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NEW INTEGRATIVE TREATMENT METHOD OF OSTEOPOROSIS WITH A LASER-MAGNETIC AND MICROWAVE TREATMENT SYSTEM AND APPLICATION OF SYSTEMATIC AND ETIOPATHOGENIC PRINCIPLES.

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We present herein the combined effect of our specially designed laser, magnetic and microwave therapeutic influence on the physiology of the osteoporosis patient. In our age of improved average life expectancy, even some partial cure of osteoporosis remains as a pressing issue, particularly in the light of the growing number of osteoporosis related fractures with still more rapidly growing costs of treatment which is usually accompanied with no less harmful side effects leading to deterioration in the affected patient's general quality of life (QOL). The author analyzed 180 cases of osteoporosis patients undergoing treatment in the Clinic from 1999 till 2006. We used bone densitometry data obtained by Dual-Energy-X-ray Absorptiometry (DEXA) as the treatment effectiveness criteria. Without any additional medication, we applied various laser, magnetic and microwave influences to treat the disease. The diagnostics and treatment methodology, developed by the author, is based on the principle of treating the whole body as a system and the organic etiopathogenesis of the specific disease, osteoporosis, in particular. The results of the osteodensitometry have been analyzed in terms of the type of osteoporosis, sex, time of treatment, stage of osteoporosis, and the type of bone tissue. Therapy for osteoporosis in our Clinic leads to a significant increase in bone mineral density (BMD) for all types of osteoporosis, with a substantial increase in the bone mass within a period about six months after the completion of the treatment. The bone-mass increase correlated with the positive dynamics of the bone metabolism markers, namely cross-laps and osteocalcin. Analgesic effects were analyzed according to two scales: the verbal ranking scale and the visual analog scale (VAS). Pain intensity decreased by 75%. None of our patients developed any fresh fractures during the course of 5 years subsequent to the treatment. The combination of the therapeutic strategies and the system itself allows the Clinic provide the best possible medical care for osteoporotic patients, by increasing the bone mass and BMD, reducing the pain syndrome, and substantially reducing the chances of fractures, thus improving the QOL and life expectancy of the osteoporosis patient.

Key Words: Osteoporosis, multi-wavelength laser therapy, cross-laps, osteocalcin, bone mineral density, bone mass

Introduction

Osteoporosis is one of the most widely spread metabolic diseases of the skeleton which is characterized by a decrease in bone mass and a deterioration in the skeletal microarchitecture, leading to increased fragility and susceptibility to fractures. ⁽¹⁾

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WHO experts regard osteoporosis as one of the major diseases resulting from our modern way of life, which could be seriously ranked together with myocardial infarction, cancer and unexpected deaths.

In the USA, osteoporosis-related fractures reach an average figure of 1.5 million cases a year consisting of 700,000 fractures of the spine, 250,000 fractures of the proximal femur, 250,000 fractures of the distal radius and 300,000 fractures of other parts of the skeleton.

The risk of having the fracture of: spine, hip and

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distal radius, after the age of 50, is 40% for white women and 15% for white men. Osteoporosis treatment costs American Health Administration about 10 billion dollars a year, that again is without taking into account the costs of long-term treatment at home. Up to 50% of the patients with fractures of the proximal femur cannot live without outside help. Fifteen to 20% of these patients die within the first year.

The number of osteoporotic fractures worldwide is showing an increasing tendency. From 1.7 million cases registered in 1990 it is expected to reach a figure of 6.3 million in the year 2050.⁽²⁾ The seriousness of the osteoporosis problem is aggravated by the absence of effective, simple and harmless medicinal therapy. The effectiveness of any of the existing treatment is rather low, and only a small percentage of increase in the bone mass tends to be achieved.⁽³⁻¹⁶⁾

We have developed our own methods of energy-informational therapy for osteoporosis using a systematic principle to influence and stimulate the reparative process. Our method is based on a nonstandard approach to solving the osteoporosis problem.

