Original Article

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BACKACHE AMONGST SOLDIERS

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ABSTRACT

Objective: To investigate the occupational predispositions of low back pain in soldiers

Study Design: Descriptive study

Place and Duration of Study: Combined Military Hospital, Bahawalpur, from June 2009 to Jan 2010.

Patients and Methods: A questionnaire was developed to investigate the occupation-related issues in soldiers reporting with low backache in surgical OPD at CMH Bahawalpur. It included personal and occupational factors. The body mass index was also calculated. Of the 107 male soldiers assessed, 90 were enrolled into the study. The statistical analysis was performed by descriptive analysis of the data using SPSS 17.0.

Results: Of all the soldiers evaluated (n=90), 32 (35.6%) were clerks/computer operators, 21(23.1%) were drivers and 14 (15.6%) were signal men. All were males (100%) and the average BMI was 24.8 kg/m2. The 69 (76.7%) patients who had backache had prolonged working hours (average 10.8 hours per day). 68 (75.6%) patients used to sleep over tape/nawar bed and only 12 (13.3%) had been sleeping on mattresses. The onset of pain was sudden in 58 (64.4%) patients. 27 (23.3%) had developed acute backache after prolonged sitting, 21 (30%) after lifting heavy objects. The pain was exaggerated by doing morning physical training 82 (91.1%), prolonged sitting 61 (67.8%) and standing with rifle 24 (26.7%).

Conclusion: Frequency of low back pain in sedentary occupation or soldiers on sitting jobs was higher 69 (76%). The number of working hours on these occupations was associated with occurrence as well as aggravation of low back pain.

Keywords: Low back pain, Soldiers, Occupation.

INTRODUCTION

Back ache has been the most frequent complaint for which patients have been visiting the clinics. Various epidemiologic studies have shown that approximately 80% of the population has presented with an episode of low back pain during their active lives[1-6]. Low back pain corresponds to over 50% of all musculoskeletal dysfunctions that cause chronic disabilities in industrialized countries, leading to expenses with treatments and absenteeism from work[5,7-13]. Every year in USA alone, 3-4% of the population is temporarily disabled, and 1% of the working-age population is disabled totally and permanently because of low back pain[39].

Low back pain or lumbar pain runs between the lower ribs and the glutei. It can either be a midline pain, paraspinal or may present with neurological signs and symptoms. The low backache may be due to inflammatory and infectious diseases, systemic bone alterations, congenital abnormalities, degenerative, visceral, and psychogenic diseases, traumatic, and the most common: mechanical[4,14]. Most patients experience pain primarily in the lower back. The pain may radiate to the buttocks, thighs or knees. Patient may also experience spasms with mechanical back pain.

The symptoms of low/mechanical back pain are generally more noticeable with flexion of the back and when lifting heavy objects. In the vast majority of cases no striking or serious cause is ever identified. Usually the pain resolves on its own within few weeks. The association of factors such as age, weight, height, BMI, smoking, and alcohol consumption with low back pain has produced controversial results as reported in the literature[32-36]. The occurrence of low back pain among the general population increases with age and starts declining after 65 years of age, but its

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occurrence among younger individuals is not uncommon, although studies of specific populations have not shown any correlation between age and low back pain[7,18,20,25,31,37].

Occupational low back pain is usually related to a mechanical cause. The onset of this pain is due to specific occupational activity and therefore is related to certain working situations such as maintenance of the same posture for prolonged periods, repetitive movements, lifting of heavy objects, and tilting and torsion of the trunk[7,11,15,16]. In army, soldiers are trained for a specialized job and therefore they have to follow same routine for a longer time. Therefore they are more prone to develop low backache due to postural monotony. Moreover, harsh field training itself exposes the soldiers to certain risk factors.

In Pakistan or specifically in Pakistan Army no such study has ever been conducted to our knowledge. We conducted this study to investigate the occupational causes of low back pain in serving soldiers and associated factors related to the presence of low back pain.

