ORIGINAL ARTICLE

LUMBAR DISC HERNIATION IN PATIENTS WITH CHRONIC BACKACHE

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Background: Low back pain with or without lower extremity pain is the most common problem among chronic pain disorders with significant economic, social, and health impact. This study was conducted to determine the frequency of lumbar disc herniation and its different levels, among patients with chronic backache. **Methods:** This cross sectional study was conducted in the department of Neurosurgery, Ayub Medical College Abbottabad from January 2011 to January 2013. All the patients presenting with chronic low backache of either gender above the age 14 years were included in the study. Magnetic resonance imaging (MRI) was done in all the patients included in the study to look for lumbar disc herniation. **Results:** A total of 477 patients with chronic low backache were included in the study out of which 274 (57.4%) were males. Age of the patients ranged from 19 to 75 (39.92±12.31) years. Out of 477 patients 38 (7.9%) had significant radiological evidence of disc prolapse at lumbar vertebral levels, with 26 (9.5%) males and 12 (5.9%) females. Among these 38 patients with inter-vertebral disc, 20 (52.6%) of patients had disc herniation at L5-S1, 15 (39.5%) at L4-L5, 2 (5.26%) cases at L3-L4 level and only one case (2.6%) had the involvement of L2-L3 level. No cases of L1-L2 disc prolapse were found. **Conclusion:** Patients with chronic backache can have inter-vertebral lumbar disc prolapsed disease. Middle age group are more affected by lumbar disc disease especially at the lower lumbar regions.

Keywords: Backache, inter-vertebral disc, lumbar disc, magnetic resonance imaging

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INTRODUCTION

Low back pain (LBP) with or without lower extremity pain is the most common problem among chronic pain disorders with significant economic, social, and health impact.[1] LBP that persists continuously or intermittently for longer than 3 months is deemed chronic. While not a disease, LBP is associated with substantial morbidity.[2] The lifetime prevalence of chronic low back pain has been reported as high as 80% with an annual prevalence ranging from 15–45%, with a point prevalence of 30%.[3] Chronic low back pain is a multi-factorial disorder with many possible aetiologies. Inter-vertebral discs, facet joints, ligaments, fascia, muscles, and nerve root dura are the tissues capable of transmitting pain in the low back. Spinal pain is the most common of all chronic pain disorders.[4] The onset of back pain most often occurs between the ages of 30–50 years.[5]

Patient assessment by physical examination and detail case history is important step in the diagnosis of chronic backache. Other radiographic imaging studies include x-rays, CT scan and MRI, bone scan, single photon emission computed tomography (SPECT), and discography. MRI is the best imaging procedure for use in diagnosing patients with radicular symptoms, or for those in whom discitis or neoplasm is suspected.[5]

Lumbar disc herniation is a pathological condition in which a tear in the outer, fibrous ring (annulus fibrosus) of an intervertebral disc allows the soft, central portion (nucleus pulposus) to be extruded (herniated) to the outside of the disc.[6] Some of the factors attributable to lumbar disc herniation include obesity, smoking, physical inactivity, and trauma.[7] The investigation of choice for suspected lumbar disc herniation is MRI. Patients with lumbar disc herniation most commonly present with low back pain radiating to limbs, which increases with activity and relieve with rest, in some cases may present with bladder dysfunction in the form of voiding difficulties or with foot drop.[8]

The aim of this study was to determine the frequency of lumbar disc herniation and its different levels at presentation among patients presenting with chronic backache.

MATERIAL AND METHODS

This cross sectional study was conducted in the department of Neurosurgery Ayub Medical College, Abbottabad from January 2011 to January 2013. Ethical approval was obtained from hospital's ethical committee before starting the study. Patients of either gender over 14 years of age patients who presented with chronic backache to neurosurgery unit were included the study. Chronic backache was defined as the pain and stiffness in the back that had been

present for at least three months with no response to medical treatment. Patients with history of any malignancy, any previous surgery of spine, or with history of any previous intrathecal injection were excluded from the study. The patients were included in the study through OPD/ER department in a consecutive manner after taking informed consent. All patients were properly evaluated for any other cause of low backache. After taking detailed history, complete general physical, systemic and neurological examination was done. All patients were subjected to MRI for the detection of prolapsed disc. All the MRI scans were performed from hospital under supervision of expert radiologist. Data was recorded on a *pro forma* and analysed using SPSS-16. Results are described and Chi-square test was used at 5% level for significance testing.

