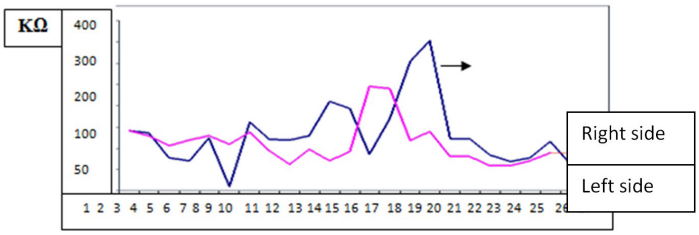

Figure 14: Graphical analyses of symmetrical changes in both the left and right patients' side after biosynergetics and bioenergetics program.

The results of brain mapping were analyzed jointly with Dr. Violeta Georgieva (neurologist ISUL).

In Figure 15–A, B, C the brain maps of two patients with TMJ disorders before treatment are presented - the pictures above are made before TLM - pictures below, are received immediately after treatment. On the pictures above the location and size of registered epi - focuses of brain plasticity are registered prior to treatment with TLM and immediately after the last procedure. As it is shown by the photos below, the increased electrophysiological activity of the brain is completely disappeared after eight days of treatment with CTP only.

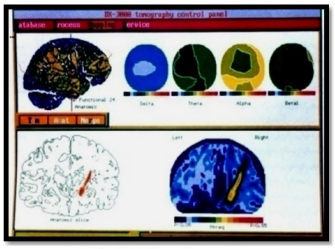

Figure15 – A

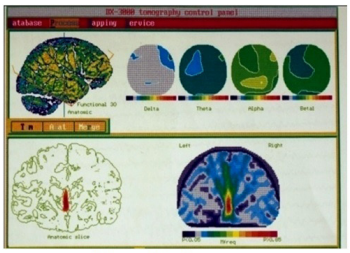

Figure15 - B

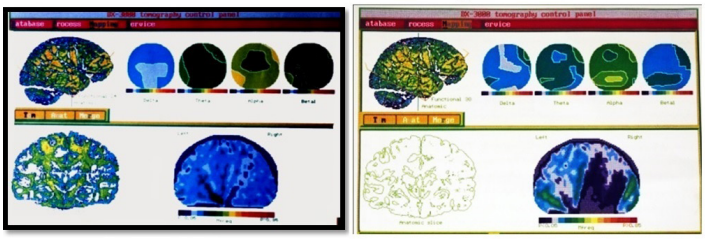

Figure 15- C

Figure 15 A,B,C: Foci of brain neuroplasticity provoked by Chronic secondary Occlusal Trauma (lateroparietaly, Figure 15 - A) and TMD (centroparietaly – Figure 15 - B) and their disappearance 2- 3 months after the last TM Therapy (Figure 15 - C).

On the left picture above the registered focus of brain plasticity, located lateroparietaly is seen. In 270 patients (45% of all surveyed 600 people) the epi–centre of brain plasticity with increased activity of theta waves has been discovered lateroparietaly. We found in these patients develop of generalized periodontitis. The remaining 330 people (55% of all surveyed 600 people) were with available similar epi - foci in the brain, located centroparietaly (pictured right of figure 11 - top before the TLM and the lower photo clearly shows the high therapeutic efficacy of TLM in the absence of epi - focus of brain plasticity). The basic cause of TMJ disorders in these patients was trauma of occlusion.

Discussion

Scientific Hypothesis -We concluded that the phenomenon of accelerated dynamics after 4-6 the irradiation with LELT – LA are result due to the gradual accumulation of energy in the human body and the development of active hyperemia, relying on knowledge of the high energy potential of the red laser light and information about its medicinal effects.Based on our previous knowledge on Hermann Haken "Synergetics Theory" and on our great clinical experience we created own original working hypothesis on mechanisms of TLM action – due to the laser symmetrically group oscillations and Synchronization turbulent photo initiation is appeared and an energy transformation in panchondriom(all mitochondria in Human body as unit) is available. Ion transformation and fast protonization mechanisms in bio membranes is acting simultaneously. Energy transformation by muscles contraction and muscle hyperactivity via bone structures is followed. Next is energy transformation by auto oscillation and auto wave processes in brain and intracellular organelles..

Our clinical observations have given us reason to confirm that TENS is a gateway for red acupuncture as activated APP and they were able to hold the red laser light to a - very severe laser beam transmission, which allows treating tissue structures and ligaments located more anatomically - morphological depth. Our observations also confirmed the paradigm that the red light is the gateway for infrared laser radiation and it is desirable always precedes it.

Clinical Cases presented according patients strong subjective symptoms classification in 4 Criteria:

First Category of clinical compensatory models: Strong subjective symptoms -Myofascial pain syndrome, TMD, Chronic Occlusal Trauma, Increased muscles hyperactivity and abnormal teeth mobility, bone loss (Figure 16).