All medical therapies view either osteoclasts as their target, with a view to reducing their activity, or osteoblasts, with the intention of increasing their activity. These treatment strategies are all based on the principle of addition and substitution of functions of the organism and, therefore, lead to the exhaustion of the body's own resources and, consequently, necessitate the constant ingestion of medications.

We regard the human organism as a complete self-regulating open system, striving for minimization of entropy and energy losses. A disease is a disorder of the energy-related activities in the body, by various systems of organs and cells, leading to some distortions in various essential processes of biosynthesis within the cells. During the course of life beginning from birth, the body's capacity for energy production grows alongside the growth of the skeleton and the bone mass. After the age of 30-35, both the body's energy capacity and bone mass tend to decrease. Reduction in energy capacity is accompanied by the reduction of functions of various organs and systems, and the deterioration of functional activities of the whole body leading to various diseases resulting in aging and further reduction of the bone mass. This is an uneven process: starting from one stable energetically functional condition to another stable but less powerful energy level. Functional activities and capabilities tend to decrease right up to death. Therefore, in order to stop the process of aging and reduction of the bone mass, two things are required.

First and foremost it is essential not to substitute

for the body's functions but to activate them by using something appropriate to the energy-informational processes taking place within it. In our Treatment System, this is done by using the methods of low reactive level laser therapy (LLT) coupled with magnetic and microwave (extremely-high frequency) therapies. They imitate natural physical factors such as: the radiation of the Sun and the magnetic field of the Earth - the two necessary conditions for the existence of life. A single quantum of energy has the theoretical potential to launch biosynthesis and give birth to a great number of oscillating energy-informational processes, with microwaves being one of their components.

Secondly, it is vital to activate and restore the structures and functions of the body, the failures of which lead to dysfunction of both osteoclasts and osteoblasts resulting in further deterioration of the osteoporotic condition.

Subjects and Methods

We believe that each osteoporosis-related pathological condition has its specific causes. For all that, we are interested in both qualitative and quantitative characteristics of the organic etiopathogenesis.

By using our complex Diagnostics System, we identify the following:

- 1) Osteoporosis and both its current stage (by dual energy bone densitometry), and the bone metabolic condition (by bone metabolism markers)
- 2) The causes of each case of osteoporosis, and the general condition of the whole body (by infrared thermography, Foll's electro-puncture diagnostics, vegetative-resonance diagnostics, ultrasound diagnostics, laboratory diagnostics and functional diagnostics), and
- 3) The energy conditions of the acupuncture channels (by pulse-analytical diagnostics, Nakatani's electro-puncture diagnostics).

After completion of the diagnostic program we treat patients with MEGA LASER, our own patented equipment "Medical system for energy-informational therapy of osteoporosis, Dr. Kulykovych". (Fig. 1)

Our aims are:

1. To activate the functional conditions of various systems of the body participating in calcium metabolism, such as the kidneys, the endocrine system and the alimentary tract. This is achieved by informational correction of energy channels, effected by the application of extremely high frequency ultrasound energy (10-40 GHz, average power 3 mW) (Fig. 2) through an appropriate puncture; and,
2. At the same time to normalize regulation of the cen-



Fig.1: Equipment for energy-informational therapy of osteoporosis "Dr. Kulikovich".



Fig.2: Complex medical session for osteoporosis.

tral functions of the brain and, simultaneously, restore the neuroendocrine and neurovegetative innervations, which is achieved by auricular electropuncture (30-70 mK), bioresonance ophthalmic-color laser therapy (color impulse stimulation by a visible spectrum + a modulating GaAs laser of 1300 nm, 0.5 mW, 3min., 0.18J/cm²) and intravenous dual-wave laser therapy (GaAs, 633 nm 2-5 mW + GaAs, 785 nm 2-10 mW; 20min., 1-5 J/cm²), and

3. To activate the microcirculation, metabolism and regenerative processes in the functionally weak and pathologically changed organs and joints (kidneys, liver, intestines, spine, large joints, flat bones and ribs), which we accomplish by the use of:

