

REVIEW ARTICLE

Public awareness about spinal disc herniation in Saudi Arabia: a brief review

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ABSTRACT

Lumbar disc herniation involves the displacement of the intervertebral disc content. A herniated disc can occur in any part of the spine; it is more common in the lower back (lumbar spine) but also in the neck (cervical spine). Nowadays, disc herniation is commonly diagnosed regarding the degenerative abnormalities of the lumbar spine. It is the major cause of spinal surgery. To overview the disc herniation and awareness of the Saudi population about spinal disc herniation, we performed a literature search on scientific database Google scholar for articles related public awareness about spinal disc herniation in Saudi Arabia. Specific keywords were employed for the literature search including spinal disc herniation, disc herniation, lumbar disc herniation, epidemiology of disc herniation, awareness about disc herniation, and Saudi population. The included articles in this review were published between 2010 and 2021. The review covered studies on epidemiology, management, outcomes and awareness regarding lumbar disc herniation in Saudi Arabia. The review concluded that only few studies in Saudi Arabia investigated the awareness of the population about spinal disc herniation, and most of them reported a poor level of awareness.

Keywords: Awareness, spinal disc, disc herniation, lumbar spine.

Introduction

Lumbar disc herniation is a localized displacement of the intervertebral disc tissue beyond the physiological margins of the intervertebral disc space that can result in radicular pain, low back pain, numbness, motor weakness, and tingling in a dermatomal and myotomal distribution [1]. The intervertebral discs are pads of fibrocartilage that connect the vertebral bodies [2]. The intervertebral disc has major functions such as mechanical muscle contraction by spinal columns, transferring load from the body weight, and permitting flexion, contortion, and curving [2]. Each disc in the spine contains two structures; the outer annulus fibrosus and the inner core pulpal and cartilage terminal, which minimizes the pressure on the spine [3]. Disc herniation occurs when the internal matter, which is jelly-like, projects via the weakened outside part of the vertebrae [4]. The lumbar spine herniated disc is the most diagnosed degenerative abnormality, and it is one of the most common causes of spinal surgery. The most affected site of herniation is the posterior-lateral region in the lumbar spine at L4-L5 and L5-S1 [5]. The majority of lumbar disc herniation (95%) occurs at levels L4-L5 and L5-S1 of the lower lumbar spine [6]. The patient may feel numbness and pain in the top of the foot, and it is recognized as foot drop when the patient is affected at the lumbar segment of L4-L5, which

causes sciatic pain and feebleness when elevating the big toe and maybe the ankle [5]. Disc herniation can cause mechanical irritation for several surrounding disc intervertebral structures such as anterior longitudinal ligament, annulus fibrosus, nerve roots, nerves, posterior longitudinal ligament, and muscles. The irritation of these structures could result in pain which presents as low back pain and presents as radiculopathy if the nerve is affected [7].

Although it was reported that more than 70% of patients with disc herniation could relieve by conservative therapy, surgical treatment is the treatment of choice which provides better and long-term beneficial outcomes [8,9]. It is necessary to identify the level of awareness of the general population regarding disc herniation as it is more common among adults and requires surgical treatment.

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Therefore, the best method to avoid being affected by disc herniation is to be aware of it. In this review, we aimed to overview the disc herniation and the awareness of the Saudi population regarding it.

Literature Search

We searched for scientific articles for writing this review through searching for articles related to our subject through the Google scholar website. Several combinations of keywords were used for the searching process to obtain articles related to the current subject, including “spinal disc herniation, disc herniation, lumbar disc herniation, Epidemiology of disc herniation, awareness about disc herniation, and Saudi population.” We reviewed the titles of the obtained articles and excluded duplicated articles, irrelevant articles, and articles discussing other irrelevant points. The abstract of the included articles was reviewed, and the main titles of the articles were reviewed, then the whole content of each article. The included articles to write this review were published between 2010 and 2021. The discussion part was written under three specific titles; two to overview the lumbar disc herniation included epidemiology and management and outcomes. The third title was the awareness of the Saudi population about disc herniation.

