Psychological comfort in patients with lumbar spine osteochondrosis treated with daily therapeutic-prophylactic clothes over 6 months

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ABSTRACT

Background: Patients with second-degree lumbar osteochondrosis are observed to pay more attention to their health, have higher levels of anxiety, and a lower degree of life satisfaction. Daily wearing of therapeutic-prophylactic clothes by the subjects was applied for correction of osteochondrosis signs. Levels of life-satisfaction, anxiety levels, personal self-estimation, and attention paid to their health were observed in subjects with osteochondrosis who wore the garments daily for 6 months.

Methods: The study was conducted in Central Russia (Moscow City and Moscow region). Data were obtained from 37 healthy subjects as a control group and 43 subjects of second-degree lumbar spine osteochondrosis as a case group in both sexes of the second mature age (mean age – 43.5±2.5 years, 44.7±1.9 years, respectively).

The doctor in the institutions diagnosed second-degree lumbar spine osteochondrosis.

Results: Our results revealed subjects with osteochondrosis who daily wore the author’s version of therapeutic-prophylactic clothes for six months, had persistent remission of osteochondrosis with reduction of painful and unpleasant sensations in the lumbar spine. Furthermore, the subjects also showed a significant decrease of anxiety level, an increase of personal self-estimation and satisfaction with life at the rise of motivation to wearing of therapeutic-prophylactic clothes.

Conclusion: Daily wearing of therapeutic-prophylactic clothes’ applied version for six months can ensure the correction of clinical osteochondrosis manifestations in people of mature age and the formation of psychological comfort what secures the achieved remission.

Keywords: mature age, osteochondrosis, clothes, psychological comfort.


INTRODUCTION

Researchers argued that osteochondrosis of the spinal column, which manifests itself by the development of degenerative changes in intervertebral disks remains unclear. For the first time, the term “osteochondrosis” was offered in 1933 by the German orthopedist Kildebrand to characterize involutional processes in the musculoskeletal system and tissues of the spinal column.1 Special clinical significance belongs to the development of the given process in the lumbosacral section of the spinal column is equal to nearly 33% of common length. It creates significant functional and statistical loads on intervertebral disks in the given section of the spinal column. Spinal column supports the whole of the body and has physiological lordosis which forms functionally unfavourable conditions for intervertebral disks.2 Experts note that the presence of osteochondrosis is often accompanied by a weakening of the body and the emergence of persistent psychological discomfort.3 It is connected with the fact that the progression of osteochondrosis weakens the functions of most internal organs.4,5 It is known that the existence of osteochondrosis disturbs the performance of the cardiovascular system, promotes the formation of arterial hypertension and worsens indices of blood system with the gradual development of hypoxia in the body.6,7,8 Forming oxygen deficiency in brain cells at osteochondrosis may slow down the anabolic processes that promote worsening of many psychical processes.9

A rather large prevalence of osteochondrosis among and the hazard of polymorbidity keeps the necessity of further search of effective approaches for its correction with the obligatory account of their impact on the emotional background of patients.10 The capabilities of the different effects on somatic indices of bodily and psychiatric processes were investigated earlier in the clinic and experiment.11-15 Considering patients’ low compliance to exercise, the urgency of the search of its correction variants becomes clear. It is especially important for this search to clarify the adherence of patients with osteochondrosis to the corrective effect applied.16 Such a therapeutic effect on the body can become the basis for the prevention of exacerbations of osteochondrosis.17 Wearing of therapeutic-prophylactic clothes (TPC) can be considered as an alternative

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to therapeutic physical training in the field of influencing osteochondrosis manifestations. It was supposed that attachment of patients with osteochondrosis of the lumbar spine to TPC could turn out to be much higher than to therapeutic physical training.\textsuperscript{18} At the same time, the possibility of psychological comfort in people with osteochondrosis with the help of constant TPC wearing is unstudied what demands to conduct additional researches. Therefore, our study aimed to estimate the possibility of psychological comfort in people of the second mature age with second-degree lumbar spine osteochondrosis against the background of daily TPC wearing by them for six months.

**METHODS**

The study was conducted in Central Russia (Moscow City and Moscow region). The study was obtained from 37 healthy subjects as a control group and 43 subjects of second-degree lumbar spine osteochondrosis as a case group in both sexes of the second mature age (mean age – 43.5±2.5 years, 44.7±1.9 years, respectively). The doctor in the institutions diagnosed second-degree lumbar spine osteochondrosis. The subjects were diagnosed in the stage of either abating exacerbation or incomplete remission. None of them received pharmacological therapy or physiotherapy. The local Ethics Committee approved the conducted research of the Russian State Social University in May, 14\textsuperscript{th}, 2015 (Record №5). All subjects gave written informed consent on their participation in it.

