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Original Research Article

An epidemiological study of low back pain in a tertiary care hospital of Jammu, Jammu and Kashmir, India

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ABSTRACT

Background: Backache is a national, personal and clinical problem. It is experienced by most of the population at some time and is a drain on the nation's resources. Personally, it is distressing because it can remain a major unresolved dilemma and clinically it poses challenges in diagnosis and treatment.
Methods: The present cross sectional study was conducted among 200 patients presenting with chronic low back pain, in the OPD of Post Graduate Department of Orthopaedics, Govt. Medical College, Jammu over a period of one year from November 2006 to October 2007.
Results: The average age of patients was 38.39 years with slight male predominance. Majority of the patients were non-sedentary workers. In majority of the cases (58%), duration of low backache was from 3 months to 1 year with the average of 25.8 months (2.158 years). The commonest mode of presentation was low back pain with radiation to lower limbs. Seasonal variation in the intensity of pain was observed in 50% of the cases. Tenderness of the spine was the commonest physical sign. Disc degenerative disease was found to be commonest cause of low backache, being present in 72% of the cases.
Conclusions: Low back pain is common in 3rd and 4th decade of life. The commonest mode of presentation was low back pain with radiation to lower limbs. Disc degenerative disease was found to be commonest cause of low backache, being present in 72% of the cases.

Keywords: Backache, Chronic low back pain, Disc degenerative disease

INTRODUCTION

Backache is a national, personal and clinical problem. Though it is difficult to produce a precise definition of low back pain, the term 'low back pain' is used to describe the symptom complex in which the pain is localized to the lumbosacral area, below the 12th ribs and above the gluteal folds. It may or may not be associated with 'leg pain' and neurological deficits.

Low back pain is the commonest orthopaedic problem. It is most prevalent during young and middle adult lives, between the ages of 25 and 55. It is now generally accepted that between 60-80% of the general population will suffer from low back pain some day and that between 20-30% are suffering from it at any given time. About 20-30% of the new referrals in the orthopaedic outpatient clinic are the cases of low back pain (Waddle G and Hamblen DL).[1] It is noted that the incidence of low

back pain is on an increase in a geometrical progression in the last few decades and the doctors are faced with a lot of diagnostic problems. Hult L has designated low back pain as the new epidemic.[2] The scale of the 'back pain epidemic' is alarming and has enormous economic implications.

Back pain is equally prevalent in both sexes although clinical courses differ. Fordyce et al noted that males may be more likely than females to incur back pain but females may be more likely than males to have low back pain that lingers into chronicity.[3]

Jobs requiring physically heavy work, static work postures, frequent bending, twisting, lifting, forceful movements, repetitive work and contact with vibrations predispose to low back pain. Psychological factors such as monotony and dissatisfaction at work are also implicated. History of previous low back pain is the single most useful predictor of future episodes of pain.

Terminology of low back pain

- Acute pain: 0-7 days' duration (pain free at onset)
- Acute on chronic pain: significant exacerbation of pre-existing pain
- Sub-acute pain: from 7 days to 3 months' duration
- Chronic pain: over 3 months' duration
- Chronic pain syndrome: psychological and social consequences of chronic pain influencing behavior
- Intractable pain: failed conservative treatment of chronic pain

METHODS

The present cross sectional study has been carried out on 200 patients of chronic low back pain with or without pain radiating down along the lower limbs, attending the OPD of Post Graduate Department of Orthopaedics, Govt. Medical College, Jammu, Jammu and Kashmir, India over a period of one year.

Criteria for inclusion

- Somatic low back pain for atleast 3 months (with or without referred pain).
- Age between 18 and 55 years.
- Patients of both sexes.
- Patients declared medically fit.

Criteria for exclusion

- Constant or persisting severe pain judged on clinical grounds to be due to irritation of nerve root. (Patients with definite neurodeficit were excluded).
- Other musculoskeletal disabilities that would affect the patient's ability to cope with exercises.
- Inflammatory arthritis.
- Major surgeries in past one year.
- Patients already involved in regular and frequent sporting activities (e.g. squash, swimming, fitness training, cycling) at least twice a week for past 6 months.
- Previous physiotherapy within past three months.
- Spinal injections, fractures, spondylolisthesis, malignancy.
- Pregnancy.
- Patients unable to walk without a walking aid.

