

STUDY ABOUT INFLUENCE OF OSTEOPATHIC TREATMENT ON LIFE QUALITY OF PATIENTS WITH CHRONIC PAIN SYNDROME IN LUMBUS AND LOWER EXTREMITIES

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INTRODUCTION

Over 50% of people of working age have in the course of life episodes of pain in the back, which have nothing to do with inflammatory, systemic, oncologic or metabolic diseases. Changes caused with lumbar osteochondrosis are detected with X-ray in 50% of people over 50 years old. Moreover, society and patients incur big economic and financial losses because of frequent hospitalizations and long periods of temporary disability. Nowadays, there are different methods of treatment for such conditions, including manual therapy. However, there is still a relevant problem – proper complex assessment of efficiency, including long-term efficiency, of any treatment method or complex of therapeutic methods.

Lately, interest for assessment of not just medical results of treatment, such as manifestations of a disease or their absence, but assessment of social and psychological consequences of a disease, that is how comfortable a patient can feel in the environment, including society, has increased considerably.

There are five principal generally recognized treatment assessment categories (G.I. Nazarenko, I.B. Geroyeva, A.M. Cherkashov, A.A. Rukhmanov, 2008): vertebral column functions; medical condition in general (“quality of life”); presence or absence of a disease; work incapacity; a patient’s satisfaction with the result

Quality of life (QL) is an integral feature of physical, psychic, emotional and social functioning of an individual based on his/her subjective perception.

In this work a comparative analysis of qualitative results of osteopathic and traditional treatment of the patients with pain syndrome in lumbus and lower extremities is given. Within the limits of the analysis it was taken into consideration that quality of life is, first of all, determined by the way the patient assesses degree of his/her satisfaction with various aspects of his/her life in their connection with real or expected



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Abstract

Osteopathic treatment of the patients with pain syndrome in lumbus and lower extremities definitely results in improvement of physical as well as psychological elements of quality-of-life index.

Keywords

chronic pain in lumbus and lower extremities, osteopathic correction, life quality

changes caused with the disease and its consequences and related to medical supervision and treatment.

On the basis of these ideas it was decided to prove that osteopathic correction is an efficient, expedient and preferable method of treatment of this pathology by way of studying medical parameters of a patient’s quality of life.

RESEARCH OBJECTIVES

to assess how osteopathic treatment influences quality of life of the patients with chronic pain syndrome in lumbus and lower extremities.

RESEARCH TASKS

1. To elaborate criteria for selection of patients for the research and form an index group and control group.
2. To elaborate the research design including algorithms of osteopathic diagnostics and treatment.

3. To compare changes in quality of life of patients with chronic pain syndrome in lumbus and lower extremities within the limits of osteopathic treatment and within the limits of pharmaceutical treatment.
4. To assess durability and stability of the assumed improvement of quality of life of the patients after treatment completion.

RESEARCH MATERIALS AND METHODS

We have selected 30 patients for the research. The index group consisted of 15 males at the age from 35 to 55 years old (average age made up $45,5 \pm 1,7$) with lumbodinia/lumbar ischialgia syndrome without associated neurologic symptoms of "prolapse". The criteria according to which patients were included in the group or excluded out of it are shown in Table 1.

Control group comprised 15 male patients from 35 to 53 years old (average age $43,1 \pm 1,3$) selected in the same way. Information about the participants and characteristics of the groups is given in Table 2.

Before the treatment all the patients were examined according to the act (Table 3).

Moreover, index group patients were interviewed from the viewpoint of osteopathy, osteopathic anamnesis was collected and primary osteopathic diagnosing was done.

Index group patients underwent a course of osteopathic treatment comprising 6–8 therapeutic sessions according to the following scheme: 2 sessions with the break of 3–4 days between them; 2–3 sessions with the break of 1 week between them; 2–3 sessions with the break of 2 weeks between them.

Choice of methods is determined basing on the character of the osteopathic affections detected and on osteopathic dynamics.

During the osteopathic treatment course the patients were offered to abstain from other kinds of treatment. Those who had to keep physically active were allowed to wear immobilizing dorsolumbar orthosis. The total length of treatment period for the index group patients made up 4–6 weeks.

