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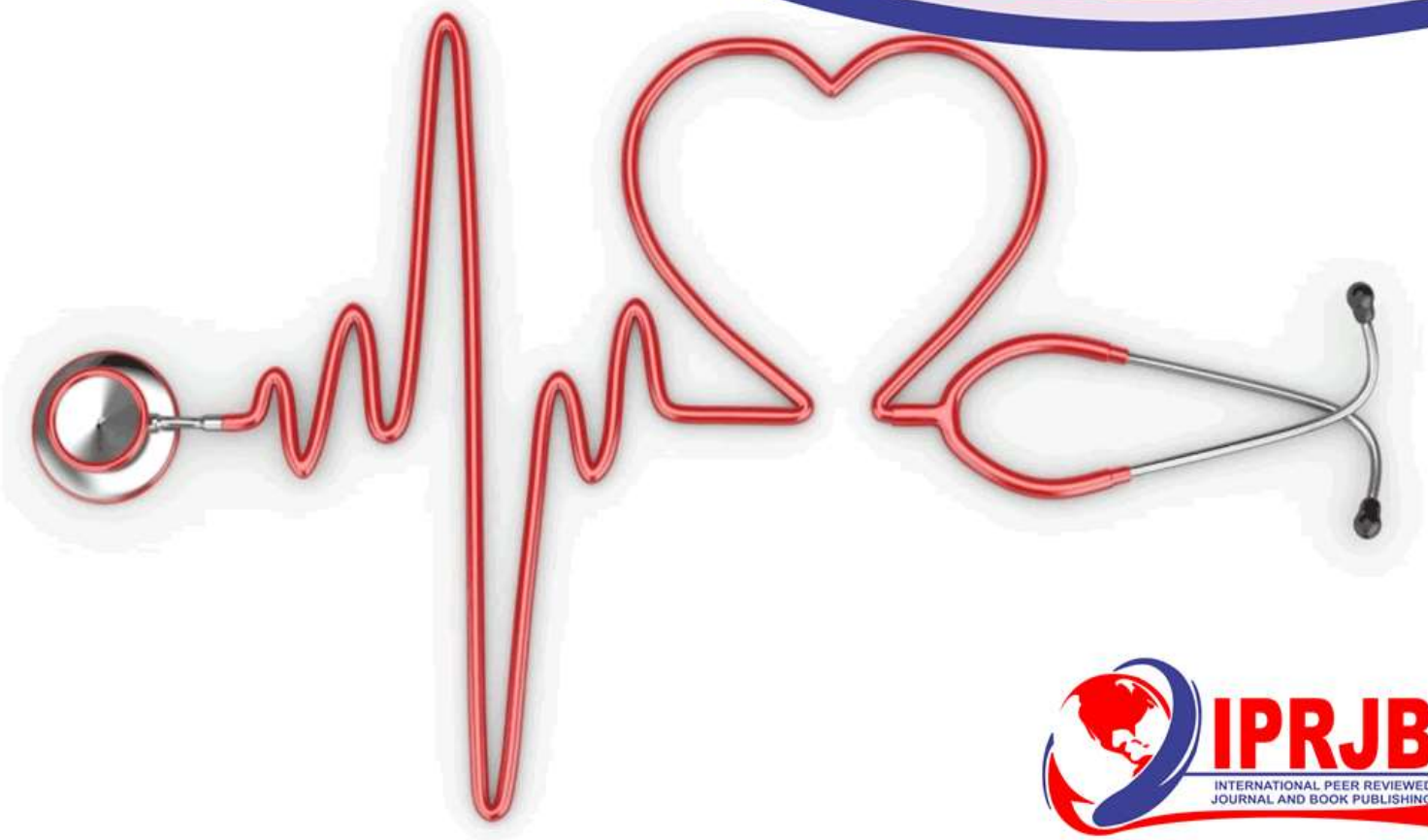

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A Descriptive Study Risk Factors of Recurrent Lumbar Disk Herniation 1st April 2022 to 2nd April 2023

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Abstract

Purpose: The purpose of this study on recurrent lumbar disc herniation is to determine the causes, clinical findings, and incidence across different age groups above and below 60 years old, as well as gender. The aim is to evaluate the risk factors of recurrent disc herniation in the Afghani population.