Detailed history and examination was recorded in a prestructured Proforma and diagnosis category was determined based on

History

- Name, age, sex, occupation and address.
- Patient's complaints like low backache, painful movements, stiffness, paraesthesias, weakness in legs etc. were noted.
- Detailed history of pain regarding its duration, site, nature, character, radiation, progress, remissions, pain aggravating and relieving factors and seasonal variation was recorded.
- Personal history and any history of treatment received during the course of illness were recorded.

Clinical examination

- General physical examination.
- Systemic examination.
- Local examination of the spine:

1) Posture and gait
2) Deformity/List
3) Paravertebral muscle spasm
4) Tenderness
5) Mobility
6) Finger to floor distance
7) SLR
8) Root tension signs
9) Neurological examination

Investigations

- Plain X-Rays of the lumbosacral spine in anteroposterior, lateral and oblique views were taken and studied for any deformity, decrease in the intervertebral spaces, osteophytes, traction spurs, osteoporosis or any other pathology.
- MRI was done wherever indicated.

RESULTS

In the present study, among 200 patients 106 (53%) were males and 94 (47 %) were females. Overall age range of study population was 18 to 55 years with mean age of 38.9 years. The mean age of males and females was 38.4 years and 38.3 years respectively. Majority (50.5%) of the cases lie in the age group of 31 to 40 years.

Prevalence of low backache is slightly more in the males compared to females, male to female ratio being 1.2:1. Most of the patients (37.5%) were non-sedentary workers. 31.5% of the patients were housewives, while sedentary workers constituted 31% of the patients (Table 1).

Table1: Distribution of study population according to sociodemographic characteristics (N=200).

Season	n (%)
Age (in years)	
11-20	4 (2)
21-30	29 (14.5)
31-40	101 (50.5)
41-50	48 (24)
51-60	18 (9)
Sex	
Males	106 (53)
Females	94 (47)
Occupation	
Non-sedentary	75 (37.5)
Sedentary	62 (31)
Housewife	63 (31.5)
Season	
Summer	10 (5)
Winter	90 (45)
No Particular season	100 (50)

The duration of low backache ranged between 3 months to 144 months, with the average of 25.895 months (2.158 years). In majority of the cases (58%) it was from 3 months to 1 year. It was observed that in 60% of the cases, walking; in 50%, bending of the spine; in 46%, prolonged standing and in 25%, coughing and sneezing aggravated pain. It showed that physical activity was an important aggravating factor in majority of the cases. In 50% of the cases, in the present study, there was no change in the severity of pain by the change in the season. But in 45% of the cases, it got aggravated in the winter months and in 5% of the cases, it got aggravated in the summer months. The commonest mode of presentation in the present series was low back pain with radiation to lower limbs, which was present in 65% of the cases. It was unilateral in 46% of the cases and bilateral in 19% of the cases. 35% of the cases had low backache only. Stiffness of the back was present in 43% of the cases. It was observed that tenderness of the spine was the commonest physical sign, being present in 77% of the cases (Table 2).

Limited motion of lumbar spine was present in 70% of the cases followed by decreased lumbar lordosis (60%) and muscle spasm (58%). In the present study, 43.5% of the cases were diagnosed as having Chronic recurrent disc degenerative disease. Chronic persistent disc degenerative disease was responsible for backache in 28.5% of the cases. Therefore, disc degenerative disease was found to be commonest cause of low backache, being present in 72% of the cases. Facet joint arthritis and Myofascial sprain/strain were diagnosed in 15% and 10% of the cases respectively. Osteoporosis was present in 3% population among females above 47 years (Table 3).

Table 2: Distribution of patients according to duration of pain and aggravating factors (N=200).

Duration in months	N (%)
3-6	63 (31.5)
7-12	53 (26.5)
13-24	33 (16.5)
>24	51 (25.5)
Pain aggravating factor	
Lying down	40 (20)
Sitting	82 (41)
Standing	92 (46)
Walking	120 (60)
Bending	100 (50)
Coughing and Sneezing	50 (25)
Straining at stools	25 (12.5)
Stiffness	
Present	86 (43)
Absent	114 (57)
Tenderness	
Present	154 (77)
Absent	46 (23)
Radiation	
Present	130 (65)
Absent	70 (35)

Table 3: Distribution of patients according to type of diagnosis.

Diagnosis	Total	
	No.	Percentage
Chronic persistent disc degenerative disease	57	28.5
Chronic recurrent disc degenerative disease	87	43.5
Facet joint arthritis	30	15
Myofascial sprain/strain	20	10
Osteoporosis	6	3
Total	200	100

DISCUSSION

Back pain appears to be an inevitable accompaniment of the human lifecycle. Most of the people experience back pain at some stage during their life, and this pain is sufficient to cause an alteration in lifestyle for at least a period of time and drives individuals to seek some form of treatment. Until recently, it was believed that back pain was not a problem in "underdeveloped countries", but recent evidence clearly shows that its incidence in such countries is similar to that in the "developed" world.

