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Evaluating the Causes of Backache in Young People and Recommending Preventive Measures: A Study from Tarbela

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ABSTRACT

***Objective*:** To find risk factors for backache in Young People (under 50 years) and recommend preventive measures.
***Study Design*:** Cross-sectional study.
***Place and Duration of Study*:** Department of Surgery, Combined Military Hospital, Tarbela Pakistan, from Jan to Mar 2023
***Methodology*:** A questionnaire was developed to investigate the occupation-related issues in Young People reporting with low backache in surgical OPD at CMH Tarbela. It included personal and occupational factors. On hundred and seven Young Patients (under 30 years) were enrolled in the study.
***Results*:** Mean age of participants was 35.15±4.89 years, mean weight was 71.17±7.94 kg and height was from 172.39±4.33 cm. Twenty-seven (25.2%) were smokers and 26(24.3%) had family history of backache. Seventy-six (71.0%) were performing hard duties and 31(29.0%) light duties. In 41(38.3%) backache was due to exertion, while in 92(86%) sleeping on charpoy appeared to be the cause. Fifty-eight (54.2%) had pain for less than 1 month, while 29(27.1%) reported having severe pain. Fifty-two (48.6%) of the patients had Radiological tests and 37(34.6%) were given medication, 16(15%) had physiotherapy and 54(50.5%) were treated with both. Pain completely settled in 21(19.6%), decreased in 71(66.4%) and no relief in 15(14%) of cases.
***Conclusion*:** This study shows that the most likely cause of backache is musculoskeletal because it was short lived without any significant radiological findings and responded to medication and physiotherapy. It can be prevented by avoiding smoking, reducing body weight, sleeping on bed/floor, optimal weightlifting, balanced physical training and annual spinal radiological checkup.

Keywords: Back pain, Low Back Pain, Spine, Young People.

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INTRODUCTION

Backache, often associated with ageing and sedentary style, is increasingly becoming a concern among young people.[1] Majority of the people have Low backache which is defined as pain extending from lower ribs to lumbosacral region. Pain can be in the lower midline or paraspinal region with or without neurological deficit.[2] No age is immune and it can also affect children and adolescents.[2] Back ache has been major health problem and various studies show that approximately 80% of the population presents with low back pain which is currently significant cause of disability in working population and corresponds to over 50% of all musculoskeletal dysfunctions that cause chronic disabilities in advanced countries, leading to expenses with treatments and absenteeism from work.[3,4] One can very well imagine magnitude of the problem that 80% of population in general and every year in USA alone, approximately 3-4% people are temporarily disabled and 1% get permanently disabled because of low backache. There is an epidemic of low back pain / disability which is on the increase day by day. It is one of the most common reasons military personnel, even new entrants, seek medical advice and is frequent cause of invalidement out of service across all branches of armed forces.[3]

The causes of backache are multiple including physical, psychological and social factors. In addition to well known physical factors like musculoskeletal strain etc psychosocial factors are also equally important.[4,5]

We lack proper data, but in USA about 3-4% of the people are temporarily disabled, and 1% permanently disabled because of low back pain.[6] Very few studies have been conducted on this important issue in our setup, so idea is to find out causes of

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backache in young people and adopt measures to prevent them.

METHODOLOGY

This cross-sectional study was carried out in the Surgical Department at Combined Military Hospital, Tarbela Pakistan, from January to March 2023, after approval from Institutional Ethical Review Committee of the hospital (letter no. Coy/1422-Gen/15/2023).

Inclusion Criteria: All male young patients under 50 years of age with backache, reporting in surgical OPD, were included.

Exclusion Criteria: Females and patients with previous history of spine surgery were excluded.

Total number of 107 patients were included in the study after taking their informed consent. Information was taken about age, weight, height, sleep pattern, physical activity, injury, smoking, and severity of pain was taken a pre-developed questionnaire. The purpose of study was explained to the patients and confidentiality was ensured.

Data was analyzed using SPSS version 21.0. Quantitative data was presented using mean and standard deviation, while qualitative data was presented using frequencies and percentages.

RESULTS

A total number of 107 male patients were registered in the study. The age, weight and height ranges of participants were from 24 to 45 years, 55 kg to 97 kg and 160 to 180 cm respectively (Table-I). Only 27(25.2%) were habitual of smoking cigarettes and 26(24.3%) had family history of having backache. Regarding Nature of job 76(71.0%) of participants were engaged in standing / hard duties (Laborers) whereas 31(29.0%) were performing sitting / light duties (Office Workers etc.). Out of these, 41(38.3%) reported that their backache was due to excessive exercise and games and 92(86%) due to sleeping on charpoy. Other details show that 58(54.2%) patients had duration of pain for less than 1 month and 29(27.1%) were having severe pain. Duration of sleep ranged from 04 hours to 06 hours and majority (66.4%) had 6 hours duration of sleep (Table-II). Radiological tests were run on 48.6%. Medication was given to 37(34.6%), 16(15%) had physiotherapy and 54(50.5%) were treated with both medication and physiotherapy. Out of them pain completely settled in 21(19.6%), decreased in 71(66.4%), and there was no relief in 15(14%) of cases (Table-III).

