PAIN, KINESIOPHOBIA AND QUALITY OF LIFE IN CHRONIC LOW BACK PAIN AND DEPRESSION

ROGÉRIO SARMENTO ANTUNES[1], BÁRBARA GAZOLLA DE MACEDO[1], TAMMY DA SILVA AMARAL[1], HENRIQUE DE ALENCAR GOMES[1], LEANI SOUZA MÁXIMO PEREIRA[2], FÁBIO LOPES ROCHA[1]

ABSTRACT

Objective: To describe the characteristics of pain, kinesiophobia and quality of life in patients with chronic low back pain and depression. Methods: Cross-sectional study in which 193 individuals with chronic low back pain were included. The presence of depression was measured by the Beck Depression Inventory, using a cutoff validated by the Mini International Neuropsychiatric Interview. The intensity and quality of pain in the groups with and without depression were assessed by the McGill Questionnaire. The Tampa Scale for Kinesiophobia was applied to assess fear of movement. With respect to quality of life, the Medical Outcomes Study 36 was used. The statistical significance level was set at $p < 0.05$. Results: The prevalence of depression was 32.1%. The group with depression had worse scores in relation to pain, kinesiophobia and quality of life (physical functioning, role-physical, bodily pain, general health, vitality, social functioning, role-emotional, and mental health. Conclusion: Patients with low back pain and depression had higher pain intensity, greater fear of movement and poorer quality of life. ***Level of Evidence III, Cross-Sectional.***

Keywords: Low back pain. Depression. Quality of life.

Citation: Antunes RS, Macedo BG, Amaral TS, Gomes HA, Pereira LSM, Rocha FL. Pain, kinesiophobia and quality of life in chronic low back pain and depression. Acta Ortop Bras. [online]. 2013;21(1):27-29. Available from URL: http://www.scielo.br/aob.

INTRODUCTION

Chronic low back pain is one of the main complaints of patients with musculoskeletal disorders. It is defined by the presence of pain in the lumbar region lasting for more than 7-12 weeks.[1] It entails restriction of the capability for work, limitation for social activities, emotional problems[2] and reduced quality of life.[3]
Chronic low back pain is frequently associated with depression.[4] Between 16.4 and 73.3% of the patients with chronic low back pain present depression.[5] The presence of depression is associated with the greater intensity and persistence of pain,[6] greater incapacity,[2,7] higher economic cost[2] and more adverse life events.
The literature investigated did not produce any trials that were aimed at studying the impact of depression on the characteristics of chronic low back pain and on the fear of movement (kinesiophobia). The aim of the present study was to describe characteristics of pain, kinesiophobia and quality of life in patients with chronic low back pain associated with depression, in comparison to patients with chronic low back pain without depression.

METHOD

This is a cross-sectional observational study, conducted in the outpatient physiotherapy section of a state government institution, on patients diagnosed with chronic low back pain. The study was carried out in the period from August 2008 to August 2009. The participants who agreed to take part in the study signed the informed consent form. The project was approved by the Institutional Review Bureau (Report no. 307/08).
The inclusion criteria were: patients of both sexes, from 18 to 60 years of age, diagnosed with chronic low back pain at least three months previously.
Patients with neurological diseases (cerebrovascular accident, cerebral palsy and Parkinson's disease), patients who had suffered any type of recent fracture, patients who were in a postoperative process of any nature, those with important acute diseases in physiotherapeutic treatment, patients with chronic cancer pain and patients with chronic low back pain with non-musculoskeletal causes were excluded.
A total of 193 individuals, referred by orthopedists for outpatient physiotherapy treatment, were included in the study. The interviews were held by a single investigator, previously trained to apply the instruments. The participants answered a clinical sociodemographic questionnaire and the instruments were applied to evaluate depression, pain, kinesiophobia (fear of movement and re-injury) and quality of life. The presence

All the authors declare that there is no potential conflict of interest referring to this article.

1. Instituto de Previdência dos Servidores do Estado de Minas Gerais - Belo Horizonte, MG, Brazil.
2. Universidade Federal de Minas Gerais - Belo Horizonte, MG, Brazil.