The present epidemiological study of low back ache was conducted among patients attending tertiary care setting of Jammu region. In the present study majority of the cases were between 31-40 years which was consistent with other studies as well which reported the peak age between 30 to 40 years.[4-9] Klaber Moffett JA et al reported average age of 39 years and 6 months in their study.[10] Shirado O et al reported average age of 43.8 years in their study.[11] Karkucak M et al reported that 45.4% cases were between 35-44 years of age.[12]

The sex distribution in our study is comparable to the studies conducted by Poppen, Friberg and Hirsch, Sharma and Sankaran and Klaber Moffett JA et al.[9,10,13,14,] But they do not confirm to the observations of O'Connell (4:1), Sandhu et al (4:1), Shirado O et al (59.3% of cases were women), Karkucak M et al (72.7% of cases were females).[5,11,12,15] Our study reiterated that physical activity was an important aggravating factor in majority of the cases which was in concordance with the study conducted by Poppen and Nathan who noted higher incidence of degenerative changes and spondylolisthesis in persons engaged in heavy activities, like carrying weights and prolong standing.[13,16] Troup stated that there is no absolute distinction between the types of heavy work which causes premature degeneration of the spine.[17] Sharma SC et al. in their series reported that 57% of the patients were heavy manual workers, 26% had to change/leave their profession, and 38% did not enjoy their present job.[18] Contrastingly Sharma and Sankaran were of the opinion that the majority of the cases having protruded disc belong to well to do families engaged in office work.[9]

The duration of pain was similar to the observations of other studies as well.[5,13] However the present study do not confirm to the observations of Klaber Moffett JA et al (7 years mean duration of symptoms) and Karkucak M et al (6.7 years mean duration).[10,12] In the study conducted by Peyton and Simmons, in more than 70% of the cases, pain was aggravated by bending and coughing.[19]

Other authors reported coughing and sneezing as the pain aggravating factors.[13,14] Lower backache was present in 65% of cases in the current study which was in agreement with published literature.[20] Sharma and Sankaran reported backache with sciatica in 76.1%, backache only in 12.8% and sciatica only in 11.1% of the cases.[9] Hirsch concluded that analysis of patients' symptoms in low backache discloses a complex picture with marked variation in the distribution of pain and varying degrees of impaired function.[21]Majority of patients in the present study had chronic denerative disc disease as the commonest cause of backache which corroborated with the study conducted by Torgersen and Dotter.[22] Eaton reported disc prolapse in 62% of the cases.[23] Hirsch pointed out that even though intervertebral disc is the site of pathophysiological process that acts as a trigger mechanism in low back pain, the pain may originate in other elements such as ligaments, fascia and muscles, all of which are involved in the mechanical behaviour of the back.[21] Dixon AST concluded that 9 out of 10 instances of low back pain are transient related to some postures or strain.[24] Gratz observed that traumatic and inflammatory lesions may involve the fascial planes between the muscle groupings resulting in the myofascitis or fascial adhesions causing low backache.[25]

Friberg reported that any disturbances of the mechanical function of the lower part of back because of ligamentous, periosteal, muscular and fascial lesions may initiate somewhat similar combination of signs and symptoms.[14] Iskrant and Smith reported that women are more commonly affected by osteoporosis than men and more than half women over 45 years had x-ray evidence of osteoporosis in their lumbar spines.[26] According to Roland, clinically, in the great majority, the underlying condition is best described as non-specific mechanical back pain. The use of this vague label reflects the doctor's open mindedness rather than his ignorance.[27]

Backache is as universal as headache, but it is often impossible to be accurate about the source of the pain. Despite improved diagnostic techniques, the difficulties of obtaining an accurate and precise diagnosis still present the greatest obstacle to further well directed research, as well as to effective treatment.

As the patient's history of back pain extends over a period of months and years, psychosocial factors are likely to intervene and further complicate the problem. Any treatment should therefore be aimed at minimizing the likelihood of the development of a chronic back pain syndrome, with its tendency to passive dependency and learned pain behaviors.

CONCLUSION

Low back pain is common in 3rd and 4th decade of life. The commonest mode of presentation was low back pain with radiation to lower limbs. Disc degenerative disease was found to be commonest cause of low backache, being present in 72% of the cases.

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