Prevalence and Risk Factors Associated with Low Back Pain in Iranian Surgeons

Mohammad A. Mohseni-Bandpei, PT, PhD,[a] Marjan Ahmad-Shirvani, MSc,[b] Nazanin Golbabaei, MD,[c] Hamid Behtash, MD,[d] Zahra Shahinfar, MSc,[e] and César Fernández-de-las-Peñas, PT, PhD[f]

Abstract

Objectives: Low back pain (LBP) is a common and costly occupational injury among health care professionals. The purpose of this study was to investigate the prevalence and risk factors of LBP in surgeons and to analyze how individual and occupational characteristics contribute to the risk of LBP.

Methods: A cross sectional study was conducted on 250 randomly selected surgeons including 112 general surgeons, 95 gynecologists and 43 orthopedists from 21 hospitals at northern Iran. A structured questionnaire including demographic, lifestyle, occupational characteristics as well as prevalence and risk factors of LBP was used. Visual analogue scale and Oswestry low back disability questionnaires were also used to assess the pain intensity and functional disability, respectively.

Results: Point, last month, last six months, last year and lifetime prevalence of LBP was 39.9%, 50.2%, 62.3%, 71.7% and 84.8%, respectively. The highest point prevalence was related to the gynecologists with 44.9%, and the lowest for general surgeons (31.7%). Age, body mass index, smoking, general health, having an assistant, job satisfaction, using preventive strategies and years of practice were found to be correlated with the prevalence of LBP ($P < .05$ in all instances except for age and job satisfaction). Prolonged standing, repeated movements and awkward postures were the most prevalent aggravating factors (85.2%, 50.2% and 48.4%, respectively). Rest was found to be the most relieving factor (89.5%).

Conclusions: The results of this study demonstrate that the prevalence of LBP amongst surgeons appears to be high and highlights a major health concern. Further large scale studies, including other specialties and health professions such as physical therapy, chiropractic, and general medicine, should be performed. (J Manipulative Physiol Ther 2011;34:362-370)

Key Indexing Terms: *Low Back Pain; Prevalence; Risk Factors; Cross-Sectional Studies*

Extensive epidemiological studies on low back pain (LBP) carried out during the past two decades indicate a high prevalence rate and high associated direct and indirect costs.[1-5] It was reported that more than half of the general population will experience LBP at some point in their lifetime, with different reported prevalence rates.[6,7] LBP is considered as one of the major health problems in Germany with point prevalence rate of 30-40% and an annual prevalence rate of more than 70%.[8] In Iran, LBP is one of the most common conditions affecting all populations with different prevalence rates, ranging from 17% for school children, 62% for nurses to 84% for pregnant women.[2,4,7] It has also been addressed that LBP has huge economical impact in terms of medical, legal and lost production costs.[8-10]

[a] Associate Professor, Department of Physiotherapy, The University of Social Welfare and Rehabilitation, Sciences, Tehran, Iran; and Associate Professor, Department of Rehabilitation, School of Medicine, Mazandaran University of Medical Sciences, Mazandaran, Iran.

[b] Senior Lecturer, School of Nursing and Midwifery, Mazandaran University of Medical Sciences, Mazandaran, Iran.

[c] General Practitioner, School of Medicine, Mazandaran University of Medical Sciences, Mazandaran, Iran.

[d] Associate Professor, Department of Spine Surgery, Hazrat Rasoul-e-Akram Teaching Hospital, Iran University of Medical Sciences, Tehran, Iran.

[e] Health Information Management Researcher, No. 403, Deputy of Treatment, Tehran University of Medical Sciences, Tehran, Iran.

[f] Professor, Department of Physical Therapy, Occupational Therapy, Rehabilitation and Physical Medicine, Universidad Rey Juan Carlos, Alcorcón, Madrid, Spain.

Submit requests for reprints to: Mohammad A. Mohseni-Bandpei, PT, PhD, Associate Professor, Department of Rehabilitation, School of Medicine, Mazandaran University of Medical Sciences, PO Box 48175-1665, Mazandaran, Sari, Iran.
(e-mail: *Mohseni_Bandpei@yahoo.com*).

Paper submitted February 20, 2011; in revised form April 19, 2011; accepted May 12, 2011.

