

Military Rank and the Symptoms of Lumbar Disc Herniation in Young Korean Soldiers

Suk Hyung Kang¹, Jin Seo Yang¹, Yong Jun Cho¹, Seung Won Park², Kwang Pil Ko³

■ **OBJECTIVE:** There are many factors associated with the symptom presentation of lumbar disc herniation (LDH). However, there are only few reports regarding the clinical feature of LDH in military medicine. The objective of this study is to determine the factors that affected the symptoms of LDH in young Korean soldiers.

■ **METHODS:** One hundred thirty male soldiers, diagnosed with LDH, were enrolled in this study. They were divided into four groups, according to their military ranks: private, private first class, corporal, and sergeant. The visual analog scale for low back pain (VAS-LBP), the VAS for leg pain (VAS-LP), and the Oswestry Disability Index (ODI) were evaluated. The education level and military rank were also reviewed and their relationship with the degree of symptoms was investigated.

■ **RESULTS:** The mean age for the male subjects enrolled was 20.7 ± 1.2 . The mean VAS-LBP, VAS-LP, and ODI were $6.6\% \pm 1.7\%$, $7.1\% \pm 1.9\%$, and $46.0\% \pm 16.3\%$, respectively. There was no statistically significant relationship between the degree of symptoms and the radiologic findings. However, the military rank had an inverse correlation with the VAS scores and the ODI ($P < 0.05$).

■ **CONCLUSION:** Our data showed that the military rank was associated with the symptom presentation of LDH and reflected the characteristics of military life.

INTRODUCTION

South Korea maintains an active military presence because it is technically still at war with North Korea and there is a 2 year-mandatory military enlistment system in South Korea. According to the Ministry of National Defense, about 90% of 20-year-old Korean men perform a mandatory two years of military service. In the military, there are many patients with low back pain associated with pain that radiates to the leg; this is likely due to the strenuous physical activity during the service. Even though we know that radiologic findings are not always correlated with clinical findings, an unbiased interpretation of symptoms and radiologic findings are sometimes very difficult, because of the various secondary gains associated with military life (4, 17, 24, 31, 32). The objective of this study was to determine the factors associated with the degree of symptoms of lumbar disc herniation (LDH) in young Korean soldiers.

METHODS

From September 2007 to June 2008, 130 patients with low back pain and leg pain (LP), who were admitted to a military hospital with the diagnosis of LDH, were enrolled in this study. They were all male, early 20s, and soldiers. The patients with only low back pain, previous surgery, with spondylolysis, spondylolisthesis, tumor, infection, or fracture were excluded.

The visual analogue scale (VAS) for low back pain (VAS-LBP), the VAS for leg pain (VAS-LP), and the Oswestry Disability Index (ODI) were evaluated for the assessment of the degree of symptoms.

Key words

- Correlation study
- Lumbar disc herniation
- Social class
- Worker's compensation

Abbreviations and Acronyms

- LBP:** Low back pain
- LDH:** Lumbar disc herniation
- LP:** Leg pain
- MRI:** Magnetic resonance imaging
- ODI:** Oswestry disability index
- ROK:** Republic of Korea
- VAS:** Visual analog scale



From the ¹Department of Neurosurgery, Spine Center, Chuncheon Sacred Heart Hospital, College of Medicine, Hallym University, Chuncheon; ²Department of Neurosurgery, Chung-Ang University College of Medicine, Dongjak, Seoul; and ³Department of Preventive Medicine, Gachon University of Medicine and Science, Guwol 1-dong, Namdong-gu, Incheon, Korea

To whom correspondence should be addressed: Jin Seo Yang, M.D.
[E-mail: yiyaseo@gmail.com]

Suk Hyung Kang, M.D.
[E-mail: nscharisma@hanmail.net]

Citation: *World Neurosurg.* (2014) 82, 1/2:e9-e14.
<http://dx.doi.org/10.1016/j.wneu.2013.02.056>

Journal homepage: www.WORLDNEUROSURGERY.org

Available online: www.sciencedirect.com

1878-8750/\$ - see front matter Crown Copyright © 2014 Published by Elsevier Inc. All rights reserved.

