



Assessment of Body Pain in Patient before and after Lumbar Surgery: A Two – year Monitoring Study

¹Maryam Esmaili *, ²Ali Montazeri

¹School of Rehabilitation, Shahid Beheshti University of Medical Science, Tehran, Iran.

²Professor, Mental Health Research Group, Health Metrics Research center, Iranian Institute for Health Sciences Research, ACECR, Tehran, Iran.

* **Corresponding author:** Maryam Esmaili, School of Rehabilitation, Shahid Beheshti University of Medical Science, Tehran, Iran. (esmaili.maryam3405@gmail.com)

Abstract

Background and Aim: Low back pain is one of the most important causes of disability worldwide. Although only 2-5% of back pain disorders resulting from herniation of intervertebral discs but surgery for lumbar disc herniation is a common procedure. The aim of this paper is to evaluate the quality of life of surgically treated lumbar radiculopathy patients by using a lumbar disease – specific questionnaire.

Methods: This prospective study comprised 88 patients (age range 18-73) underwent single – level lumbar disc surgery. The patients were selected from neurosurgery ward of Logman and Emam Khomani hospitals in Tehran. Data was obtained using SF36 quality of life questionnaires preoperatively and 1, 2 months and 2 years after surgery.

Results: The result of the physical pain domain are low at the beginning of monitoring (21.7); it increases significantly over the following 1 and 2 months (48.6; 54.8) and drop insignificantly after 2 years (54.7) and remains lower than the standard.

Conclusion: the quality of life of patients after lumbar microdiscectomy improves significantly from a physical point of view immediately after it. Though a certain degree of physical damage still remains.

Keywords: *Body pain, Lumbar surgery*

Introduction

Low back pain is one the main causes of disability in human societies [1]. between the types of back pain, lumbar radiculopathy is 13 to 36% of lumbar disorders [2]. Only 2 to 5 % of disorders resulting from pressure on the sciatica [3]. In about 90% of cases pressure on the sciatic is caused by a lumbar disc herniated [4]. Pain from disc herniation has very importation on patient's quality of life. Studying show that only 5 to 10 percent of disc damage is required surgery [5], on the other hand there are no significant different between surgical and non-surgical herniated treatment in the long time [4]. But surgery for lumbar disc herniation is a common spinal procedure [6], for example, Sweden with 9 million population has 2000 disc herniation surgery per year which 40 percent of all spine surgery [6]. pain, disability and reduce quality of life are most patient's reason for surgery [7]. In fact, one of the most important surgical goals for patients is the faster return to work and day's life [7]. These studies show that at long term follow-up in up to 22% of patients, the results of surgery are unsatisfactory, and patients still have symptoms. These persisting symptoms mainly consist of pain, motor deficits, a decreased functional status, not being able to return to work or any combination [8]. Early retirement from social activity has a significant impact

on the daily lives of these people and on the other hand it could lead to significant economic losses to society detecting surgical outcomes is a rational way to evaluate the outcome of the treatment [9].

Patients and Methods

The patients were selected from neurosurgery ward of Loghman and Emam Khomaini hospitals in Tehran. This prospective study comprised 100 patients (age range 18-73 years) underwent single-level lumbar disc surgery. Inclusion criteria include age over 18 years old, disc hernia at the level of the first to fifth vertebra and psychological conditions fixed to doctors approval. Exclusion criteria included disc herniation at more than one level, orthopedic conditions like spinal stenosis; spondylolisthesis or systemic or bone disease. In this study, the physical pain dimension of quality of life was assessed by a SF-36 questionnaire. The interviews were conducted at four time intervals: 1: 2 days prior to surgery; 2-1months later; 3- 2months later and 2 years after the operative.

Results

At first 116 patients were enrolled in the study, 100 patients were examined 2 months after surgery and 88 patients 2 years after surgery. 3 patients were excluded due to an infection in the surgical site, 10 patients due to simultaneous lumbar stenosis and spondylolisthesis and 12% of them had undergone a spine re surgery after 2 years and 3 patients died. The average and change of individual quality of life parameter at the beginning of evaluation is shown in below table. The value of physical pain (pp) before surgery is 21.7 and significantly lower($p < 0.001$) as compared to that of the general population (Table 1).