We determined the level of significance of primary priorities in life in all the examined patients. They were offered to mark the most important one of the following positions: career, bright life, family, material welfare, friends, health.\textsuperscript{18}

Estimation of the examined people' satisfaction with life quality was conducted in the form of questioning. They were offered to determine one variant which gives the fullest characteristics of perception of their own life by them. They were included fully satisfied, satisfied on the whole, partially satisfied, unsatisfied.\textsuperscript{19} Detection of anxiety level was conducted in the subjects with the help of the test “The scale of personal anxiety”.\textsuperscript{19} Patients were asked 40 questions according to techniques. The answers were processed and interpreted to allow estimating the level of anxiety. The techniques “staircase” was used for clarification of self-estimation state.\textsuperscript{19} After processing and interpreting results, we concluded level estimation: overestimation, adequate estimation and underestimation.

The author’s questionnaire was used to estimate levels of TPC wearing motivation.\textsuperscript{20} It consisted of 10 questions. A patient should choose only one answer. The relation of a person to TPC was estimated at processing and interpreting the results. An evident positive association was assessed in 3 points; positive relation was determined in 2 points; neutral answer (I don’t know, It happens differently and so on) was estimated in 1 point; the answer which allowed judging the negative relation of a man to TPC was expected in 0 points. Five levels of TPC wearing motivation were determined based on the received data: the first level – high level of motivation to TPC; the second level – good motivation; the third level – positive relation to TPC; the fourth level – low motivation to TPC; the fifth level – negative relation to TPC.

All subjects observation were recommended to wear therapeutic-prophylactic clothes designed by the authors every day to correct osteochondrosis manifestations.\textsuperscript{21} The applied TPC consisted of belt-cast with warming effect, which was composed of two details – backplate and breastplate. The belt-cast was also provided with vertical pockets of different width. Stiffening ribs of elastic material were inserted into one of them, warming elements – into the others. Both plates were made of two layers of fabric. Vertical stitches forming pockets were made along their whole surface. Both layers of fabric were sewed between each other along with the lower cut and sides. The uppercut was left open and was provided with a zipper. A set of salt heaters was used as warming element. The patients from the group of observation were examined at the beginning, in 3 months, and 6 months of constant TPC wearing. The control group was considered once.

**RESULTS**

In the beginning, all the patients with osteochondrosis complained either of torpid episodic painlessness or discomfort in the lumbar region. By the end of observation, all the patients noted the persistent absence of the given sensations for, at least, the last 3.5 months.

In the control group, the attention of people to their health wasn’t high. Only 16.3% of them considered it as their priority. Important priorities in the control group were rather various. Health was the main priority of the group of patients both at the beginning and by the end of observation (72.1% and 67.4%, respectively). Other vital references which were studied in the research were much inferior to it (Figure 1).

The control group was noted to have a high degree of satisfaction with life ("satisfaction" or “satisfaction on the whole” summarily composed 81.0%). At the beginning satisfaction with life
which were dissatisfied with their life reduced to 7.0%, and the bulk of patients were in different degrees satisfied with their life quality (on the whole – 93.0%) (Figure 2).

In the result of the conducted test on personal anxiety, we received the results which are presented in Figure 3.

Peculiarities of personal anxiety with osteochondrosis who daily wore TPC are shown in Figure 3. So, the initially significant occurrence of increased anxiety among these people (32.5%), high anxiety (18.6%) and very high anxiety (9.4%) lowered in the result of TPC application and reached the control values (18.6%, 7.0% and 2.3%, respectively). At the same time, the number of calm people and those with normal level of anxiety increased and nearly reached the control level.

The results of application of the techniques “Staircase” for determination of self-estimation in wearing TPC patients with osteochondrosis are presented in Figure 4.

During the first examination, it was established that only 4.6% and 37.2% of patients had overestimation, and adequate self-estimation was noted in 58.2% of patients. As a result of daily wearing TPC for six months, self-esteem has changed (adequate self-estimation – 86.0%, underestimation – 7.0%, overestimation – 7.0%).

While observing the people wearing TPC, there was also received the dynamics of motivation level to the application of the given kind of correction (Figure 5).

At the beginning of TPC application, the motivation to its wearing in people with osteochondrosis was rather low (high – in 7.0%, good – in 4.6%, positive – in 34.9%). When using TPC for people with osteochondrosis, there was a slight increase in commitment to wearing it, which indicated the formation of a positive attitude towards it (high motivation – in 58.2%, good motivation – in 23.2%, positive motivation – in 14.0%).

