

Analysis to Assess the Prevalence and Causes of Low Back Pain in a Known Population at a Tertiary Care Hospital

Ramprakash Lohiya¹, Anandu Ranjith², Manoj Kumar³, Kusum Rathore⁴, Anas Khan⁵, Nitin Bairwa⁶

¹Associate Professor & Unit Head, Department of Orthopedics, S. P. Medical College and Associated Groups of P.B.M. Hospitals, Bikaner, Rajasthan, India.

²PG Resident (IInd Year), Department of Orthopedics, S. P. Medical College and Associated Groups of P.B.M. Hospitals, Bikaner, Rajasthan, India.

³PG Resident (Ist Year), Department of Orthopedics, S. P. Medical College and Associated Groups of P.B.M. Hospitals, Bikaner, Rajasthan, India.

⁴Consultant Dental Surgeon, Dr. Kusum Dental Care, Jai Narayan Vyas Colony, Bikaner, Rajasthan, India.

⁵PG Resident (IIIrd Year), Department of Orthopedics, S. P. Medical College and Associated Groups of P.B.M. Hospitals, Bikaner, Rajasthan, India.

⁶PG Resident (IIIrd Year), Department of Orthopedics, S. P. Medical College and Associated Groups of P.B.M. Hospitals, Bikaner, Rajasthan, India.

Received: 14-03-2021 / Revised: 17-04-2021 / Accepted: 21-05-2021

Abstract

Background: Low back pain (LBP) is a significant health issue in all developing nations. It is also the most frequently treated health issue in healthcare sector. Hence; the present study was undertaken for assessing the prevalence and causes of low back pain in a known population. **Materials & Methods:** A total of 500 patients who reported to the Department of Orthopedics, S.P. Medical College and Associated Groups of P.B.M. Hospitals, Bikaner, Rajasthan (India) were enrolled. Complete demographic data of all the patients was obtained. Thorough clinical and medical history of all the patients was assessed. Chief complaint was recorded and radiographic examination of all the patients was done. Diagnosis of low back pain was established and prevalence of CLB pain was recorded. A Performa was framed and various etiologic factors of CLB were assessed. **Results:** Overall prevalence of LBP was 42.4 percent. Lumbar herniated disc was present in 11.79 percent of the patients while degenerative disc disease was present in 13.68 percent of the patients. Spinal stenosis and osteoarthritis were seen in 16.04 percent and 13.21 percent of the patients respectively. Tumour and compression fracture were seen in 10.38 percent and 8.49 percent of the patients. **Conclusion:** LBP is a significant health issue affecting major proportion of world's population. Degenerative disc disease, Spinal stenosis and Osteoarthritis are the major factor responsible for its occurrence.

Keywords: Low Back Pain, Prevalence.

This is an Open Access article that uses a fund-ing model which does not charge readers or their institutions for access and distributed under the terms of the Creative Commons Attribution License (<http://creativecommons.org/licenses/by/4.0>) and the Budapest Open Access Initiative (<http://www.budapestopenaccessinitiative.org/read>), which permit unrestricted use, distribution, and reproduction in any medium, provided original work is properly credited.

Introduction

Pain is an eccentric sensation which is tedious to describe and correspondingly problematic to analyze in a precise objective method. Spurs of adequate intensity to portend the integrity of the tissues are known as noxious stimuli. These might be mechanical, chemical, thermal or electrical. When noxious stimuli reach consciousness, they are registered as "pain"[1,2].

Low back pain (LBP) is a significant health issue in all developing nations. It is also the most frequently treated health issue in healthcare sector. The major clinical presentation of non-specific low back pain is pain and disability[1]. LBP signs can start from numerous nearby and far structures. Also, clinical presentation can also vary

from abnormal neurogenic pain perception, also known as neuropathic LBP. The diagnostic assessment of subjects with LBP can be tedious and needs intricate decision-making. However, the assessment of the basis of the pain is of essential significance in evaluating the treatment approach[3,4]. It is also observed that throughout the clinical analysis process, a physician has to contemplate that LBP can also be affected by psycho-somatic variables, like stress, depression, and/or anxiety. Hence; through clinical profile and medical history should also include drug abuse history, habit history, and psychiatric factors[5-7]. Hence; the present study was undertaken for assessing the prevalence and causes of low back pain in a known population.

Materials & Methods

The present research was undertaken for assessing the prevalence and causes of low back pain in a known population. A total of 500 patients who reported to the Department of Orthopedics, S.P. Medical College and Associated Groups of P.B.M. Hospitals, Bikaner, Rajasthan (India) were enrolled. Complete demographic

*Correspondence

Dr. Kusum Rathore

Consultant Dental Surgeon, Dr. Kusum Dental Care, Jai Narayan Vyas Colony, Bikaner, Rajasthan, India.