Methodology: To identify predictors for recurrent lumbar disc herniation (RLDH), a systematic review and meta-analysis were conducted based on existing evidence. The study aimed to provide pooled estimates that may assist various healthcare professionals, including researchers, surgeons, policymakers, caregivers, and patients, in identifying high-risk populations, preventing RLDH, and further investigating the underlying mechanisms.

Findings: Risk factors for RLDH are under increasing investigation. Previous studies have examined various potential risk factors such as age, gender, body mass index (BMI), smoking, herniation type, diabetes, and herniation level. However, results from these studies have not always been consistent. For instance, while Kim et al. identified being male as a risk factor for RLDH, other studies did not find significant correlations. Inconsistencies also exist regarding smoking as a risk factor. This study aims to provide more reliable conclusions on these risk factors through a systematic approach.

Unique Contribution to Theory, Practice and Policy: Understanding the risk factors associated with recurrent lumbar disc herniation is crucial for improving patient outcomes and reducing the burden on both individuals and society. By identifying and clarifying these risk factors, healthcare professionals can better tailor interventions, treatment plans, and preventive measures for individuals at high risk for RLDH. This study's findings may contribute significantly to the development of strategies aimed at mitigating the recurrence of lumbar disc herniation in the Afghani population.

Keywords: *Recurrent Lumbar Disk Herniation, Risk Factors, Descriptive Study, 1st April 2022 to 2nd April 2023*

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INTRODUCTION

Recurrent lumbar disc herniation (RLDH) poses a significant challenge in the management of lumbar spine disorders, often leading to prolonged pain, disability, and decreased quality of life for affected individuals. Understanding the risk factors associated with RLDH is crucial for improving patient outcomes, enhancing treatment strategies, and reducing the burden on healthcare systems.

This descriptive study aims to investigate the risk factors contributing to the recurrence of lumbar disc herniation within the timeframe of 1st April 2022 to 2nd April 2023. By examining a spectrum of potential factors such as age, gender, body mass index, lifestyle habits, and herniation characteristics, this research endeavors to shed light on the complex interplay of variables that influence the likelihood of RLDH.

The period under investigation marks a critical window to observe and analyze the incidence and prevalence of RLDH, providing valuable insights into the patterns and trends of recurrent lumbar disc herniation within this specific timeframe. By conducting a comprehensive examination of these risk factors, this study seeks to contribute to the existing body of knowledge surrounding lumbar spine pathologies and inform evidence-based interventions aimed at preventing and managing RLDH more effectively.

Through a meticulous analysis of data collected during this defined period, this study endeavors to not only identify key risk factors associated with RLDH but also pave the way for targeted preventive strategies, personalized treatment approaches, and improved patient care practices in the realm of recurrent lumbar disc herniation.

Significance of the Study

The significance of this study on the risk factors of recurrent lumbar disc herniation within the timeframe of 1st April 2022 to 2nd April 2023 lies in its potential to make substantial contributions to both clinical practice and research in the field of spinal health. Several key aspects highlight the importance of this investigation:

Clinical Impact: By identifying and elucidating the risk factors associated with recurrent lumbar disc herniation, this study has the potential to enhance clinical decision-making processes. Insights gained from this research can aid healthcare providers in better understanding the complexities of RLDH, leading to more tailored treatment strategies and improved patient outcomes.

Preventive Strategies: Understanding the factors that contribute to the recurrence of lumbar disc herniation is crucial for developing effective preventive measures. The findings of this study can inform the development of targeted interventions aimed at reducing the risk of RLDH in at-risk populations, thereby potentially lowering the incidence of this debilitating condition.

Evidence-Based Practice: By conducting a descriptive study focused on RLDH risk factors during a specific timeframe, this research contributes valuable empirical data to the existing body of knowledge. These findings can serve as a foundation for evidence-based practice, guiding healthcare professionals in their efforts to provide optimal care for individuals with lumbar spine disorders.