RESULTS

A total of 477 patients with chronic low backache were included in the study out of which 274 (57.4%) were males and rest of 203 (42.6%) were females. Age of the patients ranged from 19–75 years (39.92±12.31 years). Out of 477 patients only 38 (7.9%) had significant radiological evidence of disc prolapsed at lumbar vertebral levels. Among these 38 patients, 20 (52.6%) had disc herniation at L5-S1, 15 (39.5%) at L4-L5, 2 (5.26%) at L3-L4 level and only one case (2.6%) had the involvement of L2-L3 level. No case of L1-L2 disc prolapse was found in our study. Out of 274 male patients, 26 (9.5%) had lumbar disc herniation and out of 203 females, 12 (5.9%) had disc prolapse indicating a predominance of male gender in the cases of lumbar disc herniation but with no statistically significant difference ($p>0.05$). Male to female ratio was 1.6:1. Among the 38 patients having prolapsed inter-vertebral disc, 28 (73.7%) were in the age group of 31–50, 6 (15.8%) were in the age group of 19–30 and 4 (10.5%) were above 50 years of age.

DISCUSSION

Among chronic pain disorders, chronic low back pain which arises from various structures of the spine and back constitutes a major problem with high prevalences.[3] A review of 23 studies reporting the prevalence of sciatica in the US between 1980 and 2006 found wide variation, with prevalences ranging from 1.2–43%. This study and most of the studies based the diagnosis on patient-reported symptoms, rather than clinical assessment.[9]

According to recent studies the degenerative disc disease occurs even in asymptomatic patients, but for about 10% of the population it results in permanent chronic pain and disability. The frequency of lumbar disc herniation in chronic backache accounts from 5.1% and 3.7% in male and female population, respectively, with the majority (90–97%) having disc herniation at L4–L5 and L5–S1 levels.[10] These results are in accordance with the findings of our results that show a predominance of male population. Similar results are also documented by Verbunt JA *et al*,[11] who observed a male to female ratio of 1.5:1, which is in consonance with the results of our study that had male to female ratio of 1.6:1. This may be because males are predominantly involved in laborious activities and strenuous exercises. Other studies from our region have documented the male to female ratio in excess of 2.8:1, which may be because males have an easy access to the hospitals and healthcare facilities compared to females.[12]

Like this study, other studies report that most of the patients with chronic backache presenting to hospitals and clinics for their problem have mean age of 39 years[13] and 43.7 years[14] in different series. In a study it is reported that 90% of the herniation occur at the L4-L5 and L5-S1 levels; while L3-L4 and L2-L3 levels account for the majority of other herniations.[15] Kim DS *et al* have reported upper lumbar disc herniation to occur with a frequency of less than 5% of all disc herniation and 95% herniation occur at L4-L5 and L5-S1 regions. Among these reported cases, herniation at the L3-L4 level comprise 70–83% of all upper lumbar disc herniations.[16] These two studies are comparable with the results of our study in which disc herniation at L4-L5 and L5-S1 was 39.5% and 52.6% respectively. Frequency of lumbar disc herniation in patients with chronic backache was 7.9% in our study which resembles other studies.[17]

CONCLUSION

Patients with chronic backache can have inter-vertebral lumbar disc prolapsed. Middle age working males and females are more affected by lumbar disc disease especially at the lower lumbar regions, i.e., at L4-L5 and L5-S1 levels. The middle age group (30–50 years) being the most productive part of the society, signifies that their disease should be picked and treated early without any undue delay by performing early radiological evaluation of their symptoms.

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