- A three-wave scanning laser: to influence external structures: (GaAs, 635 nm, 25 mW + GaAs, 785 nm, 50 mW + GaAs, 850 nm, 30mW; 5min. per zone, 0.3J/cm²),
- A contact laser with a rotating space orientation to influence deep internal parts (GaAs, 905 nm, 300 W; 3min., 1 J/cm²);
- The same contact-point pulsed laser (GaAs, 905 nm, 60 W; 10min., 15 J/cm²) system with an axially rotating magnetic field: (100 mTl) to influence the trigger zones and deep parenchymal organs,
- A bioresonance light-color-laser system with a rotating magnetic field, particularly for large joints, spine, and projections of external organs laser, (GaAs, 905 nm, 60 W; 10min., 0.5 J/cm² same as above) + blue-red-yellow-green light of 500 lux + a magnet of 100 mTl),
- An extra-venous three-wave bioresonance lighting system for blood and large joints (GaAs, 635 nm, 10 mW + GaAs, 785 nm, 40 mW + 905 nm, 60 W; 5min., 10 J/cm²) and;

f) A magnetic low-intensive bioresonance system for exerting influence on the bone mass (0.1-1 mTl).

A complex medical session typically lasts for about one hour. The whole course of this ambulatory treatment usually lasts for about 15 to 20 sessions, which can be given on consecutive days, or on alternate days.

All patients are given individualized compulsory recommendations on nutrition with a daily consumption of calcium of not less than 0.4 g. We are advocates of natural consumption of calcium. If the patient cannot consume dairy products and sesame, he/she must take calcium tablets in the quantity of 0.5 g a day (17).

We have analyzed 180 cases of osteoporosis patients who underwent treatment in our Clinic during 1999 to 2006. This sample is composed of 136 females and 44 males. The breakdown of the patients by age group is as follows: 49 yr and under, 75 patients; 50-65 yr, 66 patients; and 65-80 yr, 39 patients. In this sample, there were 91 idiopathic, 50 postmenopausal, and 39 senile osteoporosis cases. **Table 1** shows sample data out of 34 patients having high bone mineral density (BMD) growth from 30 to 90%. Patient 1, 2 and 3 are representative samples of three different groups: Senile osteoporosis, Postmenopausal, and Idiopathic.

Table 1. Specification of subjects

	ID	Age	Sex	Height	Weight	Race
Patient 1	ZT	72	Female	155cm	61kg	White
Patient 2	CL	63	Female	150cm	53kg	White
Patient 3	FL	29	Female	166cm	50kg	White

We used the data of bone densitometry obtained by the Dual-Energy X-ray Absorptiometry (DEXA), in the evaluation of the criteria of the effectiveness of our treatment. The examination was carried out using a Lunar DPX-MD (USA). We analyzed the lumbar and proximal femur BMD with the anteroposterior (AP) and lateral-projection methods. Statistical analysis was performed with the Student's *t*-test, based on the difference between the real (BMD) and an average theoretical peak of a normally distributed BMD. The examinations were performed at baseline (before the initiation of the treatment), and also during a span of 3 years after completion of the treatment.

Analysis of variance (ANOVA), complemented by the Bonferroni test, was performed to verify if significant differences ($p < 0.05$) were observed.

Results and Discussion

With postmenopausal osteoporosis cases, the average BMD growth was 15% at 13 months after treatment. With elderly patients the average BMD growth was 21% at 12.6 months after treatment. With patients suffering from idiopathic osteoporosis, the average BMD growth was 16.1% in 12.9 months, which was statistically significant ($p < 0.05$ before treatment vs. after treatment) (Table 2).

Table 2. Average BMD growth according to osteoporosis type

No	Type	Average BMD		Average BMD Growth		AvFU (in months)
		PreTx (g/cm ²)	PostTx (g/cm ²)	g/cm ²	%	
1	Senile osteoporosis	0.58	0.725	0.145	21	12.6
2	Postmenopausal	0.637	0.724	0.087	15	13
3	Idiopathic	0.682	0.991	0.309	16.1	12.9

PreTx—Before Treatment, PostTx—After Treatment, AvFU—Average Posttreatment Follow-up period

BMD growth was accompanied by improvement in the general health, neuro-vegetative conditions, psycho-emotional and metabolic endocrine status, the ability to work and the social activity of the patients. Apparently, it was caused by the improvement in the general hormonal conditions, the level of hormone growth in the system, as well as an increase in local trophic factors, such as the improvement in the functionality of the kidneys. These improvements were monitored by a series of positive observations in the

the urine and blood chemoanalyses.