Policy Implications: The insights generated from this study may have broader implications for healthcare policies and practices related to spinal health. Policymakers and healthcare administrators can utilize the results to inform resource allocation, prioritize preventive measures, and optimize healthcare delivery systems for individuals at risk of recurrent lumbar disc herniation.

Research Advancements: This study adds to the growing body of literature on lumbar spine pathologies, particularly focusing on the recurrence of disc herniation. The findings may stimulate further research endeavors, leading to a deeper understanding of the mechanisms underlying RLDH and the development of novel therapeutic approaches.

Objectives

This was a descriptive study done for patients who performed lumber spine surgery, in this study finding number of patients with according to age, sex, cause of onset, type of symptoms and common site of disc recurrent after surgery. This study would help us to understand to reduce the risk factors of recurrent lumbar disk herniation to patient's intrauterine life.

Moreover, the purpose of my funding was to guide Most of patient doesn't know how to deal after spine surgeries, to reduce risk of recurrences disc herniation and relief pain after surgery, to find when to performed surgery and when to not perform surgery and also reduce deadly CNS complication happening after surgeries.

Furthermore, the very important purpose of my research was to take precaution for patient after performed spine surgeries. Meticulously, while I was writing this paper, I had in mind to compare Afghanistan' spine surrey with other countries particularly Wests Asian and South Asian countries and to contribute to the academia in particular of Nangahar and in general in Afghanistan.

LITERATURE REVIEW

A Single Center Study and Review of the Literature, Shinji Miwa, MD, PhD, Akio Yokogawa, MD, PhD, Tadayoshi Kobayashi, MD, PhD, Tatsuya Nishimura, MD, PhD, Kentaro Igarashi, MD, Hiroyuki Inatani, MD, and Hiroyuki Tsuchiya, MD, PhDw The study group was composed of 212 men and 86 women, whose ages ranged from 13 to 82 years (49.0±16.3 y). The N group had 266 patients and the R group had 32 patients (Table 1). The follow-up period ranged from 14 to 61 months (39.0±11.5 mo). The percentage lost to follow-up was 8.7%. The mean period between initial operation and recurrence was 14.6 months. The N group had 29 cases (10.9%) of protrusion type, 67 cases (25.2%) of sub ligamentous extrusion type, 93 cases (35.0%) of Tran's ligamentous extrusion type, and 77 cases (28.9%) of sequestration type (Table 2). The R group had 3 cases (9.4%) of protrusion type, 8 cases (25.0%) of sub ligamentous extrusion type, 7 cases (21.9%) of Tran's ligamentous extrusion type, and 14 cases (43.8%) of sequestration type. The results of unilabiate analysis for clinical parameters (age, sex, BMI, current smoking, alcohol, sports activity, occupational lifting, and occupational driving) are shown in Table 3. The R group had a significantly higher rate of smokers than the N group (68.8 vs. 36.5%, <0.001). There was also a significant difference between the groups in terms of occupational lifting (28.1 vs. 12.8%, P=0.020). The recurrence rates in smokers and nonsmokers were 18.5% and 5.6%, respectively. The recurrence rates in patients with or without lifting occupations were 20.9% and 9.1%, respectively. There were no significant differences between the R and N groups in terms of age Z40 years (25.0% vs. 30.4%, P=0.683), sex (male, 71.9% vs. 71.1%, P=0.923), BMI Z25 (26.3 vs.

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31.3, P=0.552), current drinking (46.9% vs. 39.1%, P=0.396), sports activity (25.0% vs. 26.7%, P=0.838), or occupational driving (12.5% vs. 6.4%, P=0.202).