Table 1. Body pain before and after surgery

	Before (mean+sd)	1 month (mean+sd)	2month (mean+sd)	2years (mean+sd)	Standard (mean+sd)
Body pain	21.7(20.0)	48.6(19.6)	54.8(23.5)	54.7(20.2)	79.4(25.1)

After 1 month the physical pain value(pp) of 48.6 rise significantly($p < 0.001$); the ascending trend continues after 2 months 54.8. after 2 years there is an insignificant drop of values to 54.7 (Figure I).

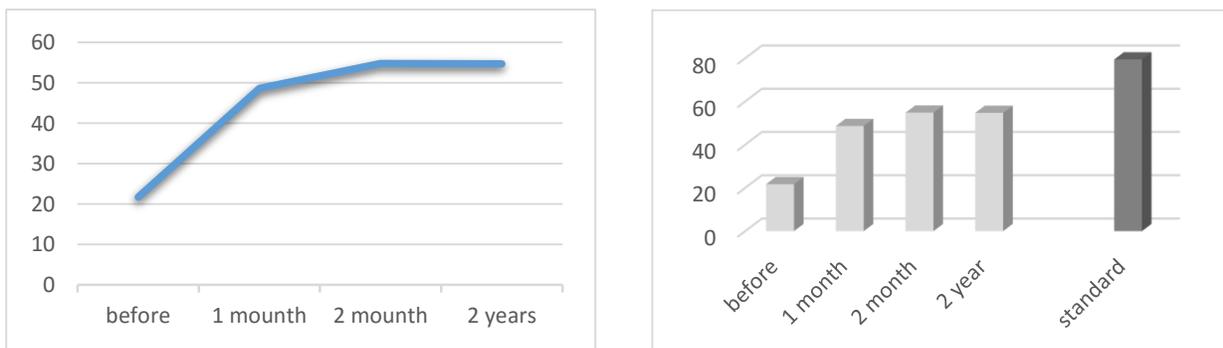


Figure I. Change of surgically treated patient's quality of life during the monitoring period.



Discussion

The first finding in this study was that physical pain dimension of quality of life before surgery are significantly less than the standard defined by Montazeri et al (2005) in Iran and other countries in 2010 [10,11]. In line with our findings Fontal et al determined the quality of life in patients who are candidates for spinal surgery [12]. The lower radicular pain can be a reason for declining in physical pain domain's quality of life in patients. It seems that reducing radicular pain can play an important role in significant improvement in patient's quality of life 2 months after surgery. Fisher et al. have measured the quality of life in surgically treated patients using SF 36 and NASS LBP. After a 6-months period, they noticed significant improvement in these patient's quality of life, although the measured values even after a year, remained lower than the standard [13]. This, however is different to our study, as in our patients after a 2 year period the values did not show statistically important difference in comparison to the standard. Kenneth et al. Using the same method, same measurements but higher number of patients (333 patients) came to the same results as Fisher et al [13]. Also Schilberg et al measured patient's quality of life 2 year period after surgery. They found that the quality of life was close to normal in patients who don't require re-surgery [14]. Quick progress in physical dimension's quality of life can be due to significant reduction of radicular pain immediately after surgery. Surgical treatment relieves the patient's physical complaints faster than physical treatment or medication. But there is no clear evidence on advantages of one over the other treatment methods [15-17] six months are needed for recovery of physical functioning, though a certain degree of damage remains with a number of patients even after wards [18-20]. On the other hand, according to studies by Ostelo et al. exercise program starting 4 to 6 weeks after surgery seem to lead to a faster decrease in pain and disability than no treatment [8].

Conclusion

For improving quality of life after lumbar surgery; rehabilitation after surgery should be considered more.

Acknowledgements

We appreciate all who helped us to exert this study.