E-mail: consult@kusumdentalcare.com

data of all the patients was obtained. Thorough clinical and medical history of all the patients was assessed. Chief complaint was recorded and radiographic examination of all the patients was done. Diagnosis of low back pain was established and prevalence of Chronic low back (CLB) pain was recorded. A Performa was framed and various etiologic factors of CLB were assessed. All the results were recorded in Microsoft excel sheet and were analysed by SPSS software. Chi-square test was used for evaluation of level of significance. p- value of less than 0.05 was taken as significant.

Results

A total of 500 patients were analysed. Among these 500 patients, LBP was found to be present in 212 patients. Hence; overall

prevalence of LBP was 42.4 percent. Among these 212 patients, 42.92 percent of the patients belonged to the age group of more than 50 years while 37.26 percent of the patients belonged to the age group of 30 to 50 years. 19.82 percent of the patients belonged to the age group of less than 30 years. 53.31 percent of the patients were males while the remaining 46.69 percent of the patients were females. Lumbar herniated disc was present in 11.79 percent of the patients while degenerative disc disease was present in 13.68 percent of the patients. Spinal stenosis and osteoarthritis were seen in 16.04 percent and 13.21 percent of the patients respectively. Tumour and compression fracture were seen in 10.38 percent and 8.49 percent of the patients.

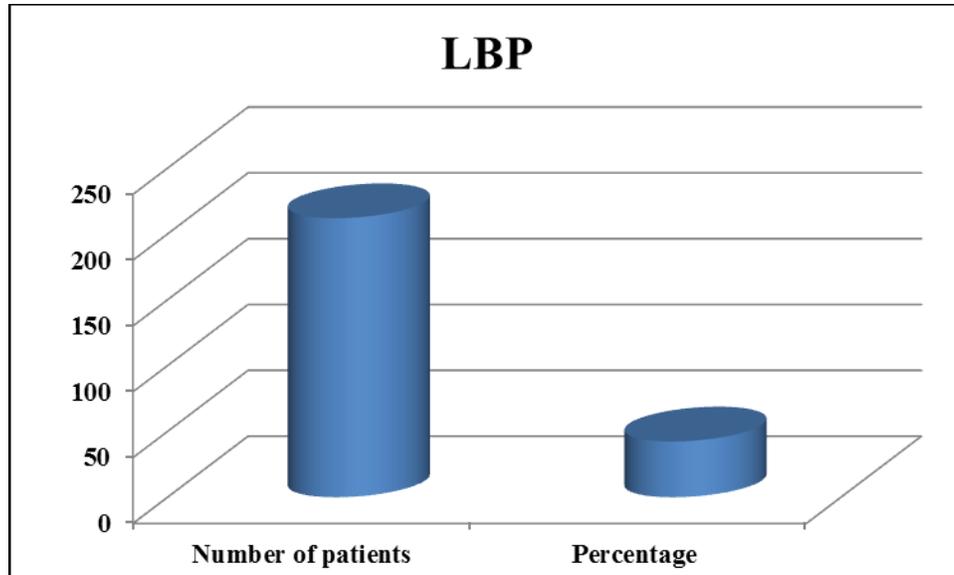


Fig 1: Prevalence of LBP

Table 1: Age and gender-wise distribution of patients with LBP

Parameter		Number of patients	Percentage
Age group (years)	Less than 30	42	19.82
	30 to 50	79	37.26
	More than 50	91	42.92
Gender	Males	113	53.31
	Females	99	46.69

Table 2: Causes of LBP

Causes	Number of patients	Percentage
Lumbar herniated disc	25	11.79
Degenerative disc disease	29	13.68
Spinal stenosis	34	16.04
Osteoarthritis	28	13.21
Tumour	22	10.38
Compression fracture	18	8.49
Others	56	26.42

Discussion

It is hypothesized by various researchers that approximately every human being feels LBP during some point of their life time. Although, usually considered harmless, it is associated with significant proportion of morbidity and significantly affects the quality of life. It inclines towards sudden start and onset and continues for few days/ weeks. It is barely feasible to discover an exact etiologic parameter for LBP. Imaging diagnostic facilities,

medication, injections and surgical therapeutic interventions barely aid in the management of low back pain. LBP involves the lumbar region of the spine. The pain occasionally spreads down to one or both legs. Effective therapy of LBP is predicated on accurate diagnosis. LBP can be caused by multiple pathophysiologic mechanisms affecting the lower spine and adjacent structures. Diagnosis rests on the patient's history, physical (and neurologic) examination, and appropriate diagnostic studies if indicated. The goal

of the diagnostic evaluation is to identify “red flag” conditions including tumors, infections, fractures, and significant nerve root compression. Clinicians must understand that even with extensive investigation, a definitive diagnosis can only be reached in about 15% of patients with LBP[6-9]. Hence; the present study was undertaken for assessing the prevalence and causes of low back pain in a known population.