Discussion

Epidemiology

The prevalence of lumbar disc herniation was estimated to affect 2% to 3% of the population [10], and its prevalence is 2% in Western countries [11]. Disc herniation occurs mainly in individuals between the fourth and fifth decades with a mean age of 37 years old [12-15], and it is the highest among individuals with an age range of 30-50 years old [6]. Regarding gender, males are more affected than females with a ratio of 2:1 [6], where it was stated that 4.8% of men over 35 years of age are affected with disc herniation, whereas 2.5% of women over that age are affected [10].

Several risk factors for lumbar disc herniation are reported in several studies, including male gender, obesity, diabetes, smoking, driving, acute trauma, genetic predisposition, and mobility [16]. Cummins et al. [17] reported that the mean age of patients with the herniated disc was 41 years, and it was more common in males as 57% of males were diagnosed with herniated disc versus 43% diagnosed females.

It was also found that the increase in the body mass index (BMI) was a risk factor for lumbar disc herniation, and this was due to the increased axial load on the lumbar spine [18]. A meta-analysis found that obese patients with BMI over 30 and overweight patients with a BMI of 25-30 had a significant increase in the risk of being diagnosed with lumbar radiculopathy compared to other patients [19]. Moreover, obesity was associated with an increased risk of recurrent disc herniation after microdiscectomy with 12 folds increased risk of recurrence and 30 folds more

likely to perform a revision for surgery than non-obese patients [20].

Genetics was found to be a risk factor for lumbar disc herniation [21]. In a case-controlled study that included more than 4,000 patients, it was found that family history of disc herniation was the most important determinant for predicting patients who are more likely to develop lumbar disc herniation [22]. In lumbar disc herniation patients younger than 40 years old, the collagen IX tryptophan allele (Trp2) has been linked to increased severity of disc herniation [23].

Also, there are several occupational risk factors for disc herniation, such as high-stress jobs. It was found that lumbar disc herniation was significantly more prevalent among individuals working in high-stress jobs [24]. Moreover, long-time driving is another occupational risk factor, where it was demonstrated that individuals who spend considerable time driving are at increased risk for disc herniation [6,25].

Regarding the clinical presentation, the primary symptoms of lumbar disc herniation include sensory abnormalities, radicular pain, and weakness in the distribution of one or more lumbosacral nerve roots [26-28]. The lumbar disc herniation typical symptoms are including low back pain, sensorimotor deficits, and radicular pain [11].

Patients with lumbar disc herniation complain of low back pain that increases under strain and axial loading. So, prolonged upright standing and sitting are more debilitating than remaining in a recumbent position [11]. Patients report increased pain when sitting, which increases the disc pressure in 40% of patients [29]. The lateral disc herniation can lead to radicular pain with no low back pain [11].

Management and outcomes

Non-operative treatment is the first-line management intervention for most patients with lumbar disc herniation [30,31]. More than 90% of lumbar disc herniation can be treated within 6-8 weeks with no need for surgical treatment [11]. The goal of non-surgical treatment is to reduce the pain by using drugs, physical exercise/therapy, manual or mechanical traction, spinal manipulation, epidural steroid injection, and other modalities such as electrical stimulation, bracing, acupuncture, herbal supplementation, and transcutaneous electrical stimulation [26,32].

A meta-analysis involving 11 cohort studies concluded that reabsorption of lumbar disc herniation was well identified, and its overall incidence was 66.6%. The meta-analysis stated that conservative management might become the first line of treatment for lumbar disc herniation [33] in a study that compared the surgical versus conservative treatment for lumbar disc herniation reported that surgical treatment resulted in faster relief of back pain symptoms among the patients; however, there were no benefits of surgical management over

conservative management in midterm and long-term follow-up [34].

Operative intervention is indicated in case of altered function of the bladder, progressive neurological deficits, and progressive muscle weakness [35]. However, these indications may vary between different surgeons and patients. Discectomy has many forms and shapes, and it is performed to relieve the symptoms among appropriately selected patients [36]. A study conducted on 817 spine surgeons showed that the most common indication of surgery among the surgeons was the severity of pain or/and disability (55.3%), followed by failure of non-surgical management (50.6%). Typical radiculopathy with neurological deficits (43%), and duration of complains (36.2%) [37].