METHODS

Study Design: Descriptive study

The study was conducted in the out patient department of surgery at Combined Military Hospital, Bahawalpur from 1st June 2009 to 1st January 2010. Patients referred to the OPD with low backache were evaluated in detail by one of the authors and after making a diagnosis of mechanical low backache they were enrolled in the study if they fulfilled the following inclusion criteria.

Inclusion Criteria

Male adults, with history of mechanical low backache of minimum 4 months and maximum of 12 months duration.

Exclusion Criteria

- Patients with History of inflammatory/ infective or congenital causes of backache
- Neurological deficit
- Coexisting morbidities.
- Old spinal/pelvis Fractures
- History of previous trauma or chronic backache.

A questionnaire was developed to investigate the occupation-related issues in soldiers reporting with low backache in surgical OPD at CMH Bahawalpur. It included personal, occupational factors and the body mass index (ratio of body weight to the square of height, kg/m2). The patients were enrolled in the study after signing an informed consent form. The soldiers were evaluated for BMI by the measurement of their weights and heights using an anthropometric balance in order to calculate the body mass index (BMI) by dividing the body weight (kg) by the square of the height (m2)[22]. The data was noted on a separate register by one of the authors.

Data Analysis

Data analysis was computer based, Statistical Package for Social Sciences version (SPSS) 17.0 was used for analysis. Mean ± Standard deviation (SD) was calculated for age of patients. Frequencies and percentages were calculated for all other qualitative variables.

RESULTS

Of all the soldiers evaluated (n=90), 32 (35.6%) were clerks/computer operators, 21 (23.3%) were drivers and 14 (15.6%) were signal men (Table-1). All were males (100%) and the average BMI was 24.8 kg/m2.

Twenty seven (30%) had developed acute backache after prolonged sitting, 21 (23.3%) after lifting heavy object and 15 (16.7%) had felt severe pain after a good nights sleep (Table-2). 41 (45.6%) patients were off duty for three or more days whereas 49 (54.4%) soldiers kept on working in their existing occupation.

A total of 69 (76.7%) patients who had backache had prolonged working hours (average 10.8 hours per day) and short sleep span of less than 06 hours, 68 (75.6%) patients used to sleep over tape/nawar bed and only 12 (13.3%) had been sleeping on mattresses (Fig 1). The onset of pain was sudden in 58 (64.4%) patients, with variable intensity 66 (73.3%) and only 24 (26.7%) had constant low back pain. Only 6 (6.7%) patients developed numbness or paraesthesias in lower limbs. Site of pain is shown in figure 2. A total of 37 (41.1%) patients had suffered an episode of backache in last 4

months whereas 8 (8.9%) had recurrent pain. A total of 58 (64.4%) soldiers were smokers and 37 (41.1%) were unable to spare time for daily walk, games or any other physical activity after working hours.

A total of 60 (66.7%) of patients had surgical consultation after first episode of pain and 46 (51.1%) had physiotherapy and exercises as a treatment. The pain was exaggerated by doing morning physical training 82 (91.1%), prolonged sitting 61 (67.8%) and standing with rifle 24 (26.7%). Most of the soldiers were sleeping on traditional military tape/nawar beds (Fig 1). Majority of the patients had experienced pain in the midline (70%) and in paraspinal region (44%), whereas a synchronous pain was also felt in regions other than the torso as shown in figure 2.

DISCUSSION

Our study reveals that the frequency of low backache was more in sedentary workers like clerks, drivers and signal men, as they spend much of their time in the seated position and frequently twisting and bending their torsos, besides being subjected to the continuous stresses of military lifestyle. When compared with other studies these factors were strongly associated with low back pain[7,11-13,15,16,19,25-28].

We noted that tendency of low backache was seen in patients who had increased BMI. Being overweight leads to overloading of the spine, which can increase the pressure on the intervertebral disc and other structures of the spine, triggering the pain. The study done by Han TS[38] shows that increased BMI was associated with low backache which is in accordance with our study. Our findings are also in accordance with various studies that show that factors like cigarette smoking, improper working conditions and work in excess, since all these characteristics are related to the profile of these professionals and are also related to the presence of low back pain[18,22,29-31].