Risk factors of recurrent lumbar disk herniation Mohammad Shimia, Arash Babaei-Ghazani1, Bina Eftekhar Sadat1, Behnaz Habibi, Afshin Habibzadeh2 Departments of Neurosurgery, 1Physical Medicine and Rehabilitation, Physical Medicine and Rehabilitation Research Centre, 2Cardiology, Cardiovascular Research Centre, Tabriz University of Medical Sciences, Tabriz, Iran Patients' sociodemographic characteristics are presented in. Smoker men and patients with igher height and weight had significantly higher recurrence. However, in terms of age, education, BMI, Diabetes and hypertension, there was no difference between groups. Occupational characteristic was Divided into three parts as light (sitting and constant posture), housework (medium strenuous work), and heavy work (lifting or carrying heavy objects, forward bending). Heavy work was significantly higher in patients with recurrent herniation the logistic regression analysis showed that Gender (male), taller height, heavy works and being smoker could predict recurrent lumbar disc Herniation Recurrent herniation following disc excision has been reported in 5-15% of patients. The Definition of recurrent disc herniation has varied among the different authors. In most studies, Recurrent lumbar disc herniation was defined as disc herniation at the same level, regardless of ipsilateral or contralateral herniation, with a pain-free interval greater than 6 months Studies focused on true recurrent disk Herniation at the same level and side, are found with relatively less frequency. Patients' sociodemographic characteristics

Table 1: Patients' sociodemographic characteristics

	Recurrence (*n*=40)	No recurrence (*n*=120)	*P* value
Age (mean±SD)	45.82±11.23	43.17±13.28	0.25
Gender (male)	29 (72.5)	54 (45)	0.003*
Height	1.68±0.98	1.64±0.69	0.04*
Weight	77.2±17.49	70.13±12.52	0.006*
BMI	27.4±6.6	25.9±5.13	0.14
Smoking	14 (35)	16 (13.3)	0.004*
Diabetes	6 (15)	9 (7.5)	0.2
Hypertension	5 (12.5)	10 (8.3)	0.53
Education			
Illiterate	14 (35)	41 (34.2)	0.35
Elementary school	12 (30)	31 (25.8)	
High school	14 (35)	39 (32.5)	
University	0 (0)	9 (7.5)	

Figures in parenthesis are in percentage; SD – Standard deviation; BMI – Body mass index; *p is 2-tailed significant

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Table 2: Distribution of patients according to occupational load

Occupational work load	Case group		Control group		*P* value
	n	%	*n*	%	
Light work	3	7.5	13	10.8	<0.001*
Medium strenuous work	10	25	69	57.5	
Heavy work	27	67.5	38	31.7	

*p is 2-tailed significant

p is 2-tailed significant

Table 3: Predictors of recurrent lumbar disc herniation

	OR	95% CI		*P* value
		Lower	Upper	
Gender	0.15	0.02	0.24	0.01
Weight	0.02	−0.80	0.98	0.84
Height	−0.14	−0.01	0.00	0.03
Occupation	−0.6	−0.56	−0.24	<0.001
Smoking	0.56	0.43	0.80	<0.001

OR – Odds ratio; CI – Confidence interval

A prospective comparative study of three surgical management procedures Ayman A. El Shazly, Mohammed A. El Wardany, Ahmad M. Morsi1 Department of Neurosurgery, 1Department of Orthopedic, Ain Shams University, Cairo, Egypt analysis of the preoperative data of all patients in the study was done. There were 25 (55.6%) male subjects and 20 (44.4%) female subjects. The age ranged from 25-62 years with a mean age of 41.4 (±10.22 STD) years. The recurrent time to the primary surgery ranged from 10-30 months with a mean duration of 18 (±6.01 STD) months. The preoperative JOA score ranged from 3-22 with a mean JOA score of 16.4 (±5.07 STD). The operated level was L4-5 in 27 (60%) patients and L5-S1 in 18 (40%) patients. The operated side was the left side in 29 (64.4%) patients and the right side in 16 (35.6%) patients.

The duration of follow-up ranged from 24-54 months with a mean follow-up of 37 (±7.85 STD) months. Statistical analysis of the preoperative data showed no significant difference between the patients in the three groups with regard to age, sex, duration of recurrence, disc level, disc side, and preoperative JOA score. The mean overall JOA score of the patients showed significant improvement from 16.4 (±5.07 STD) (range 3-22) before surgery to 27.3 (±3.84 STD) (range 10-29) at the final follow-up (P = 0.000). The mean recovery rate was 87.2 (±19.26 STD)% (range 5%-100%). General clinical outcome, based on recovery rate, was excellent in 26 (57.8%) patients, good in 14 (31.1%) patients, fair in 3 (6.7%) patients, and poor in 2 (4.4%) patients. Satisfactory rate (excellent and good results) was 88.9%.