By analyzing this group of patients, we noticed that the results obtained during the period 2003-2006 were much better than those of 1999-2002, which is undoubtedly due to our more advanced equipment as well as the improved methods of treatment (Table 3) as a result of our continuous research and innovation efforts.

Table 3. Average BMD growth compared by treatment period

1999 – 2002			2003 – 2006*		
	Patients	BMD Growth	Patients	BMD Growth	
Under 5%	18	2.30%	30	2.90%	
5-10%	10	7.10%	17	7.80%	
10-20%	10	13.80%	39	14.00%	
20-30%	1	22%	21	24.90%	
> 30%	6	47.10%	28	42.90%	

* $p < 0.05$ (1999 – 2002 vs. 2003 – 2006)

Analyzing the BMD growth correlated with the time lapsed since the completion of the treatment, we found out that BMD growth was accelerated in the course of the first 6 to 7 months follow-up after treatment, and then it gradually tapered down in the course of the next 12-16 months (Table 4).

Table 4. Average BMD growth (%) by length of post-treatment follow-up

Month, p/t	2	3	4	5	6	7	10	12	15	18	24
Growth, %	1.3	5.2	7.4	15.2	26.1	26	14	15	17.3	7.3	7.2

Based on these data, we can conclude that, during this period, anabolic processes prevail over catabolic processes, thus most likely stopping the process of aging. We continue to advise our patients to repeat a course of treatment after each period of 6 to 12 months, so as to avoid disease and sustain the general quality of life.

Comparison of the BMD growth for the men and women we treated is not quite appropriate, since women represent a far more heterogeneous group (Table 5).

treatment, 20 and more medical sessions, and, correspondingly received more fundamental correction of their various conditions.

- 2) All of them were treated during the latter period when our methods had considerably improved.
- 3) All of them had an initially substantially low BMD.

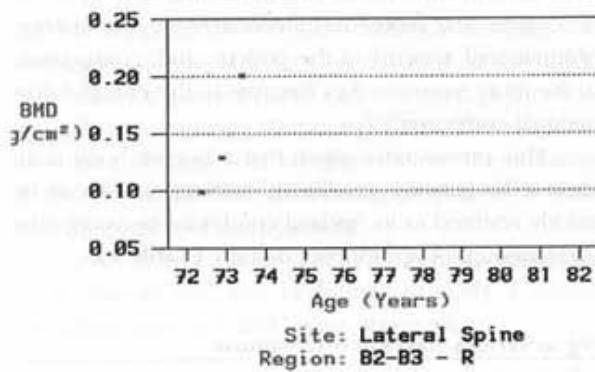


Fig. 3a: Densitometry scans of patient 1 BMD growth dynamics.