Control group patients were treated in a standard way under neurologist's control, which included:

1. Limitation of motion (some patients used immobilizing dorsolumbar orthosis).
2. Individually prescribed medicines (in most cases – combination of NSAID nimesulide 200 mg/day and neuromuscular relaxant Mydocalm 300–450 mg/day in the course of 10–14 days with further intake cessation or dose decline).
3. Sacrolumbar spine massage (10 sessions).
4. Physiotherapy (individual programme was elaborated by physiatrist).

5. Remedial gymnastics according to the individual programme recommended by coach.

As soon as the treatment has been accomplished, patients of both groups underwent final examination which comprised collecting of complaints, the second neurologic inspection, and questioning within the limits of SF-36 health survey (clauses 1, 2, 4, Table 5). Index group patients passed through final osteopathic testing according to the algorithm similar to the first diagnostics. The results of the final diagnostic tests were recorded, too.

In the final round of the research, i.e. 5–6 months after the end of the treatment active phase, the patients of both groups were questioned within the limits of SF-36 health survey.

The following indexes were analyzed and compared (Table 4):

QUALITY-OF-LIFE CHANGES ASSESSMENT IN GROUPS

Quality-of-life physical element

In the index group (Table 5, Fig. 1), original integral point according to quality-of-life physical health scale (PH) of SF-36 survey made up $43,8 \pm 1,4$, while the minimal point was $18,6 \pm 4,0$ according to BP scale (pain intensity) and the maximal point – $44,7 \pm 4,7$ according to PF scale (physical functioning).

After the treatment completion PH integral point made up $51,5 \pm 1,4$, i.e. it increased by $7,7 \pm 1,5$. The most significant improvement took place according to the scale of role functioning (RP) – by $55,0 \pm 8,9$ and according to the scale of pain intensity (BP) – by $54,9 \pm 4,2$.

6 months after the treatment completion PH integral point made up $49,6 \pm 1,2$, i.e. it was still higher than the original point by $5,8 \pm 1,2$. The most significant improvement was registered according to the scale of pain intensity (BP) – by $49,8 \pm 3,9$ and according to the scale of role functioning (RP) – by $45,0 \pm 9,2$.

Fig. 1 shows that 6 months after the treatment completion average indexes according to all the scales of quality-of-life physical element came down just a little bit in comparison to the moment of the treatment completion (measuring 1) and stayed much higher than the original ones (measuring 0).

The difference according to all the scales in all the cases turned out to be highly significant from viewpoint of statistics ($p < 0,0005$).

In control group (Table 6, Fig. 2) original PH integral point made up $45,6 \pm 1,5$, while the lowest index was the one according to pain intensity scale (BP) – $22,9 \pm 3,5$, the highest one – according to physical functioning scale (PF) – $46,0 \pm 4,1$.

Table 1. Criteria for inclusion in and exclusion out of the research

Inclusion criteria	Exclusion criteria
<ul style="list-style-type: none"> • Pain syndrome lasting over 6 months; • Active complaints before and at the moment of research start; • Male sex; • Age over 30, under 60; • Diagnosis of lumbodinia/lumbar ischialgia or local myofascial pain established by a neurologist; • Accomplishment of instrumental visualizing examination (computed tomography/magnetic resonance imaging) of lumbar spine and sacral spine 	<ul style="list-style-type: none"> • Clinically significant symptoms of neurologic impairment which are active at the moment of treatment start; • Destructive processes and/or apparent osteoporosis of vertebral bodies (according to visualization evidence); • Evident constrictive process in a vertebral canal (according to visualization evidence); • Suspected vascular (ischemic) genesis of the disease; • Neurosurgical operations on the vertebral column in the past history; • Severe associated diseases: high degree of arterial hypertension, coronary heart disease, cardiac malformations, cerebrovascular disease, cardiovascular collapse, respiratory or renal failure, noncompensated diabetes mellitus, rheumatologic diseases in active phase (including febrile states of nonspecified origin), chronic infectious diseases, mental diseases (incl. those in the past history), malignant neoplasms (incl. those in the past history) or assumption of them

Table 2. Members and characteristics of index group and control group

Parameters of the groups	Index group	Control group	Total
Number of patients (n) at the beginning of the research	15	15	30
Number of patients (n) at the end of the research	15	15	30
% of patients who have passed through the research till the end	100%	100%	100%
Average age of the patients, years	45,5±1,7	43,1±1,3	44,0±1,1
Minimal age of the patients, years	35	35	35
Maximal age of the patients, years	55	53	55

After treatment PH integral point made up 48,2±1,4, i.e. it grew by 2,7±0,7. The biggest progress was registered in this group according to pain intensity scale (BP) – by 34,5±2,8.

