High prevalence of lumbar disc herniation among patients referring to the largest MRI center of hormozgan province-Iran

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Abstract: Lumbar Disc Herniation (LDH) occurs due to different reasons and much money allocated to its consequences. Prevalence of LDH in different parts of the world is due to and affected by local specialties such as financial, cultural, behavioral and occupational features, as well as, life style. The present study intends to evaluate prevalence of LDH in Bandar Abbas- Iran, correlation factors. **Methods**: in this study evaluated patients who referred to the Shahid Mohammadi with complain of backache. Age, sex, stature, weigh, job and living area were recorded medical history containing weight loss; history of fever, incontinency, trauma, systemic disease, child birth, section operation, anesthetics usage and positive family history were recorded. With report of MRI, presence or absence of LDH was considered. **Results:** in contrast 65.7% reports positive LDH. There were significant relationship between LDH and occupation, living area and high BMI ($p<0.05$). The most severe type of LDH reported bulging, the radiation of pain stated in thigh and hip mostly (65.9 %). **Conclusion:** LDH is a multi factorial disorder which could be affected by different variables such as demographic and social specialties. The present study emphasized on the prevalence of LDH in a particular population, and revealed specific risk factor of LDH due to the population differences which cannot be considered in other studies. It finally suggested that LDH is not affected by a fixed set of risk factors worldwide and more study is required to determine the LDH pattern and risk factors in each community.

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Introduction

Backache is one of the unwanted consequences of modern life style and common health problems (3-5) .12 million people in the United State suffer from the mentioned disorder and more than 50 million dollars are annually dedicated to prevention and curing different types of backache (6, 7). Intra vertebra disc consists of two main parts. First: the central core which contains 80% water and 20 %collagen filaments. The core is under pressure from several parts from which weak sites would get herniated. Second: the peripheral area which increases in density and rigidity by aging (2, 8, 9). Degenerative process which begins from early ages and promotes gradually starts with dehydration and ascending the level of collagen compounds followed by bio mechanical changes, disc degeneration and mechanical degeneration would subsequently occur. This process can lead to compression of nerve tissue in injured regions (5, 10). While clinical signs and symptoms could help and facilitate the diagnosis (6, 11, 12) studies reveal that the best diagnostic method of Lumbar Disc Herniation is MRI (3, 13). MRI can accurately determine the location and severity of LDH, by providing Sagital and Axial portrait (1, 6, 14, 15). Several researches proved that MRI has more efficacies in comparison with CT-Scan for LDH diagnosis (1, 16, 17). Prevalence of LDH in different parts of the world is due to and affected by local specialties such as financial, cultural, behavioral and occupational features, as well as, life style (11). Since clinical signs and symptoms cannot be the mere source of decision making, MRI test is required for early diagnosis, moreover, MRI results along with their efficient analysis play a major role for clinicians. In this regard, the present study intends to make a link between the data taken from the MRI of different age groups and various variables such as life style patterns along with determining the prevalence of LDH in patients at Bandar Abass Shahid Mohammadi Hospital in order to enhance the awareness and provide a guideline for better decision making about this disorder.

Material and methods

The participants of this cross-sectional study included the patients who referred to the Shahid Mohammadi hospital during the first six months of 2012 with complaint of backache. The data was collected by a check list which was designed by the research group according to previous studies' findings and was revised by experts. The mentioned check list included two main parts: The first demographic questions included age, sex, stature, weigh, job and living area. The second part was dedicated to medical history containing weight loss, history of fever, incontinency, trauma, systemic disease, child birth, section operation, anesthetics usage and positive family history. The check list was filled for each patient based on the patients' medical records. The MRI section of patients' files was written by a radiologist. SPSS program version 19 as well as descriptive and cross tab tests were applied for data analysis.

Results

Severity and location of lumbar disc herniation were illustrated in (Table1). 478 patients participated in this study. 314(65.7%) participants were reported as positive LDH. The findings suggested that LDH is more common among urban population: 192(61.1) of positive cases of LDH were urban and 122 rural (38.9) ($p<0.05$). The results also indicated that lumbar disk herniation is more common between 20-40 years of age. The present study indicated that 176(56.1) were housewives, so it sounds that housewives are the most vulnerable group and that there is a significant relationship between house work and getting LDH ($p<0.05$). The findings revealed that overweight participants with high Body Mass Index (BMI) (25 and more) were also susceptible to develop LDH ($p<0.05$). 260 patients (82.8%) complained of having pain for longer period than three months while 54 (27.2) complained of a shorter duration of having pain. The complaints were primarily of pain in thigh and hip (65.9 %) radiating to knee (54.9 %) and toes (52.1 %). The MRI results distinguished Bulging as the most sever type of LDH (35.4%) and L4-L5 and S1 location as the most common location for LDH. There was no significant relationship between LDH and variables such as weight loss, family history, fever, incontinency, tobacco consumption, trauma, professional sports, Corticosteroids usage and type of child delivery.

Discussion

Lumbar disk is caused due to different reasons. Many identical studies suggest that LDH is more common in men in compression with women. Ghafar Shahi stated that men due to exposure to physical activities and lifting heavy objects would develop LDH more frequently compared with women (3). Although in accordance with each other, the significant difference between the present and the above-mentioned study is that this research considered both genders and revealed that housewife women are the most susceptible group compared with other groups such as men and women employees. This study also mentioned that despite the great effect of physical activity on prevalence of LDH, it could not determine feasibility of LDH. There was no significant evidence to show that men get LDH more than women. Ghedof et al stated in 2005 that heavy physical activity can lead to LDH. This finding holds true for this study results as well: it suggested that heavy exertion can lead to LDH in both sexes. The Location and severity of LDH in this study was reported as Bulging and protrusion as the most common in L4-S1 lumbar vertebras. These findings were in accordance with Moulai (11). This study also pointed out that clinical complaints of a patient with LDH, is mostly from bottom (thigh and hip) radiating to knee and toes. It seems that bottom is the main part of extremity in which pain would radiate to. More research needs to be done to explicit the relationship between LDH and referral pain. The present findings detected that having a positive LDH family history, being a professional athlete, tobacco and corticosteroids consumption are not risk factors for LDH.

Table 1: severity and location of Lumbar Disc Herniation

Complete Herniation		Extrusion		Sequestration		Protrusion		Bulging		
Percent	Fi	Percent	Fi	Percent	Fi	Percent	Fi	Percent	Fi	Vertebra location
0.4	2	0.4	2	0.4	2	0.4	2	1.7	8	T12-L1
0.8	4	0.2	1	0.2	1	0.4	2	2.1	10	L1-L2
0.4	2	0.2	1	0.4	2	0.2	1	4.4	21	L2-L3
2.3	11	0.2	1	0.2	1	2.3	11	11.5	55	L3-L4
2.3	11	0.4	2	0.4	2	11.9	57	35.4	169	L4-L5
2.5	12	0.8	4	0.4	2	11.5	55	25.3	121	L5-S1

Conclusion

Lumbar disk herniation is a multi factorial disorder which could be affected by different variables such as demographic and social specialties. The present study emphasized on the prevalence of LDH in a particular population. It finally suggested that LDH is not affected by a fixed set of risk factors worldwide and more study is required to determine the LDH pattern and risk factors in each community.

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