In the present study, a total of 500 patients were analysed. Among these 500 patients, LBP was found to be present in 212 patients. Hence; overall prevalence of LBP was 42.4 percent. Among these 212 patients, 42.92 percent of the patients belonged to the age group of more than 50 years while 37.26 percent of the patients belonged to the age group of 30 to 50 years. 19.82 percent of the patients belonged to the age group of less than 30 years. 53.31 percent of the patients were males while the remaining 46.69 percent of the patients were females. Ganesan S et al, in a previous study, evaluated the prevalence and various risk factors for low back pain (LBP) in young adults in India. They evaluated one thousand three hundred and fifty-five patients and observed that majority of them belonged to the third decade of life. Their results highlighted that marital status, previous history of spine problems, strenuous exercise, job satisfaction, monotony, stress, daily number of studying hours, and family history of spine problems were the associated risk factors of LBP[10]. Despite several peer-reviewed published studies on the prevalence or incidence of LBP, there is little consensus regarding its epidemiology and its risk factors. For example, Hoy et al. reported a point prevalence estimate of LBP that ranged from 1.0 to 58.0%. A review of 56 studies from Walker has also indicated that the point prevalence of LBP was between 12.0 and 33.0%. Moreover, 1-year and lifetime prevalence of LBP that ranged between 0.8% and 82.5% and 11.0–84.0%, respectively, was reported from studies carried out worldwide including low-income countries. The prevalence of LBP in high-income countries was estimated at 30.0%, which is higher than low-income countries, 18.0%. The 1-year incidence of people who have any episode and first ever episode of LBP ranged from 1.5 to 36.0%, and 6.3–15.4%, respectively[11,12].

In the present study, lumbar herniated disc was present in 11.79 percent of the patients while degenerative disc disease was present in 13.68 percent of the patients. Spinal stenosis and osteoarthritis were seen in 16.04 percent and 13.21 percent of the patients respectively. Tumour and compression fracture were seen in 10.38 percent and 8.49 percent of the patients. Atkinson et al postulated that stress can precipitate LBP and can cause chronic LBP. Stress had a statistically significant correlation with LBP. Previous research revealed LBP recurrence, which can eventually become chronic[13,14].

Conclusion

LBP is a significant health issue affecting major proportion of world’s population. Degenerative disc disease, Spinal stenosis and Osteoarthritis are the major factor responsible for its occurrence.

Conflict of Interest: Nil

Source of support: Nil

References

1. Deyo RA, Rainville J, Kent DL. What can the history and physical examination tell us about low back pain? *JAMA*. 1992; 268:760-5.
2. He L, Hu X, Tang Y et al. Efficacy of coblationannuloplasty in discogenic low back pain: a prospective observational study. *Medicine (Baltimore)*. 2015;94(19):e846.
3. Roland M, van Tulder M. Should radiologists change the way they report plain radiography of the spine? *Lancet*. 1998; 352:348-9.
4. Croft PR, Macfarlane GJ, Papageorgiou AC, Thomas E, Silman AJ. Outcome of low back pain in general practice: a prospective study. *BMJ*. 1998; 316:1356-9.
5. Albert HB, Sorensen JS, Christensen BS et al. Antibiotic treatment in patients with chronic low back pain and vertebral bone edema (Modic type 1 changes): a double-blind randomized clinical controlled trial of efficacy. *Eur Spine J*. 2013;22(4):697–707.
6. Van den Hoogen HJ, Koes BW, Deville W, van Eijk JT, Bouter LM. The prognosis of low back pain in general practice. *Spine*. 1997; 22:1515-21.
7. Helm li S, Deer TR, Manchikanti L et al. Effectiveness of thermal annular procedures in treating discogenic low back pain. *Pain Physician*. 2012;15(3):E279–304.
8. Manchikanti L, Singh V, Pampati V. Evaluation of the relative contributions of various structures in chronic low back pain. *Pain Physician*. 2001;4(4):308–16.
9. Quero L, Klawitter M, Schmaus A et al. Hyaluronic acid fragments enhance the inflammatory and catabolic response in human intervertebral disc cells through modulation of toll-like receptor 2 signalling pathways. *Arthritis Res Ther*. 2013; 15(4): R94.
10. Ganesan S, Acharya AS, Chauhan R, Acharya S. Prevalence and Risk Factors for Low Back Pain in 1,355 Young Adults: A Cross-Sectional Study. *Asian Spine J*. 2017;11(4):610-617.
11. Walker BF. The prevalence of low back pain: a systematic review of the literature from 1966 to 1998. *Clin Spine Surg*. 2000; 13(3):205–217
12. Hoy D, Brooks P, Blyth F, Buchbinder R. The epidemiology of low back pain. *Best Pract Res Clin Rheumatol*. 2010; 24 (6): 769–781
13. Atkinson JH, Slater MA, Grant I, Patterson TL, Garfin SR. Depressed mood in chronic low back pain: relationship with stressful life events. *Pain*. 1988;35:47–55.
14. Hoogendoorn WE, van Poppel MN, Bongers PM, Koes BW, Bouter LM. Systematic review of psychosocial factors at work and private life as risk factors for back pain. *Spine (Phila Pa 1976)*. 2000;25:2114–2125..