6 months after treatment completion average PH integral point equalled to 46,0±1,2, i.e. it almost got back to its original value (the difference of 0,5±1,0). Analysis of the dynamics according to different scales showed that there was kept a moderately marked positive difference from the original level according to role functioning scale (RP) – 15,0± 5,9, and according to pain intensity scale (BP) the point was still higher than the original one, too – by 13,9± 2,7. According to PF scale average point turned out to be even lower than the original one.

Table 3. Act of examination of the research participants

No	Research method	Comment
1.	Collecting complaints and anamnesis	Checkup, incl. testing according to inclusion/exclusion criteria
2.	Neurologic examination	Accomplished by neurologist, with the record of the diagnosis established
3.	Visualizing instrumental examination of sacro-lumbar spine (computed tomography/magnetic resonance imaging)	Checkup, incl. testing according to inclusion/exclusion criteria. The results of the earlier examination (no older than 1 year) were taken into consideration.
4.	SF-36 health survey	Methods of the survey results processing and scale indices calculations are given in Appendix 1.3, while the results of primary processing of index group survey results – in Appendix 2.1 and control group survey results – in Appendix 2.2.

Table 4. Indexes under analysis (within the groups)

Average values of SF-36 health survey scale indexes			
	Before treatment (0)	After treatment (1)	Six months after the treatment completion (2)
Indexes of separate scales of physical health (PF, RP, BP, GH) and integral indicator of physical health (PH).			
Indexes of separate scales of mental health (VT, SF, RE, MH) and integral indicator of mental health (MH).			

Table 5. The dynamics of results within the limits of SF-36 health survey testing in the index group (quality-of-life physical element)

indexes	Physical health				
	PF	RP	BP	GH	PH
original (0)	44,7±4,4	25,0±7,7	18,6±4,0	35,0±4,1	43,8±1,4
After treatment (1)	65,7±4,7	80,0±5,6	73,5±3,9	59,9±3,2	51,5±1,4
6 months later (2)	57,3±3,7	70,0±5,0	68,4±3,3	55,6±3,0	49,6±1,2
Δ(1-0)	21,0±4,0	55,0±8,9	54,9±4,2	24,9±3,0	7,7±1,5
Δ(2-0)	12,7±3,2	45,0±9,2	49,8±3,9	20,6±2,6	5,8±1,2

The differences according to all the scales in all the cases in this group proved to be highly significant from viewpoint of statistics (p<0,0005).

The dynamics of quality-of-life physical element indexes in control group is shown in Fig. 2. Average indexes according to majority of scales after six months tend to get back to the values close to the original ones (measuring 0).

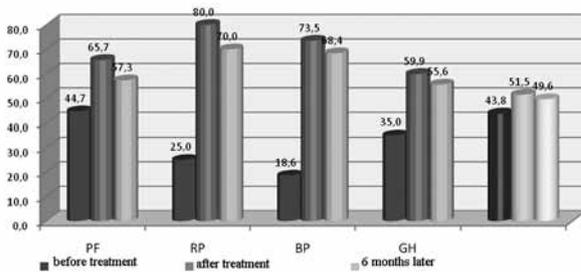


Fig. 1. The dynamics of SF-36 physical health indexes. Index group

Table 6. The dynamics of results within the limits of SF-36 health survey testing in the control group (quality-of-life physical element)

indexes	Physical health				
	PF	RP	BP	GH	PH
Original (0)	46,0±4,1	45,0±7,4	22,9±3,5	33,3±4,2	45,6±1,5
After treatment (1)	54,0±4,2	68,3±6,7	57,5±3,9	49,9±3,9	48,2±1,4
6 months later (2)	39,7±3,2	60,0±5,3	36,8±2,9	37,1±3,5	46,0±1,2
Δ(1-0)	8,0±1,9	23,3±3,8	34,5±2,8	16,6±2,0	2,7±0,7
Δ(2-0)	-6,3±1,8	15,0±5,9	13,9±2,7	3,8±2,2	0,5±1,0

Quality-of-life mental element

Integral point according to the scales of quality-of-life mental element (MH) in the index group (Table 7, Fig. 3) originally equaled to 26,8±1,8, while the lowest point was the one according to role emotional functioning scale (RE) – 13,3±4,4, and the highest one – according to mental health assessment scale (MH) – 30,4±3,1.