The optimum timing for surgical intervention is also of great importance; however, no agreement can be obtained. There were 46.1% of the spine surgeons reported that the ideal timing is 4-8 weeks of conservative management as the minimum period before deciding to undergo surgery, whereas 23% reported 8-12 weeks, a fewer percentage 11.3% reported 12 weeks, whereas 19.5% reported performing the surgery within 4 weeks of conservative management [37].

When the long-term results of lumbar disc herniation were assessed, it was found that the long-term results were satisfactory in around two out of three patients. In contrast, the remaining patients experienced long-lasting problems of some kind. Time on sick leave was the most important predictor for primary and secondary outcomes [38].

Awareness of Saudi population

The studies estimated the awareness of the Saudi population regarding disc herniation are few; there is a lack of enough information about the awareness level of the general population regarding disc herniation in Saudi studies and other countries.

A descriptive cross-sectional study was conducted on the general population in the Aseer region in southern Saudi Arabia to assess the population's awareness regarding disc herniation using a questionnaire. The study included 1,044 participants with an age of 15 to 70 years old. The study showed very low awareness among the population, where only 9% of participants had good knowledge regarding all aspects of disc herniation knowledge. Although most participants (71%) were university graduates, a few percentages reported good awareness. Marital status, occupation, and the family history of disc herniation were also determinants of the awareness level of participants [39].

Another cross-sectional study was conducted on the general population in Riyadh and included 1,105 participants to assess the knowledge and awareness regarding herniated disc. The majority of participants heard of the herniated disc (93%); however, only 35%

had good knowledge about it, 27%, 18%, 4%, and 17% had a moderate, very good, excellent, and bad level of knowledge, respectively. The highest level of knowledge was found among participants aged 15-30 years old, whereas older participants showed unsatisfactory awareness. Each gender and residence in Riyadh were determinants for the level of knowledge of the population [4].

Another study from the Hail region conducted on the general population through an electronic questionnaire distributed via social media assessed the awareness of the general population in the Hail region regarding the awareness about spinal disc herniation. The study included 411 individuals whose level of knowledge was moderate; there was insufficient knowledge among the participants regarding spinal disc herniation [40].

In the Taif region, a descriptive cross-sectional study was performed and included 1,034 individuals living in Taif. More than one-half of participants (66.5%) knew the disc prolapsed, which significantly was associated with the age of participants. Still, higher parentage (85.9%) was aware of the risk factors for the disc prolapsed. Their awareness regarding the risk factors was significantly influenced by their gender, age, marital status and occupation [2].

A study performed on the general population and medical students in Jeddah to assess their awareness of disc prolapsed included 1,026 individuals between 11 and 99 years old. This study included a younger age group compared to the previously mentioned Saudi studies. Also, a poor level of knowledge was found among the participants in this study, where 77.7% of the medical students and 54.1% of the general population reported good knowledge regarding disc herniation. Several factors were found to affect the level of awareness of participants, including gender, nationality, education, occupation, type of occupation, and occupation length [41]. A hospital-based study from Al Madinah Al Munawarah included 150 participants who reported that 78% had awareness, and the awareness of participants regarding different investigated domains was good [42].

Conclusion

There was a lack of studies conducted on disc herniation in Saudi Arabia; no studies reported the epidemiology of disc herniation in Saudi Arabia. However, based on the studies and reviews from other countries, we could review the epidemiology of disc herniation. Regarding the awareness of the Saudi population about spine disc herniation, also there were a few studies conducted on such subject. The few studies reviewed showed that there was low awareness among the general population regarding spinal disc herniation. Moreover, the studies which reported acceptable knowledge also reported several gaps in the knowledge of participants. This drives us to increase the population's awareness about disc herniation to avoid the consequences of disc herniation and surgical management.

Conflict of interests

The authors declared that there is no conflict of interest regarding the publication of this article.

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