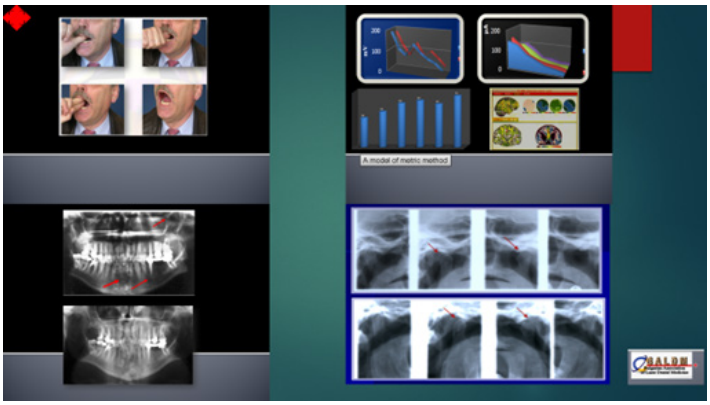

Figure 16: Clinical case of TMD: Difficult mouth opening.

Second Category of clinical compensatory models: Strong subjective symptoms-occlusal disharmony, aggressive periodontitis, Neuralgia N. Trigeminus, lichenoid reactions (Figure 17). Third Category of clinical compensatory models: Strong subjective symptoms –TMD, Secondary Occlusal Trauma, Trigeminal Neuralgia and periodontal loss (Figure 18).

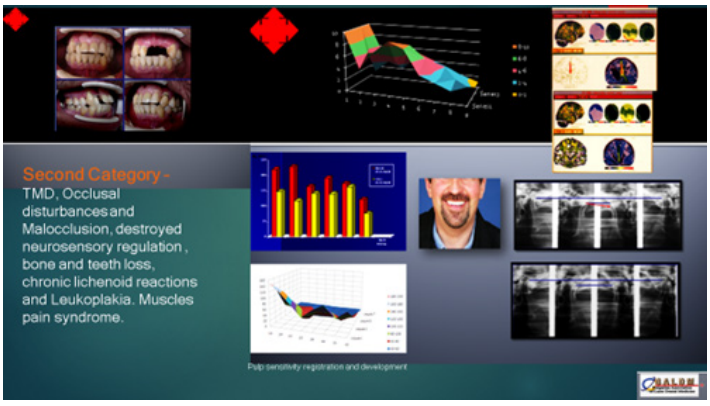

Figure 18: Third Category of clinical compensatory models.

Fourth Category of clinical compensatory models: Strong subjective symptoms – TMD, MFDBS, Oral galvanism, Alopecia areata, nonspecific Urticaria and Allergic reactions, Body Posture Changes (Figure 19).

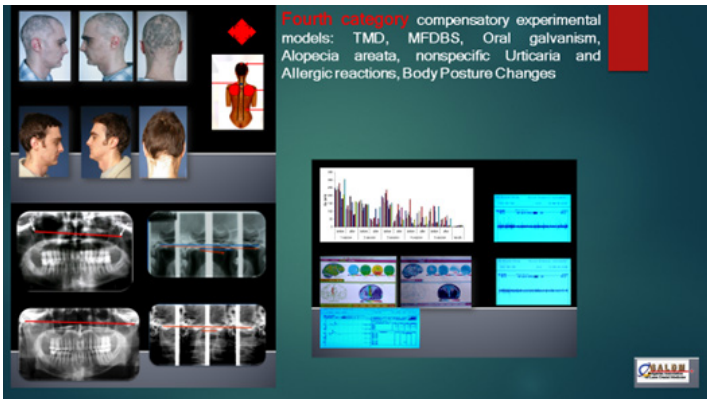

Figure 19: Fourth Category of clinical compensatory models.

Conclusion

Laser assisted TMD treatment have very high therapeutic efficacy and may find wide application in everyday dental practice.

Approbation of four methods of PDT allow us to achieve the following therapeutic effects: rapid alleviation of pain (neuropathic pain, fibromyalgia, migraine and trigeminal pain, myofacial pain syndrome, neck pain and back pain) provoked by functional disorders and TMJ treatment degenerative diseases of the discus articularis, medial and lateral strains of articular ligaments of acute and chronic inflammatory processes in the TMJ, trauma from occlusion, Electroplating phenomenon and psychosomatic disorders, achieving favorable lymphatic drainage vozodilatative effect significant reductions in nerve sensitivity and muscle spasms and the effect of the muscle relaxation.

Best results can be obtained by the combined processes of laser therapy and especially by applying of biosinergetics phenomenon and CTP.

We recommend CTP - 4 treatments combined LT - red LA, 8 'optimal dose of 8-12J/cm², local impact on TMJ with HELT, 1', CW, TENS trigger erektroacupuncture in the Fall magnetic fields Volkevittz lines the last 4 visits combined LT - FIFBM, optimal dose - up to 18,5 J / cm ² using the "up - in" maximum bioenergetics stimulation, local HELT, 1', SP, trigger TENS electrotherapy and infrared laser magnetic fields in the Fall or lines Volkevittz, TENS electrical stimulation on the neck and back of the patient along the bladder meridian in the areas of alarm "shu" points "an - mo 'points and lymphatic drainage from the waist to the occipital region patient.

We are supported laser oscillation mechanism. The effect of micro invasive, painless and bloodless ablation in the tissues is achieved by the turbulent photobiomodulation. As a result of turbulent resonance improvement, ablation is very superficial and safe for patients while at the same time achieving the following effects: very high anti-inflammatory effect, rapid epithelization and wound healing, excellent regeneration and retention.

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