In our study 37 (41.1%) patients had suffered one episode of backache in last 4 month whereas 8 (8.9%) had recurrent pain. A study by Hestbaek et al shows that the risk of LBP was consistently about twice as high for those with a history of LBP[40].

The 69(76.7%) patients who had backache had prolonged working hours (average 10.8 hours per day) and short sleep span of less than 06 hours, 21 (23.3%) patients had developed acute low backache after lifting heavy objects which is also perceived by Lefevre-Colau et al[41].

Our study reveals that 41 (45.6%) patients were off duty for three or more days which also matches a study by Lefevre-Colau et al[41] who claimed that patients with LBP had initial

Table-1: Occupation of the soldiers (n = 90)

S. No	Occupation	No.	Percentage(%)
1	Clerk	32	35.6
2	Drivers	21	23. 3
3	Signal men	14	15.6
4	General duty sepoy	12	13.3
5	Sportsmen	5	5.6
6	Cook	3	3.3
7	Officers	2	2.2
8	Linemen	1	1.1

Table-2: Type of occupational activity causing low backache (n=90)

S. No	Occupation	No.	Percentage
1	Assault course	6	6.7
2	Lifting heavy weights/falls	21	23.3
3	Prolonged sitting	27	30
4	After sleep	15	16.7
5	Long march	21	23.3

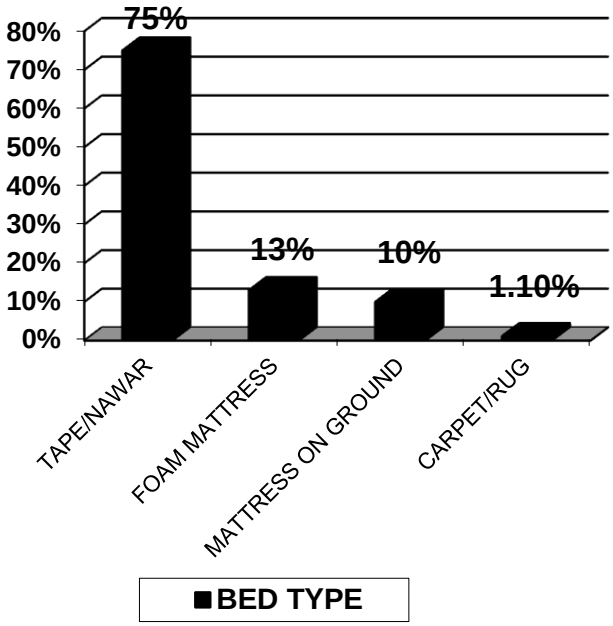

Fig.1: Type of sleep surface

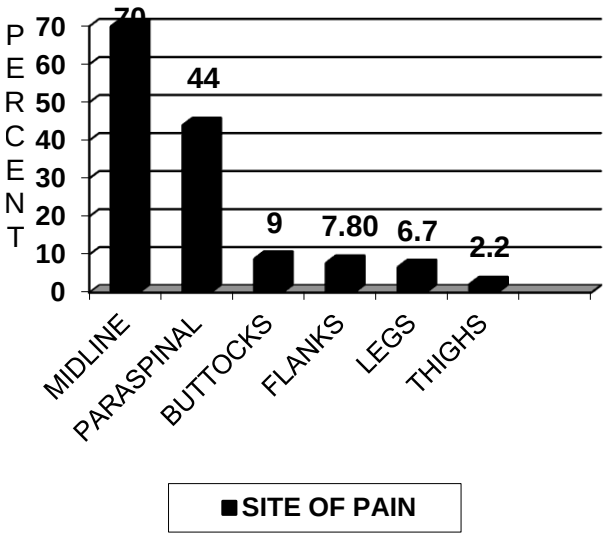

Fig.2: Site of pain

limitation of activities of daily living (66.4%).