Comparison between the three groups was done with regard to the postoperative clinical results. It showed no significant difference between the three groups with regard to the mean total postoperative JOA score, recovery rate, and satisfactory rate, but there was significant difference between the three groups with regard to the postoperative low back pain. The postoperative low back pain was significantly higher in group A than that of groups B and C, but there was no significant difference between group B and group C Two patients in group A required further revision surgery. One patient had discectomy, posterolateral fusion, and transpedicular screws fixation on the same level due to recurrent back pain and sciatica (re-recurrence) and MRI lumbar spine showed recurrent disc herniation (second recurrence) 24 months after surgery. The other patient had posterolateral fusion and transpedicular screws fixation on the same level due to recurrent back pain and severe claudication pain, and MRI and X-ray of the lumbar spine showed spondylolisthesis and instability 30 months after surgery. These two patients after their follow-up with regard to this study were stopped at the date of third surgery. Three patients developed temporary foot drop and sensory disturbance on the same side of operation after surgery; two in group A and one in group B and all were treated conservatively and had complete recovery at the end of follow-up. Seven patients had intraoperative dural tear, which was repaired intraoperatively and caused no subsequent.

METHODOLOGY

In the pursuit of identifying predictors for recurrent lumbar disc herniation (RLDH), a robust methodology involving a systematic review and meta-analysis was meticulously executed. This methodological approach was designed to amalgamate and scrutinize existing evidence pertaining to RLDH risk factors, with the ultimate goal of offering comprehensive insights into this critical aspect of lumbar spine health.

Systematic Review: The systematic review phase of the methodology involved a thorough and methodical examination of relevant literature, encompassing studies, research articles, and clinical data pertaining to RLDH risk factors. This comprehensive review process was structured to ensure the inclusion of high-quality, peer-reviewed sources, thereby enhancing the reliability and validity of the findings.

Meta-Analysis: Following the systematic review, a meta-analysis was conducted to synthesize and analyze the aggregated data on RLDH risk factors. Through statistical techniques and data synthesis methods, this phase aimed to generate pooled estimates that consolidate the findings from individual studies. By quantitatively assessing the combined data, the meta-analysis sought to provide a more robust and nuanced understanding of the predictors associated with recurrent lumbar disc herniation.

Objective: The primary objective of this methodological approach was to equip various stakeholders within the healthcare domain, including researchers, surgeons, policymakers, caregivers, and patients, with valuable insights into RLDH risk factors. By offering pooled estimates derived from the systematic review and meta-analysis, this study aimed to facilitate the identification of high-risk populations, inform preventive strategies, and encourage further exploration of the underlying mechanisms contributing to RLDH.

Implications: The methodological framework adopted in this study not only aimed to enhance the current understanding of recurrent lumbar disc herniation but also sought to bridge the gap between research findings and practical applications in clinical settings. By providing evidence-based guidance on RLDH risk factors, this methodology aspired to empower healthcare professionals with the necessary tools to optimize patient care, refine treatment approaches, and spearhead advancements in the management of lumbar spine disorders.

RESULTS

10 patients which made (52.6%) of study is male, 9 patients which made (47.4%) of study is female patient. 5 patient which made (26.3%) of study were above age of 60, 14 patients which made (73.7%) of study were in age below 60.

4 patient which made (21.1%) of study were show up with clinical find of legs burning sensation and paresthesia, 5 patient which made (26.3%) of study were show up with clinical find of legs claudication, 3 patient which made (15.8%) of study were show up with clinical find of legs numbness and tingling. 14 patients which made 73.7% of study is with age below 60 years old, 5 patient which made (26.3%) of study is with age above 60 years old.

7 patient which made (36.8%) of study with overweight problem. 2 patient which made 10.5% of study is heavy weight lifting. 1 patient which made 5.3% of study is with hypertension. 2 patient which made 10.5% of study is DM. 5 patient which made 26.3% of study occupational weight lifting. 2 patient which made 10.5% of study is smokers.