After treatment completion MH integral point made up 39,9±1,6, i.e. it grew by 13,2±1,3. The most significant improvement was registered according to role emotional functioning scale (RE) which point was originally the lowest one and after treatment went up by 53,3±6,3.

6 months after treatment completion average MH integral point in the group made up 38,9±1,4, i.e. it was still higher than the original one by 12,0±1,2. The biggest difference was again according to role emotional functioning scale (RE) – 44,4±6,2 higher than the original one. Fig. 3 shows that 6 months after treatment completion average indexes according to all the quality-of-life mental health scales got just a little bit lower in comparison to the moment of treatment completion (measuring 1) and stayed much higher than the original ones (measuring 0). The differences according to all the scales proved to be highly significant from viewpoint of statistics ($p < 0,0005$).

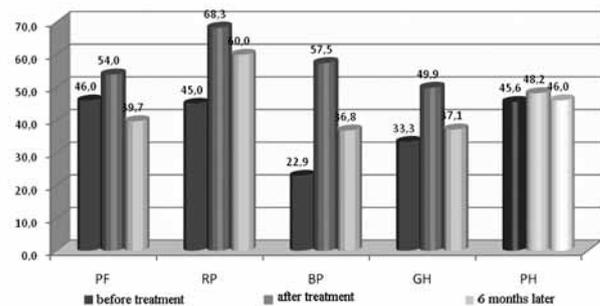


Fig. 2. The dynamics of physical health indexes according to SF-36 health survey. Control group

Table 7. The dynamics of results within the limits of SF-36 health survey testing in the index group (quality-of-life mental element)

indexes	Mental health				
	VT	SF	RE	MH	MH
original (0)	26,7±3,0	24,2±4,5	13,3±4,4	30,4±3,1	26,8±1,8
after treatment (1)	53,7±4,0	55,8±4,5	66,7±5,6	52,3±2,6	39,9±1,6
6 months later (2)	52,7±2,9	50,8±3,1	57,8±5,1	49,3±2,8	38,7±1,4
Δ(1-0)	27,0±3,0	31,7±5,4	53,3±6,3	21,9±2,1	13,2±1,3
Δ(2-0)	26,0±2,8	26,7±5,0	44,4±6,2	18,9±2,4	12,0±1,2

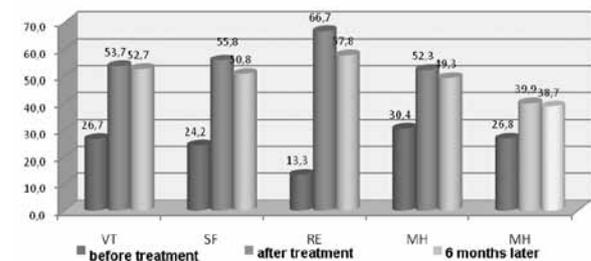


Fig. 3. The dynamics of mental health indexes in index group (according to SF-36 survey)

General regularities in quality-of-life indexes dynamics within the groups

In both groups statistically significant improvement of quality-of-life index was registered as a result of the treatment. From viewpoint of physical health, the biggest progress was registered according to pain intensity scale, which original point was the lowest one. From viewpoint of mental health, the most considerable progress was the one according to emotional role functioning scale (RE), which original point was the lowest, too.

The second testing conducted 6 months after the treatment completion showed that the statistically significant difference between the current index

Table 8. The dynamics of results within the limits of SF-36 health survey testing in control group (quality-of-life mental element)

Indexes	Mental health				
	VT	SF	RE	MH	MH
original (0)	34,3±1,7	31,7±2,4	17,8±5,5	38,1±1,9	30,2±1,3
After treatment (1)	60,0±1,8	57,5±4,5	44,4±7,0	53,3±1,8	40,6±1,2
6 months later (2)	42,0±1,4	41,7±2,6	26,7±5,8	43,5±1,3	34,3±1,3
Δ(1-0)	25,7±1,8	25,8±4,1	26,7±4,8	15,2±1,8	10,4±0,8
Δ(2-0)	7,7±1,8	10,0±2,5	8,9±6,1	5,3±2,0	4,2±1,0

values according to most of the scales and the original ones was still there in both groups. However, while in index group they decreased a little bit in relation to measuring 1 (immediately after treatment completion) and stayed considerably higher than the original ones (measuring 0), in control group there was a reverse regularity – index values according to most of the scales went down to a considerable extent and tended to approach to the original values.