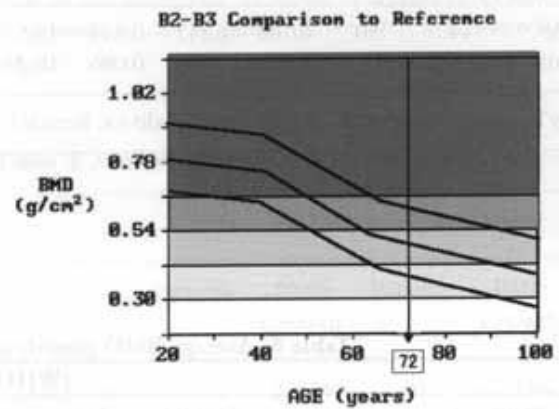


Fig. 3b

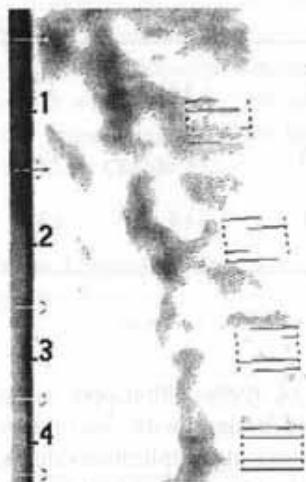


Fig. 3c-1: Patient 1, Before Treatment

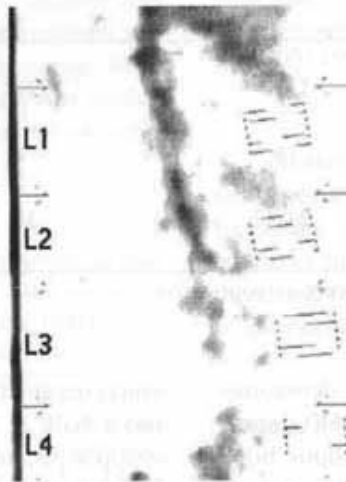


Fig. 3c-2: Patient 1, 6 months after treatment

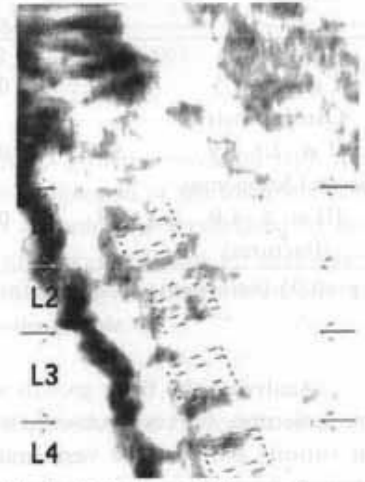


Fig. 3c-3: Patient 1, 12 months after treatment

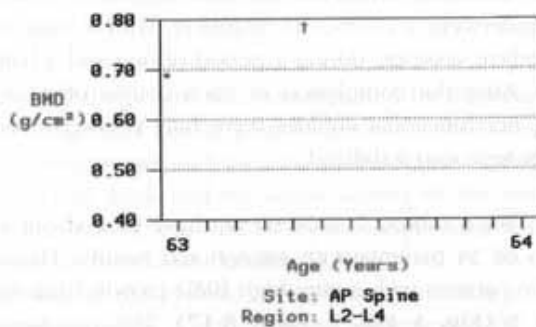


Fig. 4a: Densitometry scans of patient 2 BMD growth dynamics.

