

Does cognitive functional therapy improve chronic low back pain? A Case report

Abstract

Objective: Chronic low back pain (CLBP) is defined by the World Health Organization (WHO) as a limiting musculoskeletal condition, not a disease that affects social and psychological features even economical field of world population affecting mainly man active workers range 35 to 55years old. The major challenge for dealing with this pathology is that patients present, depressive, pain catastrophization and kinesiophobic signs, reducing adherence to treatment. For this reason, the purpose of this case report was to verify the effect of a physical therapy model based on cognitive functional therapy on pain, function and patient satisfaction in a patient with chronic non-specific low back pain.

Design: Case report.

Setting: Santa Casa de Misericórdia de São Paulo Hospital.

Subject: A 52years old man, married and industry machinery operation worker diagnosed with chronic low back pain.

Methods: Application of twelve questionnaires for pain, function, and patient satisfaction outcomes in initial evaluation, middle and end of the rehabilitation protocol based on cognitive functional therapy.

Results: In the end of the treatment with emphasis on biopsychosocial approach, the patient was able to get back to his normal activities of daily living, working and exercising without pain.

Conclusion: This case report presented positive results in relation to pain, function and patient satisfaction in a patient with chronic non-specific low back pain submitted to a physical therapy model based on cognitive functional therapy.

Keywords: low back pain, cognitive therapy, physical therapy, motor control

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Background

Chronic low back pain (CLBP) is defined by the World Health Organization (WHO) as a limiting musculoskeletal condition - not a disease¹ - that affects social and psychological features even economical field of world population, especially in developed countries^{2,3} affecting mainly man active workers range 35 to 55 years old⁴. It is responsible for high costs to public health systems⁵⁻⁷ even its clinical symptoms are related to great numbers of physical and work incapacities and negative impact in quality of life. High expenses resulting from the request of physical examinations by the doctors, even there was evidence of a low correlation between LBP symptomatology and imaging findings are other important reason as well.^{8,9}

CLBP classification is still the subject of several discussions in the clinical and scientific context, and this is due to its multifactorial etiology.¹⁰⁻¹² The most part of patients are usually classified in groups by clinical findings, but there are some individuals who do not fit any of them rising a group termed non-specific chronic low back pain. This situation set the clinical decision-making back.^{13,14} By the way, clinical decision-making is another unconcluded subject already. Although several classification schemes exist, each with their own philosophy and categorizing method. However, most have one common element which is mainly based upon directional

preference^{15,16} and motor control.^{17,18} Other treatments are passive and based on manual therapy,¹⁹ electroanalgesia^{19,20} and acupuncture.²¹

Due to the complexity of the etiology of LBP, the approach to this syndrome has also expanded and become more comprehensive considering biopsychosocial factors as a form of diagnosis and treatment,^{22,23} bringing with it tools such as education dealing pain^{24,25} and therapies as cognitive functional (CFT) and behavioral (CBT).^{23,26,27}

The aim of CFT is lead patients to confront their fear and changing beliefs about movements, pain mechanisms and behavior during activities that cause pain and to give tools for these patients to reduce excessive trunk muscle activity and not try to avoid some postures.^{26,28}

Another important aspect about cognitive therapy is its excellent cost-effectiveness when compared to conventional therapy and even with another cognitive approach technique, as described by Herman et al.²⁸ The authors detailed expenditures with each therapy and the government's economy for treatment of the population and listed cognitive therapy with the lowest cost-benefit ratio.²⁸

The major challenge for physiotherapy in dealing with LBP is the profile that patients present, which is usually composed of depressive and kinesiophobia factors,²⁹ signs of catastrophization and denial, sleep disturbances,³⁰ among others, reducing adherence to some

treatments. We believe that these non-biological components have great influence not only on the behavior of the symptoms, but also on the prognosis of these individuals.

Kelly & Baker³¹ described six common errors that may hinder behavioral changes and attitudes toward our health: common sense, information transmission, information management, rational actions, irrational actions, predictive accuracy. Analyzing each one and their relationship to each other, one can understand some aspects that may negatively influence the patient's acceptance of a given therapy, showing that unimodal therapies may not be effective.

The association of these factors here presented, strengthens the importance of the cognitive behavioral approach as a tool in the intervention of a syndrome that for a long time had its origin credited only to biomechanical issues and image findings, showing that, as complex as the origin of LBP, be the approach to your treatment, without disregarding any of the probable causes. For this reason, the purpose of this case report was to verify the effect of an approach based on the biopsychosocial physiotherapeutic model in a subject with chronic nonspecific low back pain.

Methods

History

The Sample was composed by patient male JJ, 52years old, BMI=22, married, and worker in operation of machinery industry. He was recruited and evaluated by the physiotherapy service of Irmandade de Santa Casa de Misericórdia de São Paulo - ISCMSP on September 25th, 2015 and got a medical diagnosis of chronic low back pain. JJ had a history of insidious pain started ten years ago that always after the end of a workday routine and their main complaint was absence of mobility in his back, as reported respectively:

"I always end up making a lot of effort in my work. I need to crouch to get some heavy boards and transfer to another location, and when I get home after work, I feel a lot of pain in my spine. All the doctors that I went have always told me that I had to change company sector because my spine could not be carrying weight all the time, otherwise my herniated disc would increase."