In control group (Table 8, Fig. 4) original average MH integral point made up 30,2±1,3, the lowest index was the one according to RE scale – 17,8±5,5, the highest one – according to mental health assessment scale (MH) – 38,1±1,9.

After treatment completion average MH integral point equaled to 40,6±1,2, i.e. it grew by 10,4±0,8. The most significant progress was registered in the group according to RE scale – by 26,7±4,8, according to SF scale – by 25,8±4,1 and according to VT scale – by 25,7±1,8.

6 months after treatment completion average MH integral point equaled to 34,3±1,3, i.e. it was still higher than the original one by 4,2±1,0. The most marked progress was registered according to social functioning scale (SF) – by 10,0± 2,5.

The differences according to all the scales proved to be highly significant from viewpoint of statistics (p<0,0005).

The dynamics of quality-of-life psychological element indexes in control group is shown in Fig. 4.

CONCLUSIONS

- Osteopathic treatment of the patients with pain syndrome in lumbus and lower extremities leads to improvement of quality-of-life indexes from both physical and psychological viewpoints. The most significant shift was registered according to pain intensity scale and role emotional functioning scale, both of which originally had the lowest points and, consequently, reflected the parameters which dissatisfied the patients most of all.

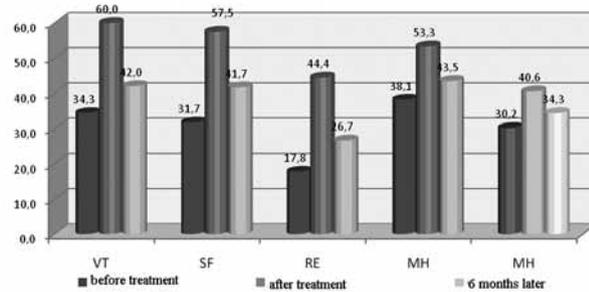


Fig. 4. The dynamics of SF-36 mental health indexes. Control group

- The above mentioned improvement of QL indexes proved to be stable in the course of time.
- The patients who received osteopathic treatment enjoyed significantly more considerable improvement of QL indexes according to all the SF-36 health survey scales in comparison to the patients who were treated with traditional methods. The difference was especially marked according to physical health scales.

REFERENCES

- G.I. NAZARENKO, I.B. GERUYEVA, A.M. CHERKASHOV, A.A. RUKHMANOV. Vertebrogenous pain in lumbus. Diagnostics and treatment techniques/ Under the editorship of G.I. Nazarenko. Moscow, "Publishing house "Medicine" JSC. – 2008, 456 pp.
- S.V. NOVOSELTSEV. Introduction to osteopathy. Soft tissue and joint manipulations (2nd edition). St. Petersburg, "Publishing house Foliant" Ltd. – 2009, 320 pp.
- Treatment of dorsolumbar spondylogenic neurologic syndromes/Under the editorship of A.A. Skoromets. St. Petersburg, Publishing house "Hippocrates". – 2001, 160 pp.
- ANDREW T. STILL. OSTEOPATHY: Research and Practice/Translated from English. Seattle, Publishing house "Eastland Press". – 1992.
- A. STODDARD. Manual of osteopathic technique/ Traslated and edited by O.N. Lukash. Almaty, Publishing house "Arkaim". – 2002, 304 pp.
- YU. L. SHEVCHENKO, A.A. NOVIK, T.I. IONOVA. Manual for research of quality of life in medicine. St. Petersburg, Publishing house "Neva"; Moscow, Publishing house "Olma-Press Zvezdny mir". – 2002.
- WARE J.E., SNOW K.K., KOSINSKI M., GANDEK B. SF-36 Health Survey. Manual and interpretation guide //The Health Institute, New England Medical Center. Boston, Mass. –1993.
- WARE J.E., KOSINSKI M., KELLER S.D. SF-36 Physical and Mental Health Summary Scales: A User`s Manual // The Health Institute, New England Medical Center. Boston, Mass. – 1994