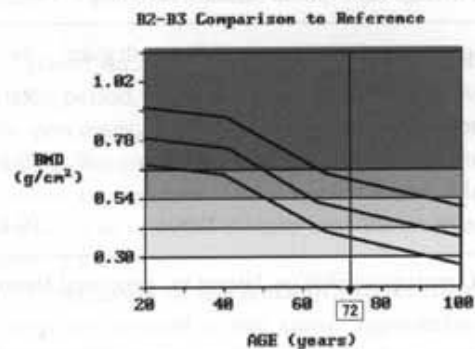


Fig. 4b

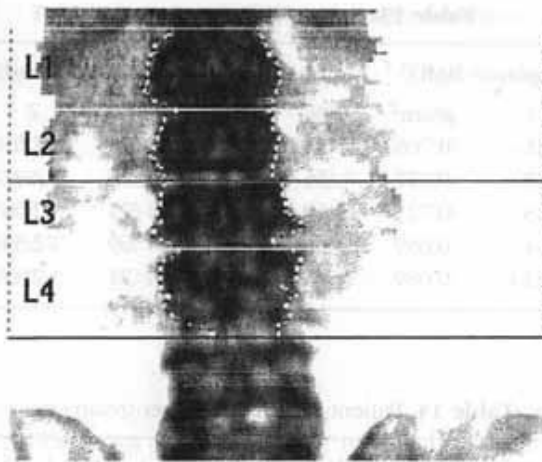


Fig. 4c-1: Patient 2, Before Treatment

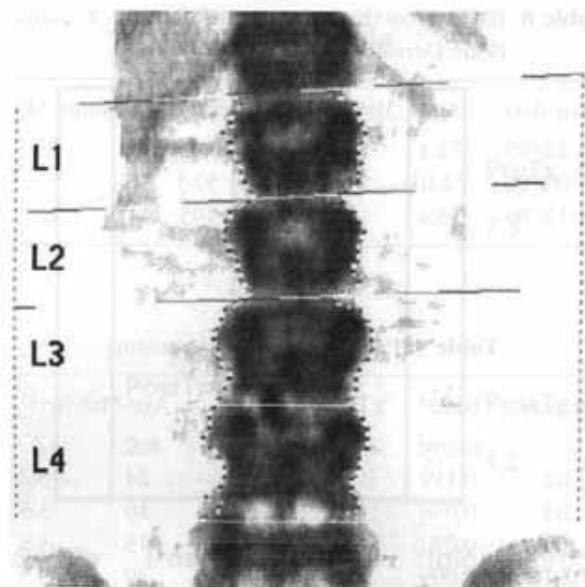


Fig. 4c-2: Patient 2, 4 months after treatment

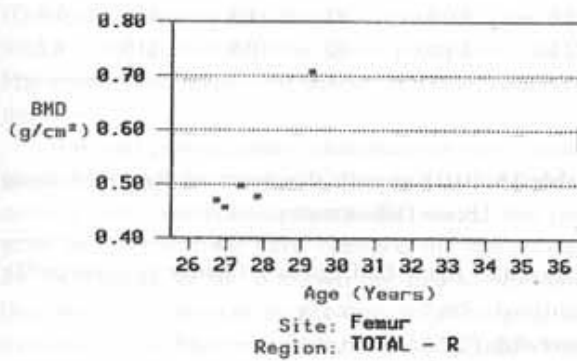


Fig. 5a: Densitometry scans of patient 3 BMD growth dynamics.