Study conducted at the Instituto de Previdência dos Servidores do Estado de Minas Gerais – Belo Horizonte, MG, Brazil.
Mailing address: Fábio Lopes Rocha, Rua dos Otoni, 106, Santa Efigênia. 30150-270. Belo Horizonte, MG. Brazil. Email: rochafl@uol.com.br

Article received on 1/30/2011 and approved on 7/25/2011.

of depression was evaluated using the Beck Depression Inventory (BDI).[8]

The BDI is one of the instruments used most often to evaluate depression symptoms, and is applied to psychiatric and non-psychiatric patients. This instrument was validated in several countries. It is composed of 21 items that address the cognitive, affective, behavioral and somatic components of depression.[8]

As the BDI was not validated for this specific population, the Mini International Neuropsychiatric Interview (MINI) was used on a subsample of 87 patients to establish a cutoff. The MINI is a brief standardized diagnostic interview that confirms the diagnosis of depression among other possible diagnoses.[9] The MINI was used as gold standard to determine the BDI cutoff in this population, and was administered by a psychiatrist with specific training.

The intensity and quality of pain were assessed by applying the McGill questionnaire which evaluates pain in three dimensions: sensory-discriminative, affective-motivational and evaluative-cognitive. It consists of 78 words (descriptors) organized in four groups and 20 subgroups. The groups refer to the following pain components: sensory-discriminative (subgroups 1 to 10), affective-motivational (subgroups 11 to 15) and evaluative (subgroup 16). Subgroups 17 to 20 involve miscellaneous items.[10] The Tampa Scale for Kinesiophobia-Brazil was used to assess fear of movement and of re-injury. It consists of 17 statements about pain in which the patient is supposed to mark how much they agree or disagree with each statement, using a four-point scale. The final score can range between the minimum of 17 and the maximum of 68 points. The higher the score, the greater the degree of kinesiophobia, indicating that the individual is afraid of moving due to low back pain.[11] With respect to quality of life that involves physical, mental, psychological, emotional and social well-being, the investigators used the Brazilian version of the Medical Outcomes Study 36 (SF 36), which is composed of 36 items that are divided into eight topics: physical functioning (10 items), role-physical (4 items), bodily pain (2 items), general health (5 items), vitality (4 items), social functioning (2 items), role-emotional (3 items), mental health (5 items) and one more question of comparative evaluation between current and prior-year state of health. The result varies from 0 to 100, with 0 being the worst general state of health and 100 the best.[12]

STATISTICAL ANALYSIS

The cutoff in the BDI, for a more adequate balance between specificity and sensibility, was estimated through the ROC analysis, using the MINI as gold standard. The established cutoff was BDI $\geq$ 16.5.

To compare the sociodemographic characteristics between the groups with and without depression, the Chi-square test was used for the qualitative variables and the Student's t-test for the quantitative variables.

The Shapiro Wilk test was used to assess the distribution of the variables relating to pain (McGill), kinesiophobia (Tampa) and quality of life (SF36). As the variables did not present normal distribution, the comparisons were made through the Mann Whitney test.

The significance level used was $p<0.05$. The software employed was the SPSS (Statistic Package for the Social Sciences) installed in a Windows environment, version 13.0.

RESULTS

The study subjects were 193 patients with chronic low back pain, average age of 43.8 $\pm$ 11.9 years, 72.5% female and 32.1% with depression.

There was no difference between the groups with and without depression in relation to the average age (44.4 $\pm$ 10.4 and 43.6 $\pm$ 12.6 years, respectively) and education (p=0.325). However, women (90.3% and 64.1%, respectively) and separated or divorced individuals (25.8 and 8.4%, respectively) predominated in the group with depression. (Table 1)

Table 2 shows the comparison of the variables pain, kinesiophobia and quality of life in the groups with and without depression. The group with depression had a worse score in relation to pain (p=0.004), kinesiophobia (p=0.001) and quality of life [physical functioning (p=0.000), role-physical limitations (p=0.001), pain (p=0.000), general health (p=0.000), vitality (p= 0.000), social functioning (p=0.000), role-emotional limitations (p=0.0000), and mental health (p=0.000)].

Table 1. Socio-demographic characteristics of the patients with chronic low back pain in the groups with and without depression (n=193).

Variable	Depression						p-value
	Absent		Present		Total		
	n	%	N	%	N	%	
Sex							
F	84	64.1	56	90.3	140	72.5	<0.001
M	47	35.9	6	9.7	53	27.5	
Total	131	100.0	62	100.0	193	100.0	
Civil Status							
Single	43	32.8	18	29.0	61	31.6	0.015
Married	71	54.1	26	41.9	97	50.2	
Separated/divorced	11	8.39	16	25.8	27	13.9	
Widow/widower	6	4.6	2	3.2	8	4.1	
Total	**131**	**100.0**	**62**	**100.0**	**193**	**100.0**	
Level of Education							
Up to Primary ≤ 4 years	32	24.4	12	19.4	44	22.8	0.325
Secondary > 4 and ≤ 12 years	52	39.7	30	48.3	82	42.5	
Higher Education > 12 years	47	36	20	32.3	67	34.7	
Total	131	100.0	62	100.0	193	100.0	

Table 2. Comparison of the variables: pain, kinesiophobia and quality of life in the groups with and without depression (n=193).