"When I turn around or change my position I feel my back hampered."

After the medical diagnosis the patient was sent to physical therapy. However, even after some appointments with a physical therapist the clinical condition was not still satisfactory. When asked about his last episode of blocking, the patient reported that happened two weeks after the date of his evaluation, occurring during their work period. The patient had begun the practice of walking for approximately two months for a period of thirty minutes duration and frequency of twice a week, suspending this practice activity after the fact. About of recent event of pain worsening the patient was instructed by doctor to increase the drug doses to alleviate the symptoms (Figure 1).

Evaluation

The first physical therapy clinical evaluation performed was conducted through the application of twelve questionnaires to delineate and understand the patient better in all biopsychosocial aspects, and reapplied in the middle of treatment for monitoring and after its completion as criteria of discharge physiotherapy. All the instruments are listed below.

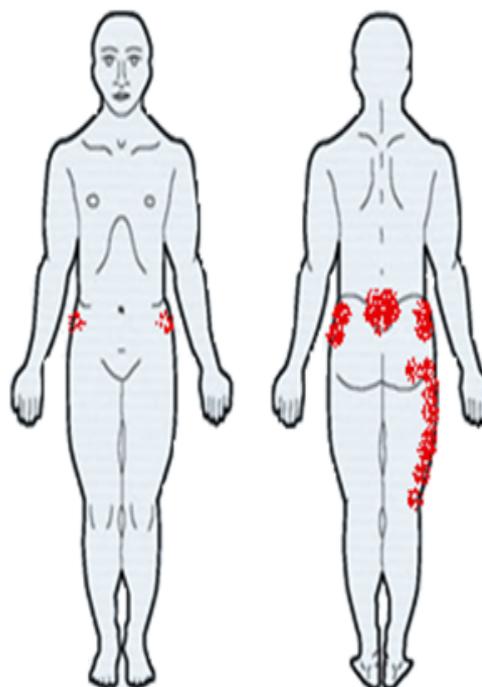


Figure 1 Pain representation area related by patient.

TAMPA scale: a self-applicable questionnaire used to identify fear of movement or exercise through 17 questions. Higher scores represent higher kinesiophobia;⁴²

VAS (Visual Analogue Scale): 10 centimeters line that represents 0 "no pain" to 10 "the worst possible pain".⁴³

McGill Pain Questionnaire: a questionnaire to understand the patient pain in three dimensions: affective, sensorial and intensity.⁴⁴

Roland Morris Disability Questionnaire: an instrument with 24 statements about activities, one point for each checked question.⁴⁵

Beck Depression Inventory: a self-related scale to verify symptoms and intensity of depression signs through 21 items.⁴⁶

VASA (Visual Analogue Scale for Anxiety): 10 centimeters line that represents 0 "not at all anxiety" to 10 "very anxious".⁴⁷

Global Perceived Effect Scale: a self-analysis of effect of treatment on to a low back pain episode compared with another;⁴⁸

Patient Specific Functional Scale: a ten points scale to show the level of difficulty for three or more important activities for the patient to compare before and after treatment.⁴⁸

FABQ-Brazil (Fear-Avoidance Beliefs Questionnaire): self-rated depression measure through 21 questions.⁴⁹

ÖMPSQ-short (Örebro Musculoskeletal Pain Screening Questionnaire-short form): a questionnaire to classify patients with low back pain in a high or low risk of pain chronification;⁵⁰

STarT Back Screening: classifies the risk of poor prognosis of low back pain patients with or without radiculopathy influenced by physical and psychosocial factors.⁵¹

MedRisk: a 13 items Instrument for Measuring Patient Satisfaction rated to 1 to 9 point in each question.⁵²

According to the patient's report the pain had become centralized and shooting down to the lateral of the hips and right thigh as shown on the map of pain described by the patient himself (Figure 2). Furthermore, the pain condition was intensified when the patient performed the trunk flexion, for example, to take an object on the ground. To make measurable these activities, we asked to patient choose the three most difficult activities for him and we used the Patient Specific Functional Scale³⁸ to compare the results before, during and after the treatment.



Figure 2 Magnetic resonance imaging in the sagittal view, T2 weighting.

Physiotherapy approach

The patient underwent ten sessions of physical therapy with emphasis on a biopsychosocial approach with 60 minutes each, twice a week within a period of five weeks. In addition, after each treatment the patient reported his pain signals in this way:

“Always when I left the therapy, I feel much better ... But when I return to the next session, I came back getting a little worse compared to last time I get out of here.”

The patient also reported the sensation of well-being after the practice of the exercises oriented to their home realization. Being that even tired after the day of work the same felt relief of the pain at the end of the proposed series.

Results

After the end of the treatment with emphasis on the biopsychosocial approach, the patient was able to get back to his normal activities of daily living, returned to his work functions and performed the practice of walking without pain complaints. In addition, he reported having reestablished his sexual activity without major limitations.