The sleep pattern and bedding seems to affect the posture and hence plays an important role in causing LBA. Our study informs that most of the soldiers were sleeping on a traditional nawar/tape bed, which is not straight and causes midline depression that causes a poor posture with flexion of spine. We could not find any study to compare sleep technique/bedding in any military population.

In Pakistan there is no published data on this subject. The main aim of our study was to look for the occupational causes of low backache. The study was done on a specific population of soldiers presenting with mechanical backache at our centre. The results of this study cannot be applied on a general population because soldiers are a separate entity with specialized occupation and they cannot be compared with the overall population. Therefore it is recommended that a multicentre study on same topic with a larger number of patients may be done to further explore the occupational stresses for a better management.

CONCLUSION

The poor posture of sedentary soldiers was the main cause of low backache. Their ignorance of "Back Discipline" compounded and protracted the problem. Postural adjustment definitely requires ergonomic modifications/adjustments with respect to their occupation to avoid low backache. More studies are required to ascertain the biomechanics of low backache due to these occupational causes and specific guidelines should be formulated for its prevention and treatment.

REFERENCES

1. Beurskens AJ, De Vet HC, Koke AJ, Van Der Heijden GJ, Knipschild PG. Measuring the functional status of patients with low back pain. Assessment of the quality of four disease-specific questionnaires. Spine. 1995;20:1017-28
2. Fransen M, Woodward M, Norton R, Coggan C, Dawe M, Sheridan N. Risk factors associated with the transition from acute to chronic occupational back pain. Spine. 2002;27:92-8.
3. Hoogendoorn WE, Van Poppel MNM, Bongers PM, Koes BW, Bouter LM. Physical load during work and leisure time as risk factors for back pain. Scand J Work Environ Health. 1999;25:387-403.
4. Loney PL, Stratford PW. The prevalence of low back pain in adults: a methodological review of the literature. Phys Ther 1999;79:384-96.
5. Santos KGLL, Silva MAG. The prevalence of low back pain in women practicing gymnastics in gyms. Physiotherapy. 2003, 4:117-25.
6. Toda Y, Segal N, Toda T, Morimoto T, Ogawa R. Lean body mass and body fat distribution in participants with chronic low back pain. Arch Intern Med. 2000;160:3265-9.
7. De Vita. Low back pain and its relationship to the type of occupation, with ageand sex. Rev Bras Fisioter. 1996, 1:67-72.
8. MacFarlane GJ, Thomas E, Papageorgiou AC, Croft PR, Jayson MIV, Silman AJ. Employment and physical of future low back pain. Spine. 1997;22:1143-9
9. Mannion AF, Muntener M, Taimela S, Dvorak J. A randomized clinical trial of three active therapies for chronic low back pain. Spine. 1999;24:2435-48
10. Marras WS, Ferguson SA, Gupta P, Bose S, Parnianpour M, Kim JY, et al. The quantification of low back disorder using motion measures. methodology and validation. Spine. 1999;24:2091-100.
11. Miyamoto M, Shirai Y, Nakayama Y, Gembun Y, Kaneda K. An epidemiologic study of occupational low back pain in truck drivers. J Nippon Med Sch. 2000;67:186-90.
12. Queiroga MR. Incidence and location of symptoms of pain in bus drivers in the city of Londrina. Rev Bras Saude Busy. 2002, 27:121-32.