3 patient which made (15.8%) of study were diagnosed with multiple level disc bulge, 6 patient which made (31.6%) of study were diagnosed with L5S1 level disc herniation. 5 patient which made (26.3%) of study were diagnosed with L4L5 level disc herniation. 3 patient which made (15.8%) of study were diagnosed with L3L4 level disc herniation. 1 patient which made (5.3%) of study were diagnosed with L2L3 level disc herniation and 1 patient which made (5.3%) of study were diagnosed with Lumber spine degeneration.

Discussion

The study on the risk factors of recurrent lumbar disc herniation conducted within the timeframe of 1st April 2022 to 2nd April 2023 holds significant implications across theoretical, practical, and policy domains within the realm of spinal health. By delving into the complexities of RLDH and identifying key predictors, this research has the potential to drive advancements in both clinical practice and healthcare policy.

Theoretical Contributions

The study contributes to theoretical advancements by adding empirical evidence to the existing body of knowledge on recurrent lumbar disc herniation. By systematically reviewing and synthesizing data on RLDH risk factors, this research enhances our understanding of the multifaceted nature of this condition. The findings may serve as a foundation for further theoretical developments in the field of lumbar spine pathologies, potentially leading to new insights into the mechanisms underlying RLDH.

Practical Implications

From a practical standpoint, the study offers valuable insights that can directly impact clinical practice. By identifying predictors for RLDH through a systematic review and meta-analysis, healthcare professionals, including surgeons, caregivers, and policymakers, can better tailor treatment approaches to individual patients. The study's findings may inform personalized interventions, preventive strategies, and postoperative care plans aimed at reducing the recurrence of lumbar disc herniation and improving patient outcomes.

Policy Considerations

The implications of this study extend to healthcare policy and system-level considerations. The identification of key risk factors associated with recurrent lumbar disc herniation has the potential to influence healthcare policies related to the management of spinal health disorders. Policymakers may use the study's findings to shape guidelines, allocate resources, and develop strategies aimed at preventing RLDH and improving the overall quality of care for individuals at risk.

Interdisciplinary Impact

Furthermore, the study's contributions extend beyond clinical practice and policy implications to encompass interdisciplinary collaborations and knowledge dissemination. The insights gained from this research may foster collaborations between various healthcare stakeholders, researchers, and policymakers, facilitating a multidisciplinary approach to addressing the challenges posed by recurrent lumbar disc herniation. Moreover, the study's findings may be disseminated through academic publications, conferences, and educational initiatives, thereby promoting knowledge exchange and enhancing awareness of RLDH risk factors within the broader healthcare community.

Conclusion

The findings of the study on the risk factors of recurrent lumbar disc herniation provide valuable insights into the epidemiology and clinical characteristics of this challenging condition. The research highlights several key observations that have significant implications for understanding and managing recurrent lumbar disc herniation.

Gender Disparity: The study underscores a notable gender disparity in the incidence of recurrent lumbar disc herniation, indicating a higher susceptibility among males compared to females. This observation sheds light on potential gender-specific risk factors and underscores the importance of considering gender-based differences in the prevention and management of RLDH.

Age as a Risk Factor:Patients below the age of 60 emerged as a particularly vulnerable group to recurrent lumbar disc herniation. This finding emphasizes the age-related dynamics of RLDH and underscores the need for tailored interventions targeting younger populations to mitigate the risk of recurrence and improve long-term outcomes.

Clinical Manifestations: The study identifies lower limb claudication as a prevalent clinical finding in cases of extreme and severe recurrent lumbar disc herniation. This clinical manifestation serves as a crucial indicator for healthcare providers in diagnosing and monitoring patients with RLDH, highlighting the importance of early recognition and intervention to prevent complications.

Obesity and L5S1 Level: The research underscores the association between overweight issues and recurrent lumbar disc herniation, indicating that obesity is a common contributing factor to the condition. Furthermore, the study pinpointed the L5-S1 level of the lumbar spine as the most frequent site of recurrent disc herniation, providing valuable anatomical insights that can guide diagnostic and treatment strategies.

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