Table 1 Values of the difficulty levels of the three most difficult activities reported by the patient

	Patient specific functional scale	Final result	Initial result
Activity 1	Crooked walk	1	8
Activity 2	Bathing	2	8
Activity 3	Changing clothes	2	8

Table 2 Values obtained through functional scales during the first evaluation, half of the treatment and as a criterion of discharge physiotherapy

Scale	Pre intervention	Follow up (session 5)	Follow up (session 10)
TAMPA	59	24	36
VAS	9	0	0
McGill pain questionnaire	40	0	0
Roland Morris	83,34	20,83	20,83
Beck depression inventory	13	2	2
VASA	9,5	0,5	0
Global perceived effect scale	- 5 (Extremely worse)	4 (Recovered)	5 (Completely recovered)
FABQ-Brazil	49	25	25
Örebro Short	61 (High risk)	30 (Low risk)	25 (Low risk)
StarT	High risk	Medium risk	Low risk
MedRisk	89	89	89
Patient satisfaction (item from Medrisk scale)	3 (Little better)	1 (Extremely better)	1 (Extremely better)

Discussion

The purpose of this case report was to identify the effects of the intervention based on the cognitive behavioral model in a patient with chronic nonspecific low back pain with symptomatology reported over ten years. The main explanation of this was to bring a diagnostic approach based on the use of specific questionnaires to identify and

know the patient in their social, emotional and physical aspects, as well as a better strategy to conduct the clinical reasoning on the subject based on the principle of individuality.

The patient in this report, believe that any movement where he used his spine vigorously or even performing a discreet motion in an erroneous way, could affect his disc and aggravate the problem

installed in his column, this is due to an exposition made by the medical team where the patient was submitted during all the years of conviviality with the pain, leading him to believe that his spine was fragile and that at some point could make him invalid. These beliefs that relate the symptoms and/or their worsening with movements are common in patients with LBP, and exposure to this type of superficial information directly influences hypervigilance and exacerbation of symptoms, negatively reflecting the prognosis.⁴³

Therefore, when assessing and subsequently initiating the treatment of a patient with chronic pain, it is necessary to keep in mind the importance of the physiological cascades of pain described by Mosley (2003) and their influence on the daily activities of the patient, precisely because the pain exerts such broad influences in biopsychosocial systems that the patient is expected to be kinesiophobic, catastrophic and depressed in relation to pain, doubting that any intervention would be beneficial to his spine, as well as some activities mainly related to work.²⁹ After so much time living with the uncomfortable, the patient often loses hopes of being able to see himself well again, especially during the productive phases of life.⁴⁴

However, the cognitive behavioral physiotherapeutic model, as described by O'Sullivan¹⁰ and later reproduced by Ney Meziat⁴⁴ in his case report, aims to act on these central and peripheral pain alterations, demonstrating exactly the contrary to the patient, that is, the patient should understand that the more movement, the better his functional and psychosocial condition.²⁹ This explains the feeling of well-being reported by the patient whenever he performed the prescribed exercises to be performed at home, even during peak reassurance after work.

Moreover, exposure to the nocebo through the numerous requests for imaging examinations in the period of ten years, always characterizing degenerative changes and leading the patient to believe that his pain was of mechanical origin, i.e., produced by excessive use of his spine, leads us to a serious error of interpretation in clinical practice.^{45–48} Brinjikji et al.⁴⁷ verified the innumerable structural modifications of the lumbar spine throughout the life, being noticed larger alterations with the advancement of the age, but without any direct influence with the history of pain.⁴⁸

Thus, pains of biopsychosocial origin in this patient showed distal symptomatology, but were only perceived when it performed its trunk flexion, leading us to believe that the belief in bowing was the main limiting factor for the same perform the movements in their activities of daily living and work, proving to be highly kinesiophobic for this practice. From the moment the patient was clarified as to the mechanisms of pain and the demystification of his beliefs, the fact of bowing was something non-harmful and not harmful to his spine, a perception that was demonstrated in the improvement of the TAMPA questionnaire and as in our results, was also perceived by previous reports in the literature.^{49–51}

The main finding of this case report was to present the values obtained in the questionnaires used in the study in order to perceive real results regarding the improvement of the symptoms, beliefs and lifestyle of the patient submitted to the behavioral cognitive physiotherapeutic intervention in non-specific chronic low back pain. Since the biopsychosocial influence in the patient's complaint is clear based on the results of the first application of the questionnaires and the enormous evolution of the questionnaire in a short period of time, bringing us a quantitative return of the improvement of this subject when we verify the final results of the questionnaires. This supports

the importance of a more detailed evaluation to identify these factors, as well as a better orientation in the lumbar spine approach in the physiotherapist's clinical practice.⁵²

Conclusion

This case report presented positive results in relation to pain, function and patient satisfaction in a patient with chronic non-specific low back pain submitted to a physical therapy model based on cognitive functional therapy.

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None.

Conflicts of interest

Author declares that there are no conflicts of interest.

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