Variable	Depression		p-value
	Absent	Present	
	Median (min-max)	Median (min-max)	
McGill			
Sensory-discriminative	17.0 (0.0 – 35.0)	20.0 (4.0 – 34.0)	0.053
Affective-motivational	5.0 (0.0 – 12.0)	6.0 (2.0 – 14.0)	<0.001
Evaluative	2.0 (0.0 – 5.0)	3.0 (0.0 – 5.0)	0.001
Miscellaneous	5.0 (0.0 – 17.0)	6.5 (0.0 – 13.0)	0.020
Total	31.0 (3.0 – 66.0)	36.0 (13 – 65.0)	0.004
Tampa SF 36	36.0 (21.0 – 56.0)	39.0 (23.0 – 56.0)	0.001
Physical Functioning	70.0 (0.0 – 100.0)	55.0 (0.0 – 100.0)	<0.001
Role-Physical Limit.	50.0 (0.0 – 100.0)	0.0 (0.0 – 100.0)	0.001
Pain	41.0 (0.0 – 84.0)	31.0 (0.0 – 72.0)	<0.001
General Health	67.0 (20.0 – 100.0)	52.0 (5.0 – 92.0)	<0.001
Vitality	60.0 (0.0 – 100.0)	35.0 (0.0 – 90.0)	<0.001
Social Functioning	75.0 (12.5 – 100.0)	37.5 (0.0 – 100.0)	<0.001
Role-Emotional Limit.	66.7 (0.0 – 100)	33.3 (0.0 – 100.0)	<0.001
Mental Health	68.0 (12.0 – 96.0)	40.0 (0.0 – 76.0)	<0.001

DISCUSSION

The patients assessed in the study were predominantly female, around 40 years of age and with an average level of education. Of these, 32.1% exhibited depression. In other chronic low back pain studies, the prevalence of depression varied between 19.8% and 72%.[2,13] Thus, the frequency of depression found in our sample is among the rates described in the literature. It is emphasized that the wide variation of prevalence is possibly due to methodological issues, mainly with respect to the criteria used to diagnose depression.[2,13] Even considering the variation in reports, the prevalence of depression in chronic low back pain is higher than that expected from random association. Several studies confirm the association between depression and chronic low back pain, yet the bases of this association have not yet been well established.[6,14]

In the group with depression, there was a higher number of women and of separated or divorced individuals. The higher number of women was expected since the prevalence of depression in the general population is twice as frequent in males than in females. Likewise, civil status is associated with depression. A separated or divorced status increases the risk of greater depression.[15]

All the topics evaluated (pain, kinesiophobia and quality of life) presented worse results in the chronic low back pain with depression group. With regard to pain, in the McGill questionnaire, domains 1 to 10 (sensory-discriminative), 11 to 15 (affective--motivational), 16 (evaluative) and 17 to 20 (miscellaneous) revealed worse quality in the group with depression. These results corroborate the literature. Studies indicate a mutual influence between pain and depression. The severity of the depression in patients with chronic low back pain is related to longer duration and greater intensity of pain. On the other hand, depression can increase sensibility to pain.[7,16]

As concerns kinesiophobia, it was verified that depressed individuals with chronic low back pain have greater fear of movement, of physical activity and of exercising, showing themselves to be more sensible to pain and fearful of re-injury. Recent guidelines emphasize that psychological aspects such as fear of movement and depression should be identified and treated early in patients with chronic low back pain, as they are predictors of worse evolution.[17,18]

As regards the quality of life topic, the patients with depression presented worse quality of life in the eight domains of the SF 36 questionnaire: physical functioning, role-physical limitations, pain, general health, vitality, social functioning, role-emotional limitations, and mental health. Although there are studies reporting worse quality of life in patients with chronic low back pain and depression in the literature, few used validated instruments such as the SF 36.[19,20] Worse quality of life in patients with chronic low back pain and depression is expected, since both problems affect physical functioning, leisure, social life and the ability to work, with an increase in absenteeism.[2,21,22]

This study presents some limitations. Its cross-sectional design prevents cause and effect evaluations. Another limitation was the absence of data on the use and the number of analgesic, anti-inflammatory and antidepressant drugs by the patients, since these drugs may have interfered in the quality and intensity of the pain. Finally, neither the BMI nor the level of physical activity of the patients was calculated.

CONCLUSIONS

In this study, the prevalence of depression in patients with chronic low back pain was high (32.1%). Patients with depression presented greater pain intensity, a greater fear of movement and of performing physical activities. Depression was also associated with worse quality of life.