Table-I: Anthropometric Details of Participants (n=107)

Variables	Minimum	Maximum	Mean±SD
Age (years)	24	45	35.15±4.89
Weight (kg)	55.00	97.00	71.17±7.94
Height (cm)	160.00	180.00	172.39±4.33

Table-II: Possible Causes of Chronic Lower Back Pain (n=107)

Variables		n(%)
Smoking Cigarettes	No	80(74.8%)
	Yes	27(25.2%)
Family History	No	81(75.7%)
	Yes	26(24.3%)
Nature of Job	Standing/Hard duty (Laborers)	76(71%)
	Sitting duty (Office Workers)	31(29%)
Reason of Backache	Heavy weightlifting	38(35.5%)
	Injury	11(10.3%)
	Prolonged journey	17(15.9%)
	Excessive exercise and games	41(38.3%)
Place of Sleeping	Charpoy	92(86%)
	Bed	11(10.3%)
	Floor	4(3.7%)
Sleep Hours	4 hours	15(14%)
	6 Hours	71(66.4%)
	8 Hours	21(19.6%)
Severity of Pain	Mild	18(16.8%)
	Moderate	60(56.1%)
	Severe	29(27.1%)
Duration of Pain	Less than 1 week	5(4.7%)
	Less than 1 month	53(49.5%)
	L ess than 6 months	16(15%)
	Less than 1 year	18(16.8%)
	More than 1 year	15(14%)

Table-III: Radiological Tests, Treatment and Latest Condition of Participants (n=107)

Variables		n(%)
Radiological Tests	None	55(51.4%)
	X Ray	43(40.2%)
	MRI	9(8.4%)
Treatment	Medication	37(34.6%)
	Physiotherapy	16(15%)
	Both	54(50.5%)
Latest condition	No relief	15(14%)
	Pain settled	21(19.6%)
	Pain decreased	71(66.4%)

DISCUSSION

Our study shows that only 25.2% patients were habitual of smoking cigarettes, whereas other studies show that there is strong association with smoking. The effect of smoking on low backache is attributed to nicotine and tobacco, which could affect blood perfusion to the intervertebral discs, increased levels of inflammatory factors and thus increase the transmission of pain in the central nervous system.[7]

Nearly a quarter (24.3%) of our respondents reported family history of back pain, which is similar to results from a study on Chinese soldiers.[8] Regarding Nature of job, 76(71.0%) participants were engaged in standing /hard duty (Labourers) whereas 31(29.0%) were performing sitting / light duty (Office Workers etc). In contrast, another Pakistani study shows that it is common in sedentary workers as they spend most of their time sitting, frequently bending, twisting, and stressing their torsos.[9]

Forty-one (38.3%) of our respondents believed that their backache wass due to excessive exercise and games which is also supported by other studies reporting that backache is higher in people associated with heavy manual labour.[10] In our study, 17(15.9%) of individuals developed backache due to prolonged journey and 38(35.5%) had history of heavy weight lifting. Hao Qu *et al*. found that individuals carrying heavy load have a higher incidence of backache because excessive load carriage for long duration can lead to muscle cell necrosis, muscle fibre rupture, tissue fluid exudation and lactic acidosis leading to paraspinal muscle injury and backache.[11] Mayoux-Benhamou *et al*. suggested that reduction of intervertebral disc height to 4 mm (ie, 35-50% of normal disc height) reduces the foraminal area and causes nerve compression / neurological deficit.[12]

In our study, only 52(48.6%) of patients needed radiological tests, out of which 43(82.69%) did not have any significant finding except for loss of lumbar lordosis and 9(17.307%) had mild disc bulge without any neurological deficit. In other studies, doubtful radiological changes were identified in 47.4% of the patients, mild degeneration in 9.6%, moderate degenerative changes in 10.9% and severe degenerative changes in 5.5%.[13,14]

The relation between physical activity and low backache is controversial because both high and low amount / intensities of physical activities have been incriminated as risk factor for backache. The question whether inactivity (deconditioning) is the cause of low backache or backache leads to inactivity has been raised.[15] The amount of time spent on physical training also has an association with low backache. One study demonstrated that those participating in fewer physical training sessions per week had a greater risk of low backache limiting their work ability than those participating in more physical training sessions per week.[16]

In our study, 92(86%) of patients used to sleep on charpoy. It is similar to another Pakistani study where individulas having high incidence of backache were sleeping on traditional nawar / tape bed, reason being sleeping on charpoy causes poor posture with abnormal flexion of spine disturbing its normal curvature.[9]

Thirty-seven (34.6%) of our respondents were given medication, 16(15%) had physiotherapy and 54(50.5%) were treated with both medication and physiotherapy. Out of them, pain completely settled in 21(19.6%) and decreased in 71(66.4%), suggesting that they suffered from simple musculoskeletal problem and majority 92(86%) responded to treatment. This finding is also supported by other studies where the cause of backache is mainly muscular in nature due to intensity of physical training which includes repetitive movements and frequent bending/ twisting resulting in high incidence of muscle injury.[17] Moreover, musculoskeletal disorders especially low backache is highly prevalent and one of the leading causes of disability in general population as well as military personnel.[18]

LIMITATION OF STUDY

Psychosocial factors (stress, anxiety, depression etc.) are also equally important and play vital role in causation of backache and have not been taken into account in our study.

CONCLUSION

This study shows that the most likely cause of backache is musculoskeletal because it was short lived without any significant radiological findings and responded to medication and physiotherapy. It can be prevented by avoiding smoking, reducing body weight, sleeping on bed/floor, optimal weightlifting, balanced physical training and annual spinal radiological checkup.

Conflict of Interest: None.

Authors Contribution

Following authors have made substantial contributions to the manuscript as under:

SUR & UR: Data acquisition, data analysis, critical review, approval of the final version to be published.

ISW & AJ: Study design, data interpretation, drafting the manuscript, critical review, approval of the final version to be published.

KG & GRT: Conception, data acquisition, drafting the manuscript, approval of the final version to be published.

Authors agree to be accountable for all aspects of the work in ensuring that questions related to the accuracy or integrity of

any part of the work are appropriately investigated and resolved.

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