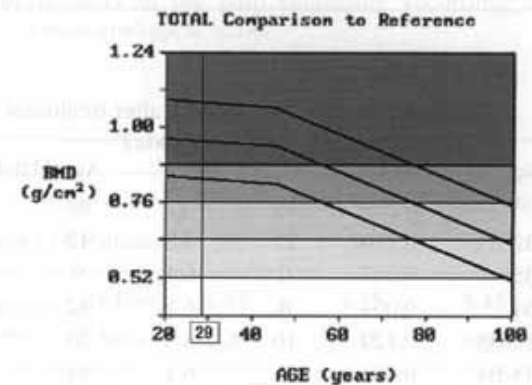


Fig. 5b

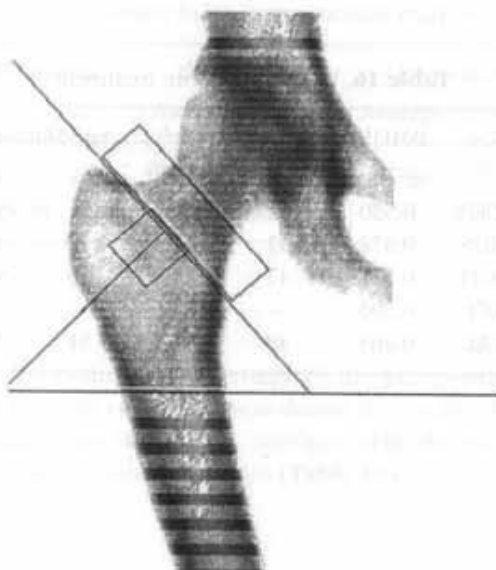


Fig. 5c-1: Patient 3, Before Treatment

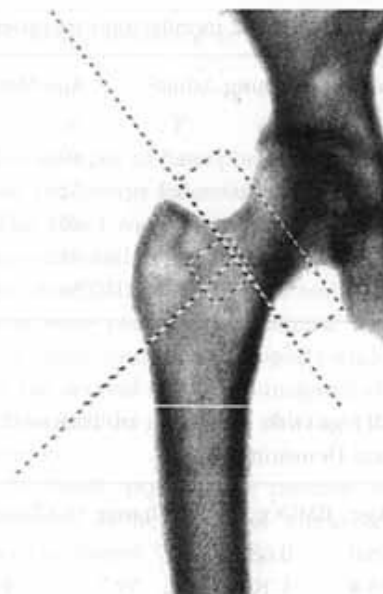


Fig. 5c-2: Patient 3, 15 months after treatment

Table 8. BMD growth dynamics of Patient 1 using Bone Densitometry

Scan data	Age	BMD(g/cm ²)	Change %	Change/SD
16/12/'05	72.4	0.099	---	---
26/06/'06	72.10	0.129	30.3	---
28/12/'06	73.4	0.201	103	---

Table 9. Patient 1, Before treatment

Region	BMD ¹ g/cm ²	Young-Adult ² %	T	Age-Matched ³ %	Z
B2	0.119	15	-5.5	24	-3.2
B3	0.078	10	-5.9	16	-3.5
B4	0.070	9	-6.1	13	-3.8
B2-B3	0.099	13	-5.7	20	-3.3
B3-B4	0.074	9	-6.0	14	-3.7

Table 10. Patient 1, 6 months after treatment

Region	BMD ¹ g/cm ²	Young-Adult ² %	T	Age-Matched ³ %	Z
B2	0.210	27	-4.8	42	-2.4
B3	0.045	6	-6.1	9	-3.8
B4	0.064	8	-6.1	12	-3.9
B2-B3	0.129	16	-5.4	26	-3.1
B3-B4	0.055	7	-6.1	11	-3.9

Table 11. Patient 1, 12 months after treatment

Region	BMD ¹ g/cm ²	Young-Adult ² %	T	Age-Matched ³ %	Z
B2	0.243	31	-4.5	49	-2.1
B3	0.157	20	-5.2	32	-2.8
B4	0.211	26	-4.9	40	-2.6
B2-B3	0.201	26	-4.8	41	-2.5
B3-B4	0.184	23	-5.0	36	-2.8

Table 12. BMD growth dynamics of Patient 2 using Bone Densitometry

Scan data	Age	BMD(g/cm ²)	Change %	Change/SD
12/07/'99	63.0	0.689	---	---
29/11/'99	63.4	1.100	59.7	41.1

Table 13. Patient 2, Before treatment

Region	BMD ^{1,7} g/cm ²	Young-Adult ² %	T	Age-Matched ³ %	Z
L1	0.708	63	-3.5	79	-1.6
L2	0.677	56	-4.4	70	-2.4
L3	0.723	60	-4.0	75	-2.0
L4	0.669	56	-4.4	69	-2.5
L2-L4	0.689	57	-4.3	71	-2.3

Table 14. Patient 2, 4 months after treatment

Region	BMD ^{1,7} g/cm ²	Young-Adult ² %	T	Age-Matched ³ %	Z
L1	1.040	92	-0.7	118	1.3
L2	1.072	89	-1.1	112	1.0
L3	1.191	99	-0.1	125	2.0
L4	1.040	87	-1.3	109	0.7
L2-L4	1.100	92	-0.8	115	1.2

Table 15. BMD growth dynamics of Patient 3 using Bone Densitometry

Scan data	Age	BMD(g/cm ²)	Change %	Change/SD
22/03/'01	26.7	0.478	---	---
19/06/'01	27.0	0.465	-2.7	---
15/11/'01	27.4	0.505	5.6	---
26/04/'02	27.8	0.485	1.5	---
14/10/'03	29.3	0.716	49.8	---

Table 16. Patient 3, Before treatment

Region	BMD ^{1,7} g/cm ²	Young-Adult ² %	T	Age-Matched ³ %	Z
NECK	0.530	54	-3.8	56	-3.4
WARDS	0.372	41	-4.1	42	-3.9
TROCH	0.371	47	-3.8	50	-3.4
SHAFT	0.503	-	-	-	-
TOTAL	0.485	48	-4.3	51	-3.9

Table 17. Patient 3, 15 months after treatment

Region	BMD ^{1,7} g/cm ²	Young-Adult ²		Age-Matched ³	
		%	T	%	Z
NECK	0.867	88	-0.9	93	-0.6
WARDS	0.514	56	-3.0	59	-2.7
TROCH	0.543	69	-2.2	73	-1.8
SHAFT	0.771	-	-	-	-
TOTAL	0.717	72	-2.4	75	-2.0

The most astonishing fact is that the results of treatment do not depend on the patients' age. We tend to have the hypothesis that: "The human body is able to restore its functions at any age".

