Lumbar Disc Herniation

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Editorial

Open access refers to unrestricted access via the Internet to articles published in scholarly journals such as "Orthopedics and Muscular System". OMICS Publishing Group strongly supports this open access initiative and all articles published by OMICS Publishing Group are freely accessible to everyone immediately after publication. Some of the special features of OMICS group journals include digital formatting, audio listening, language translation and ability to share views on articles via social networking. There are many benefits of open access model where the end users including researchers, patients, students, clinicians and policy makers can have immediate access to latest research findings throughout the world. Open Access articles are cited much more than the non open access articles [1] and have greater visibility in the scientific community and public. Most of the orthopaedic research performed in North America is publicly funded by agencies such as the Canadian Institutes of Health Research (CIHR) or the (US) National Institutes of Health (NIH) [2]. In recent years the question that was asked repeatedly was: ‘if the public is paying for this work, why cannot the public see the results?’ The advocates of open access model have now persuaded governments across the world that if the public pays for the research then the public has a right to see the results.

Lumbar disc herniation commonly known as prolapsed disc or slipped disc occurs in the lower back, between the fourth and fifth lumbar vertebrae or between the fifth and the sacrum. Patients suffering from lumbar disc herniation show symptoms affecting the lower back, buttocks, thigh, anal/genital region, and may radiate into the foot and/or to the toes. A condition known as sciatica in which sciatic nerve is affected is most common. The femoral nerve can also be affected and cause pain in the buttocks, thigh, anal/genital region, and may radiate into the foot and/or to the toes. The lumbar disc herniation is a common condition among young and middle-aged patients [3]. The majority of spinal disc herniation cases occur in lumbar region (95% in L4-L5 or L5-S1). The second most common site is the cervical region (C5-C6, C6-C7). The thoracic region accounts for only 0.15% to 4.0% of cases. The economic impact of various disc related disorders, back pain, and/or radiculopathy is in terms of days lost to work and reduced productivity. According to a recent estimate, US health care system spends over $1 billion annually to tackle the disorders related to lumbar disc herniation [4].

The lumbar intervertebral disc is a complex structure composed of collagen, proteoglycans, and sparse fibrochondrocytic cells that serve to distribute forces exerted on the spine [4]. Herniation of the contents of the disc into the spinal canal often occurs when the anterior side of the disc is compressed while sitting or bending forward to lift weights, and the contents (nucleus pulposus) get pressed against the tightly stretched and thinned membrane (annulus fibrosis) on the posterior side (back side) of the disc. Continuous stretching of the membrane and increased internal pressure (200 to 300 psi) results in the tear and rupture of the confining membrane and eventual movement of the contents of the disc into the spinal canal, pressing against the spinal nerves, thus producing intense and usually disabling pain and other symptoms. Mutation in genes coding for proteins involved in the regulation of the extracellular matrix, such as MMP2 and THBS2, has been shown to contribute to lumbar disc herniation [5]. More such studies are needed to dissect the genetic component of this growing problem.

In the last decade or so various randomized, controlled trials (RCTs) as well as prospective case-control studies were conducted to compare surgical vs nonsurgical treatment procedures for lumbar disc herniation. These include the Spine Patient Outcomes Research Trial (SPORT) [6] as well as the Maine Lumbar Spine Study (MLSS) [7]. In the MLSS study, patients who had undergone surgery for herniated lumbar disc had more complete relief of leg pain and improved function and satisfaction compared with nonsurgically treated patients over 10 years. But regardless of the kind of treatment received, improvement in the patient’s predominant symptom and work and disability outcomes were similar. Similar results were obtained in the SPORT study where patients with persistent sciatica from lumbar disk herniation improved in both operated and usual care groups. Those who chose surgical intervention reported greater improvements than patients who elected nonsurgical care. A recent study done in Netherlands concluded that early surgery achieved more rapid relief of sciatica than conservative care, but outcomes were similar by one year and these did not change during the second year [8]. More such studies are needed in future to confirm the benefits of surgical and nonsurgical procedures and also between early and late surgeries for lumbar disc herniation. I hope the journal of “Orthopedics & Muscular System” from OMICS Group will play a key role in this direction. The journal “Orthopedic & Muscular System” encompasses the theoretical and practical aspects of information processing and communication ensuring the analysis of scientific information and dissemination of medical data through the application of computers to various aspects of health care and medicine.

References


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Received January 07, 2012; Accepted January 09, 2012; Published January 16, 2012


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