REFERENCES

1. Andersson GB. Epidemiological features of chronic low-back pain. Lancet. 1999;354(9178):581-5.
2. Currie SR, Wang J. Chronic back pain and major depression in the general Canadian population. Pain. 2004;107(1-2):54-60.
3. Bentsen SB, Hanestad BR, Rustøen T, Wahl AK. Quality of life in chronic low back pain patients treated with instrumented fusion. J Clin Nurs. 2008;17(15):2061-9.
4. Pincus T, Newman S. Recall bias, pain, depression and cost in back pain patients. Br J Clin Psychol. 2001;40(Pt 2):143-56.
5. Fanian H, Ghassemi GR, Jourkar M, Mallik S, Mousavi MR. Psychological profile of Iranian patients with low-back pain. East Mediterr Health J. 2007;13(2):335-46.
6. Haggman S, Maher CG, Refshauge KM. Screening for symptoms of depression by physical therapists managing low back pain. Phys Ther. 2004;84(12):1157-66.
7. Rush AJ, Polatin P, Gatchel RJ. Depression and chronic low back pain: establishing priorities in treatment. Spine (Phila Pa 1976). 2000;25(20):2566-71.
8. Gorenstein C, Andrade L. Inventário de depressão de Beck: propriedades psicométricas da versão em português. In: Gorenstein C, Andrade L, Zuardi AW editores. Escalas de avaliação clínica em psiquiatria de psicofarmacologia. São Paulo: Lemos Editorial; 2000. p.89-95.
9. Amorim, P. Mini International Neuropsychiatric Interview (M.I.N.I): Validação de entrevista breve para diagnóstico de transtornos mentais. Rev Bras Psiquiatr. 2000;22(3):106-15.
10. Pimenta CAB, Teixeira MJ. Questionário de dor de McGill: proposta de adaptação do para a língua portuguesa. Rev Bras Anestesiol. 1997;47(2):177-86.
11. Siqueira FB, Teixeira-Salmela LF, Magalhães LC. Análise das propriedades psicométricas da versão brasileira da escala tampa de cinesiofobia. Acta Ortop Bras. 2007;15(1):19-24.
12. Ciconelli RM. Tradução para o português do questionário genérico de avaliação de qualidade de vida Medical Outcomes Study 36-Item Short-Form Health Survey (SF-36) [tese]. São Paulo: Universidade Federal de São Paulo; 1997.
13. Dickens C, Jayson M, Creed F. Psychological correlates of pain behavior in patients with chronic low back pain. Psychosomatics. 2002;43(1):42-8.
14. Atalay A, Arslan S, Dinçer F. Psychosocial function, clinical status, and radiographic findings in a group of chronic low back pain patients. Rheumatol Int. 2001;21(2):62-5.
15. Bromet E, Andrade LH, Hwang I, Sampson NA, Alonso J, de Girolamo G, et al. Cross-national epidemiology of DSM-IV major depressive episode. BMC Med. 2011;9:90.
16. Hurwitz EL, Morgenstern H, Yu F. Cross-sectional and longitudinal associations of low-back pain and related disability with psychological distress among patients enrolled in the UCLA Low-Back Pain Study. J Clin Epidemiol. 2003;56(5):463-71.
17. Leeuw M, Houben RM, Severeijns R, Picavet HS, Schouten EG, Vlaeyen JW. Pain-related fear in low back pain: a prospective study in the general population. Eur J Pain. 2007;11(3):256-66.
18. Boersma K, Linton SJ. Psychological processes underlying the development of a chronic pain problem: a prospective study of the relationship between profiles of psychological variables in the fear-avoidance model and disability. Clin J Pain. 2006;22(2):160-6.
19. Elliott TE, Renier CM, Palcher JA. Chronic pain, depression, and quality of life: correlations and predictive value of the SF-36. Pain Med. 2003;4(4):331-9.
20. Guzmán J, Esmail R, Karjalainen K, Malmivaara A, Irvin E, Bombardier C. WITHDRAWN: Multidisciplinary bio-psycho-social rehabilitation for chronic low-back pain. Cochrane Database Syst Rev. 2007;(2):CD000963.
21. Watson PJ, Booker CK, Moores L, Main CJ. Returning the chronically unemployed with low back pain to employment. Eur J Pain. 2004;8(4):359-69.
22. Clays E, De Bacquer D, Leynen F, Kornitzer M, Kittel F, De Backer G. The impact of psychosocial factors on low back pain: longitudinal results from the Belstress study. Spine (Phila Pa 1976). 2007;32(2):262-8.