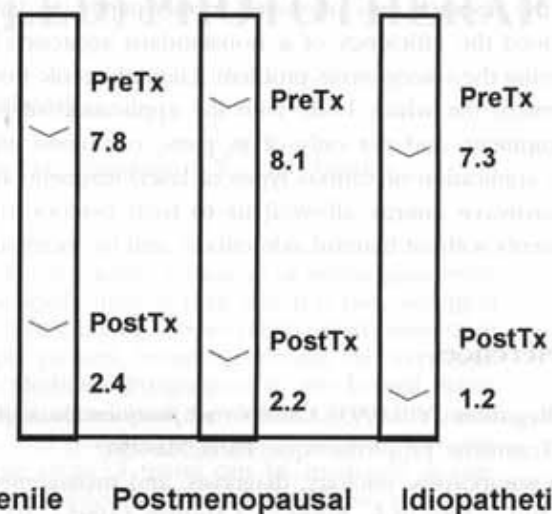
For evaluation of bone metabolism we used the markers of the Nordic Bioscience Diagnostics (Denmark): namely the Serum Cross-Laps One Step which is the marker of bone tissue resorption, and N-Mid Osteocalcin levels, the marker of bone tissue synthesis.

Pre and post-treatment examinations were carried out on the Austrian "Anthos 2020" photometer simultaneously with osteo-densitometry. We started this program in 2005 and we have obtained the results only for 18 patients so far. But even the first results show that the BMD growth is accompanied by positive dynamics in the bone metabolism markers (**Table 18**).

Table 18. Correction between BMD growth and dynamics in bone metabolism markers

BMD Growth	Cross-Laps		Osteocalcin	
	Average Decrease		Average Growth	
(%)	ng/mg	%	ng/mg	%
26.49	0.106	26.54↓	3.54	20.45↑

To evaluate the intensity of the pain syndrome and the level of its reduction during the course of our treatment, we used visual analogue (**Fig. 6**) and verbal-ranking- evaluation scales (**Table 19**).

Visual Analog Scale**Fig. 6:** Intensity of the pain syndrome according to visual-analogical scale.**Table 19.** Pain Intensity

Group		Senile	Postmenopausal	Idiopathic
Number of Patients		39	50	91
5 S-point scale	Before	4.47	4.35	4.15
	After	1.28	1.15	0.62
Visual analogue scale	Before	78.3	81.2	73.4
	After	24.1	22.3	12.2

p < 0.05 (before treatment vs. after treatment)

For all types of osteoporosis obvious pain control effect of the energy-informational therapy was clearly seen. This effect was achieved quickly in the course of our treatment, and at the first stage, it was not connected with the BMD growth. The main mechanism of analgesia were probably an increase in the development of some endogenous opiate-endorphins, and then, at the second stage, the analgesic effect was sustained by a gradual growth of BMD and the strength of the skeleton.

And finally, none of our patients developed any fresh fractures in the course of 3 years after the completion of treatment.

Conclusions

In the research data presented in this paper we have proved the efficiency of a nonstandard approach to solving the osteoporosis problem. Etiopathogenic treatment of the whole body with the application of our equipment, and not only of its parts, combined with the application of various types of laser, magnetic and microwave energy allowed us to treat osteoporotic patients without harmful side effects, and by increasing

the BMD, reducing the pain syndrome, and averting the usual fractures, which consequently improved the quality of life of our patients as well as their general life expectancy. We believe that the data from the present study show that our methods of treatment could be proved to be a better and more effective alternative to any other existing method of treatment for osteoporosis at the present moment.

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