Table 1. Scoring System for the Educational Background and Cross-Tabulation Analysis With Military Rank*

| Score | Description | Group 1 (Private Soldiers) (n = 13) | Group 2 (Private First Classes) (n = 65) | Group 3 (Corporals) (n = 33) | Group 4 (Sergeants) (n = 19) | Number of Patients (128) | % |
|-------|-------------------------------------------|-------------------------------------------|------------------------------------------------|------------------------------------|------------------------------------|--------------------------------|------|
| 1 | Dropping out of high school | 1 | 1 | | | 2 | 1.6 |
| 2 | Graduation from high school (12 years) | 3 | 11 | 5 | 8 | 27 | 21.1 |
| 3 | Dropping out of college | 9 | 50 | 26 | 11 | 96 | 75 |
| 4 | Bachelor's degree | | 3 | | | 3 | 2.3 |

*Spearman correlation coefficient = -0.080 (P = 0.369).

The patients were divided into four groups based on their military rank: private (G1), private first class (G2), corporal (G3), and sergeant (G4). The educational level was reviewed and assessed with regard to the degree of symptoms (Table 1). The working conditions of the patients were not considered as a variable because most enlisted men are placed in the field of outdoor labor.

A lumbar magnetic resonance imaging (MRI) study was performed for objective radiologic information and evaluated; a 1.5 T system was used. According to the nomenclature of the North American Spine Society and the grading system of Pfirrmann, which consider the relationship between the nerve root and protruded disc, radiologist scored the findings from 1 to 5, according to their severity (12, 19, 20) (Table 2, Figures 1–6).

Ethically, this study was approved by the Investigational Review Board (2011-15).

For the statistical analysis, the correlation coefficient (Spearman rho) was calculated. The factors with a P value less than 0.2 on the correlation analysis were used in multiple regression models.

RESULTS

All of the patients were male soldiers. The mean age was 20.7 ± 1.2. The average VAS-LBP and VAS-LP score was 6.6 ± 1.7 and

7.1 ± 1.9, respectively. The average ODI was 46.0% ± 16.3% and the average MRI score was 3.2 ± 0.9.

The rank of the soldiers was as follows: 13 privates, 65 private first class, 33 corporals, and 19 sergeants (Table 3). The mean age of each military group was 20.3 ± 1.3, 20.4 ± 1.1, 21.1 ± 1.3, and 21.5 ± 0.8 years, respectively. The groups with the highest and lowest clinical value (VAS-LBP, VAS-LP, and ODI scores) were the privates and sergeants, respectively. The mean VAS-LBP, VAS-LP, and ODI scores for the privates were 7.2% ± 1.1%, 8.0% ± 1.2%, and 61.7% ± 9.2%, respectively. The mean VAS-LBP, VAS-LP, and ODI scores for the sergeants were 5.8% ± 2.0%, 6.4% ± 2.6%, and 37.3% ± 14.5%, respectively. The mean score for the MRI in each group was 3.4 ± 0.9, 3.1 ± 0.9, 3.3 ± 0.8, and 3.1 ± 0.8, respectively.

The educational level included high school dropouts to soldiers with a bachelor's degree. A total of 1.5% dropped out of high school midway. Two patients did not answer the question about educational level; 21.1% graduated from high school; 75% entered the army before graduation from college; and 2.3% graduated from college or the equivalent. The average education score was 2.8 ± 0.5 (Table 1). The mean score for the educational level in each military group was 2.6 ± 0.7, 2.9 ± 0.5, 2.8 ± 0.4, and 2.6 ± 0.5, respectively (Table 3). There is no statistical significance

Table 2. Grading System for the Lumbar Magnetic Resonance Imaging (19) and Military Rank*

| Grade | MRI Findings | Group 1 (Private Soldiers) (n = 13) | Group 2 (Private First Classes) (n = 65) | Group 3 (Corporals) (n = 33) | Group 4 (Sergeants) (n = 19) | Number of Patients (130) | % |
|-------|---------------------------------------------------------------------------------------|----------------------------------------------|------------------------------------------------|------------------------------------|------------------------------------|--------------------------------|------|
| 1 | Disc protrusion without root contact | 2 | 8 | 5 | | 15 | 11.5 |
| 2 | Disc protrusion with root contact | 2 | 7 | 5 | 2 | 16 | 12.3 |
| 3 | Disc with root deviation | 2 | 22 | 7 | 5 | 36 | 27.7 |
| 4 | Disc protrusion with root compression and deviation, possible to decline root outline | 6 | 25 | 12 | 11 | 54 | 41.5 |
| 5 | Disc protrusion with complete root compression, impossible to decline root out line | 1 | 3 | 4 | 1 | 9 | 6.9 |

MRI, magnetic resonance imaging.
*Spearman correlation coefficient = 0.094 (P = 0.289).

Download English Version:

<https://daneshyari.com/en/article/3095564>

Download Persian Version:

<https://daneshyari.com/article/3095564>

[Daneshyari.com](https://daneshyari.com)