13. Roland M, Morris R. A study of natural history of low-back pain. Part I: Development of a reliable and sensitive measure of disability in low-back pain. Spine. 1983;8:141-4.
14. Papageorgiou AC, Croft PR, Ferry S, Jayson MIV, Silman A. Estimating the prevalence of low back pain in the general population. Spine. 1995;20:1889-94.
15. Burdof A, Naaktgeboren B, De Groot HC. Occupational risk factors for low back pain among sedentary workers. J Occup Med. 1993;35:1213-20.
16. .Fernandes RCP. Low back pain and work: a brief review. Rev Bras Saude Busy.2002, 27:55-65.
17. Adams MA, Mannion AF, Dolan P. Personal risk factors for first-time low back pain. Spine.1999;24:2497-505.
18. Guo HR. Working hours spent on repeated activities and prevalence of back pain. Occup Environ Med. 2002;59:680-8.
19. Kelsey JL, Hardy RJ. Driving of motor vehicles as a risk factor for acute herniated lumbar intervertebral disc. Am J Epidemiol. 1975;102:608-13.
20. Anderson R. The back pain of bus drivers. Spine. 1992;17:1481-8.
21. Magnusson ML, Pope MH, Wilder DG, Areskoug B. Are occupational drivers at an increased risk for developing musculoskeletal disorders? Spine. 1996;21:710-7.
22. Mortimer M, Wiktorin C, Pernold G, Svensson H, Vingard E. MUSIC (Norrtalje Study Group, Musculoskeletal Intervention Center). Sports activities, body weight and smoking in relation to low-back pain: a population-based case-referent study. Scand J Med Sci Sports. 2001;11:178-84.
23. Hosmer DW, Lemeshow S. Applied Logistic Regression. New York: Wiley; 1989.
24. McCullag P, Nelder JA. Generalized Linear Models. New York: Chapman and Hall; 1989.
25. Barrier THC. Ergonomic approach of RSI. Rev Bras Saude Busy. 1994, 22:51-60.
26. Heliovaara M. Occupation and risk of herniated lumbar intervertebral disc or sciatica leading to hospitalization. J Chronic Dis. 1987;40:259-64.
27. Krause N, Ragland DR, Greiner BA, Fisher JM, Holman BL, Selvin S. Physical workload and ergonomic factors associated with prevalence of back and neck pain in urban transit operators. Spine. 1997;22:2117-26
28. Riihimaki H, Viikari-Juntura E, Moneta G, Kuha J, Videman T, Tola S. Incidence of sciatica pain among men in machine operating, dynamic physical work, and sedentary work. Spine. 1994;19:138-42.
29. Eriksen W, Natvig B, Bruusgaard D. Smoking, heavy physical work and low back pain: a four-year prospective study. Occup Med. 1999;49:155-60.
30. Goldberg MS, Scott SC, Mayo NE. A review of the association between cigarette smoking and development of nonspecific back pain and related outcomes. Spine. 2000;25:995-1014.
31. Hildebrandt VH, Bongers PM, Dul J, Van Dijk FJH, Kemper HCG. The relationship between leisure time, physical activities and musculoskeletal symptoms and disability in worker populations. Int Arch Occup Environ Health. 2000;73:507-18.
32. Miranda H, Viikari-Juntura R, Martikainen E, Takala P, RiihimakI H. Physical exercise and musculoskeletal pain among forest industry workers. Scand J Med Sci Sports. 2001;11:239-46.
33. Krause N, Ragland DR, Fisher JM, Syme SL. Psychosocial job factors, physical workload, and incidence of work-related spinal injury: a 5 year prospective study of urban transit operators. Spine. 1998;23:2507-16.
34. Porter JM, Gyi DE. The prevalence of musculoskeletal troubles among car drivers. Occup Med. 2002;52:4-12.
35. Ying X, Bach E, Orhede E. Work environment and low back pain: the influence as occupational activities. Occup Environ Med. 1997;54:741-5.
36. Leboeuf-Yde C. Alcohol and low back pain: a systematic literature review. J Manipulative Phys Ther. 2000;23:343-6.
37. Matsui H, Maeda A, Tsuji H, Naruse Y. Risk indicators of low back pain among workers in Japan. Spine. 1997;22:1242-8.
38. Han TS, Schouten JSAG, Lean MEJ, Seidell JC. The prevalence of low back pain and associations with body fatness, fat distribution and height. Int J Obes Relat Metab Disord. 1997;21:600-7.
39. Anthony H Wheeler. Pathophysiology of Chronic Back Pain . E medicine URL: http://emedicine.medscape.com/article/1144130-overview
40. Hestbaek L, Leboeuf-Yde C, Manniche C. Low back pain: what is the long-term course ? A review of studies of general patient populations. Eur Spine J. 2003 Apr;12(2):149-65. Epub 2003 Jan 2