DISCUSSION

The human body has its unique genetic code in which its morpho-functional characteristics and a possible predisposition to different pathology are concealed.22,23 The realization of this predisposition is mostly connected with environmental impacts on a body which cause the development of various somatic disturbances and their progression.24-26 All these things are also quite fair for osteochondrosis which can develop in the course of vital activity of a body under the impact of unfavourable environmental factors. The wide occurrence of
Osteochondrosis explains the preservation of attention to this state among researchers among world population and frequency of its complications.\textsuperscript{1,6} It is known that the development of osteochondrosis worsens metabolism and processes of blood circulation, thus disturbing the performance of many internal organs, including the brain.\textsuperscript{5,6} A significant role in the formation of these dysfunctions at scoliosis belongs to the development of disturbances of regular blood elements’ microrheological properties.\textsuperscript{7} It inevitably declares itself by the growth of anxiety what we managed to note in the conducted research. Besides, the presence of sickness and discomfort in the lumbar spine lowers self-estimation of a person, and it can strengthen and deepen under the impact of forming light hypoxia of his brain cells. Given a situation develops psychological discomfort and lack of confidence in people that may lead to psychological deadaptation.\textsuperscript{14,17} Working out of effective correction variants of the given state is necessary for the rehabilitation of people with osteochondrosis. It will prevent the formation of rheological disturbances and different somatic pathology in the future.\textsuperscript{26,27} Further researches of keen mechanisms of different variants of “gentle correction” impact on a mature body with osteochondrosis can open great perspectives for modern rehabilitology.\textsuperscript{4} One of these variants is constant TPC wearing. Its degree of influence on clinical manifestations of osteochondrosis and level of psychological comfort is far from being adequately studied. We can state that regular TPC wearing by people with osteochondrosis positively influences clinical manifestations of osteochondrosis as well as gradually eliminating them. Constant preservation of physiologically favourable body position optimizes the course of vital processes in the musculoskeletal system and all the internal organs of people with osteochondrosis. Given situation leads to the inflow of the necessary quantity of nutrients and oxygen to cartilages, bones and muscles that causes active washing of toxic products out of them. All this provides strengthening of reparative processes in patients’ intervertebral disks which eliminates clinical manifestations of osteochondrosis.\textsuperscript{28} Developing changes in a body form all physiological preconditions for enhancement of macro ergs’ continuous resynthesize.\textsuperscript{30,31} The synthesis of nucleic acids and proteins is inevitably stimulated in these conditions in cartilaginous intervertebral disks and internals. Given situation forms the most favourable conditions for metabolism and adaptation of the body to living conditions.\textsuperscript{32-35}

Estimation of TPC psychological comfort is one of the most significant indices of its quality in the course of the search of construction with ideal technology, compatibility of the product’s surface in statics and dynamics, physiologically approved rigidity of elements composing it.\textsuperscript{36-38} That’s why, the conducted supervision of anxiety dynamics in people wearing TPC, was very interesting. We found the possibility of emotional background’s stabilization of patients with lumbar osteochondrosis what an important element of their bodies’ common rehabilitation was. Lowering of anxiety and the rise of self-estimation promoted the formation of internal positive mood and necessarily increased adaptation to the environment.\textsuperscript{39,40} Surviving memories about somatic discomfort provided preservation of high level of patients’ attention to their health. At the same time, the level increase of quality estimation of their own life proved stableness of osteochondrosis remission against the background of TPC wearing. Detected increase of motivation to TPC wearing in the course of its application was indubitable evidence of comfort in wearing.
provision of subjective satisfaction and improvement of general state.\textsuperscript{41,42}

It becomes clear that it’s entirely possible to eliminate clinical manifestations of osteochondrosis in people of the second mature age in 6 months’ TPC application. At the same time, TPC wearing can provide the achievement of psychological comfort in people with osteochondrosis. The received result speaks about high efficiency and great availability of the measured approach in osteochondrosis manifestations’ elimination.\textsuperscript{43} Patients’ high motivation to the daily wearing of TPC points at the high degree of its technical perfection and constructive completeness which can provide a rehabilitative effect concerning the somatic and psychological status of a person with osteochondrosis.

**CONCLUSION**

People of the second mature age with second-degree lumbar spine osteochondrosis are characterized by strengthening of personal anxiety, lowering of self-estimation level, and dissatisfaction with life quality. In the beginning, their motivation to TPC wearing was not high. Daily wearing of therapeutic-prophylactic clothes for 6 months turned out to be able to raise satisfaction with the quality of life and level of self-esteem in people with osteochondrosis by lowering their anxiety. Besides, the level of patients’ motivation to wearing of TPC significantly rose in the course of its application to them.

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**ETHICAL CLEARANCE**

This study has obtained ethics approval from the Ethics Committee of Russian State Social University, prior to the study conducted.

**CONFLICT OF INTERESTS**

The authors declare that there were no conflicts of interest in the process of this study.

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**AUTHOR CONTRIBUTION**

All of the authors are equally contributed to the study from the study framework, data gathering, data analysis, until reporting the result of the study.

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