References

- [1]. Vos T, Flaxman AD, Naghavi M, Lozano R, Michaud C, Ezzati M, et al. Years lived with disability (YLDs) for 1160 sequelae of 289 diseases and injuries 1990–2010: a systematic analysis for the Global Burden of Disease Study 2010. *The Lancet*. 2013;380(9853):2469-36.
- [2]. Kääriäl S, Leino-Arjas P, Rahkonen O, Lahtil J, Lahelmal E, Laaksonen M. Risk factors of sciatic pain: A prospective study among middle-aged employees. *European Journal of Pain*. 2011;15(6):584-90. 9.
- [3]. Younes M, Béjia I, Aguir Z, Letaief M, Hassen-Zrou S, Touzi M, et al. Prevalence and risk factors of disk-related sciatica in an urban population in Tunisia. *Joint Bone Spine*. 2006;73(5):538-42. 1.
- [4]. Jacobs WC, van Tulder M, Arts M, Rubinstein SM, van Middelkoop M, Ostelo R, et al. Surgery versus conservative management of sciatica due to a lumbar herniated disc: a systematic review. *European Spine Journal*. 2011;20(4):049-22.



- [5]. Deyo RA, Loeser JD, Bigos SJ. Herniated lumbar intervertebral disk. *Annals of internal medicine*. 1990;112(8):598-603.
- [6]. Strömqvist F, Ahmad M, Hildingsson C, Jönsson B, Strömqvist B. Gender differences in lumbar disc herniation surgery. *Acta orthopaedica*. 2008;79(5):643-9.
- [7]. Johansson A-C, Öhrvik J, Söderlund A. Associations among pain, disability and psychosocial factors and the predictive value of expectations on returning to work in patients who undergo lumbar disc surgery. *European Spine Journal*. 2016;25(1):296-303.
- [8]. Ostelo R, De Vet H, Waddell G, Kerckhoffs M, Leffers P, van Tulder M. Rehabilitation after lumbar disc surgery (Cochrane Review). *The Cochrane Library*. 2004(1.) 41.
- [9]. Puolakka K, Ylinen J, Neva M, Kautiainen H, Häkkinen A. Risk factors for back pain-related loss of working time after surgery for lumbar disc herniation: a 5-year follow-up study. *European Spine Journal*. 2008;17(3):38692.
- [10]. Montazeri A, Goshtasebi A, Vahdaninia M, Gandek B. The Short Form Health Survey (SF-36): translation and validation study of the Iranian version. *Quality of life research*. 2005;14(3):875-82.
- [11]. Bošković K, Cigić T, Grajić M, Todorović-Tomašević S, Knežević A. The quality of life of patients after a lumbar microdiscectomy: A four-year monitoring study. *Clinical neurology and neurosurgery*. 2010;112(7):55762
- [12]. Fontal JAB, Granell JB, Olmo JG, Tarragó AR, Ramos M, Rived X, et al. Evaluation of Health Related Quality of Life in Patients Candidate for Spine Surgery. 2015.
- [13]. Thomas KC, Fisher CG, Boyd M, Bishop P, Wing P, Dvorak MF. Outcome evaluation of surgical and nonsurgical management of lumbar disc protrusion causing radiculopathy. *Spine*. 2007;32(13):1414-22.
- [14]. Schillberg B, Nyström B. Quality of life before and after microsurgical decompression in lumbar spinal stenosis. *Clinical Spine Surgery*. 2000;13(3):237-41.
- [15]. Porchet F. Role of surgical treatment of low back pain and lumbo-sciatica. *Schweiz Rundsch Med Prax* 2001;90(43):1878-82.
- [16]. Boskovic K, Zamurovic A, Mijic B. Measuring quality of life in patients with lumbar radiculopathy. In: word spine 1 Abstract-CD. First interdisciplinary world congress on spinal surgery, World Spine1, Berlin, 2000.
- [17]. Gibson JNA, Waddell G. Surgical interventions for lumbar disc prolapse updated Cochrane review. *Spine* 2007;32(16):1735-47.
- [18]. Wera GD, Marcus RE, Ghanayem AJ, Bohlman HH. Failure within one year following subtotal lumbar discectomy. *J Bone Joint Surg Am* 2008;90:10-5
- [19]. Lurie JD, Faucett Sc, Hanscom B, Ball PA, Abdu WA, Tosteson TD, et al. Lumbar discectomy outcomes vary by herniation level in the spine patient outcomes research trial. *J Bone Joint Surg Am* 2008;90:1811-9.
- [20]. Kenneth T, Fisher C, Boyd M, Bishop P, Wing P, Dvorak M. Outcome evaluation of surgical and nonsurgical management of lumbar disc protrusion causing radiculopathy. *Spine* 2007;32(13):1414-2.