0161-4754/$36.00

doi:10.1016/j.jmpt.2011.05.010

Back injuries seem to be a major category of occupational injuries and high rate of injury and illness have been reported in health care setting (nearly twice that of other service industries).[11] Certain occupational groups appear to be more at risk.[2,12-19] In a cross sectional study carried out by Dolan and Martin [13] to assess the overall prevalence of LBP on 107 gynaecologists, the prevalence of LBP was reported to be 72%. Fifty-three percent blamed their work for their LBP, 32% required a change of their work practice, 20% had taken time off work and 8% had required surgery. Mirbod et al[12] also reported that problems with the shoulder, lower back and neck were the most frequently reported complaints in orthopedists and general surgeons.

Different prevalence rates were reported for LBP in ophthalmologists. In a survey on 697 Northeastern United States ophthalmologists, Dhimitri et al[18] reported that 39% of their study sample suffered from LBP. On the other hand, Chams et al[15] investigated the prevalence of LBP in 162 Iranian Ophthalmologists and reported that 80% were suffered from LBP. Although the response rate was relatively low in both studies, LBP appeared to be common in ophthalmologists. It was suggested that back injuries in ophthalmologists have direct correlation with ergonomic risk factors including awkward postures such as bending or stooping and static muscular loads following prolonged slumped sitting.

In order to identify the prevalence and risk factors for LBP in nursing personnel, 1226 nurses were randomly recruited from 13 hospitals in northern Iran.[2] The results demonstrated that 62% of nurses were suffered from LBP and prolonged standing was found to be the most common aggravating factor. Absence from work in the previous month because of LBP was reported by 33.7% of the sample. A cross-sectional study was recently carried out on 897 undergraduate nursing students and 111 graduate nurses, regarding prevalence, impact, duration, frequency and causes of LBP in Australia.[19] Lifetime, 12-month and 7-day prevalence of LBP were reported to be 79%, 71% and 31%, respectively for undergraduate nursing students. For graduate nurses the prevalence was reported to be 95.5%, 90% and 39% for lifetime, 12-month and 7-day, respectively. They suggested that a rise in occupational exposure (exposure to physical as well as psychological stressors) from student to working nurse is the primary cause of the increase in LBP.

Different reported prevalence rates of LBP in health care personnel may be mainly due to different methodologies used, variations in definition of LBP, prevalence periods (such as point versus lifetime), etc. Every effort was made in the present study to address the gaps in previous research by providing a clear definition for LBP, a defined inclusion and exclusion criteria, a defined prevalence periods, and allocating a research coordinator in each hospital to receive as many responses as possible. Therefore, a 3-year prospective study including a cross-sectional and a randomized controlled clinical trial was designed, targeting general surgeons, gynecologists and orthopedists currently working in 21 hospitals affiliated to the Mazandaran University of Medical Sciences at northern Iran to:

a) Investigate the prevalence and risk factors for LBP in general surgeons, orthopedists and gynecologists;
b) Analyze how individual and other characteristics contribute to the risk of injuries;
c) Evaluate the effects of different interventions (an ergonomic advice program combined with an exercise program and no intervention group) with adequate long term follow up in order to set up preventive strategies for LBP.

This article only addresses the data collected from the first part of the study concerning the epidemiological aspects of LBP in surgeons. Details and results of the interventions will be discussed later.

Materials and Methods

Design and Sample

This study was given ethical approval from the Medical Ethics Board of the Mazandaran University of Medical Sciences and Health Services. The study design was a cross-sectional study. Two hundred and fifty surgeons (112 general surgeons, 95 gynecologists and 43 orthopedists) from 21 hospitals affiliated to the Mazandaran University of Medical Sciences and Health Services at northern Iran were invited to participate.

Surgeons were included if they were currently working (for a period of at least one year) in general hospitals and willing to participate. The excluding criteria were: 1) previous history of back surgery; 2) back tumor; 3) spinal deformities (e.g., scoliosis); 4) malignancy; 5) osteoporosis; 6) multiple sclerosis; 7) any fracture or disorders on pelvic region; 8) any underlying inflammatory conditions; and 9) unwilling to participate in this study. Through screening program employing inclusion/exclusion criteria and using the Iranian version of a short general health questionnaire,[20] 250 surgeons were identified and invited to participate by an invitation letter. All subjects received oral and written information about the aims of the study by a research coordinator allocated in each hospital. Then they were asked to sign a consent form if they were willing to take part. All participants who gave their consent to take part were informed that they are free to withdraw from the study at any time. In order to receive as many responses as possible it was decided to allocate one research coordinator in each hospital and appointing a secretary to remind participants through phone call. The study was carried out from August 2008 to December 2008.