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ORIGINAL

Prevalence of sacroiliac joint dysfunction in patients with chronic low back pain

Prevalencia de disfunción de la articulación sacroilíaca en pacientes con dolor lumbar crónico

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Abstract

Background: Sacroiliac joint dysfunction (SIJD) is generally occurring in the event of pain in the sacroiliac region in the form of abnormal movement in this region. therefore, the aim of the present study was to determine the prevalence of SIJD in LBP patients.
Methods: The present study was performed on SIJD patients. A total of 190 patients were included in the present study using convenience sampling method. eligible patients that referred to specialized clinics and offices of orthopedic and neurosurgery physicians were identified and the study objectives were explained to them. After obtaining the patients' consent, the necessary diagnostic tests were performed to evaluate SIJ-related problems. They were then statistically evaluated if they had this syndrome. The data was analyzed using the SPSS16.
Results: Results showed that out of 190 LBP patients, 82 (43.2%) had SIJ and 108 (56.8%) did not have such syndrome. Table I showed the demographic characteristics of patients with and without SIJ. The results showed no statistically significant difference between all demographic characteristics of patients (except for gender, employment and physical activity status). Also, the amount of pain in standing is equal to 74 (38.9), in walking is equal to 129 (67.9) and in climbing stairs is equal to 83 (43.7), in getting out of a car is equal to 113 (59.5%) and in the state of rising from a chair was also equal to 78 (41.1%).
Conclusions: Due to the high prevalence of the joint in SIJD patients, it is suggested to perform therapeutic interventions and rehabilitation in these patients.

Key words: Sacroiliac joint dysfunction, Chronic low back pain, Pain.

Resumen

Antecedentes: La disfunción de la articulación sacroilíaca (DISAS) suele producirse si hay dolor en la región sacroilíaca manifestándose como movimientos anormales en esta región.El objetivo del presente estudio es determinar la prevalencia de la disfunción de la articulación sacroilíaca en pacientes con dolor lumbar.
Métodos: El presente estudio se realizó en pacientes con DISAS. Se identificó a los pacientes elegibles que acudieron a clínicas especializadas y consultas de médicos traumatólogos y neurocirujanos y se les explicaron los objetivos del estudio. Tras obtener el consentimiento de los pacientes, se realizaron las pruebas diagnósticas necesarias para evaluar los problemas relacionados con la articulación sacroilíaca. A continuación, se evaluó estadísticamente si presentaban este síndrome. Los datos se analizaron con el programa SPSS 16.0.
Resultados: Los resultados mostraron que de 190 pacientes con dolor lumbar, 82 (43,2%) tenían DISAS y 108 (56,8%) no tenían dicho síndrome. La tabla I mostró las características demográficas de los pacientes con y sin DISAS. Los resultados no mostraron diferencias estadísticamente significativas entre todas las características demográficas de los pacientes (excepto el sexo, el empleo y el estado de actividad física). Además, la cantidad de personas con dolor al estar de pie fue de 74 (38,9%), al caminar 129 (67,9%), al subir escaleras 83 (43,7%), al salir de un coche113 (59,5%) y en el estado de levantarse de una silla también era igual a 78 (41,1%).
Conclusiones: Debido a la alta prevalencia de DISAS, se sugiere realizar intervenciones terapéuticas y de rehabilitación en estos pacientes.

Palabras clave: Disfunción de la articulación sacroilíaca, Lumbalgia crónica, Dolor.

Background

The sacroiliac joint (SIJ) is the largest axial joint in the body with an average surface area of about 17.5 cm, which supports the upper body when walking or standing and is not very mobile[1,2]. There are currently no specific computed tomography findings for the diagnosis of sacroiliac joint dysfunction (SIJD) and degenerative findings are common in asymptomatic people[3]. SIJ is supported by a network of muscles that help deliver regional muscular forces to the pelvic bones. So that some of these muscles are functionally attached to the SIJ ligaments and their function can affect joint mobility. Age-related changes in the SIJ begin during puberty and continue throughout life. These changes are accelerated in the third and fourth decades of life and may manifest themselves with superficial irregularities up to and including joint limitations[4,5].

SIJ is responsible for transferring and distributing distributed loads to the lower limbs, facilitating labor, limiting limb rotation, and providing stability with little movement[4]. SIJD is generally occurs in the event of pain in the sacroiliac region in the form of abnormal movement in this region. SIJD symptoms include low-back pain (LBP), leg sciatica pain, thigh or hip pain, transient numbness, or foot burning[6-8]. SIJD is one of the causes of chronic pain that may often not be diagnosed properly, so, it is estimated that SIJD accounts for about 15-30% of chronic LBP, which is due to the prevalence of chronic LBP, this number is a very important statistic[4,9].

One of the major challenges of the health system is chronic pain, which is very complex and has severe symptoms and complications. In fact, experiencing pain is an unpleasant experience that can affect other aspects of life[10-13]. Considering the pain overlapping in different parts of the body, physicians may mistakenly diagnose SIJ pain in other parts of the body and design the related treatment accordingly. Therefore, identifying SIJ pain is so important[14]. This pain is significantly more common in SIJD patients, but complete statistics and information are not available in this regard. One of these types of pain is LBP pain. LBP plays a major role in the burden of social diseases and years lived with disability (YLD). LBP is the main cause of retirement and can lead to changes in the patient's lifestyle, mental health disorders and obesity by causing economic losses as well as reducing the quality of life[15,16].

Objectives

SIJ-related problems are very important and it is necessary to pay attention to this group of people. On the other hand, problems related to patients' pain are among the priorities of the medical staff. Therefore, the aim of the present study was to determine the prevalence of SIJD in LBP patients.

Methods

Participants and Design

The present study was performed on SIJD patients in Ilam. A total of 190 patients were included in the present study using convenience sampling method.

Inclusion and Exclusion criteria

Inclusion criteria included participants aged between 18 and 65 years, consent to participate in the study and at least 3 months of chronic LBP according to the opinion of a specialist and clinical examinations. Exclusion criteria also included disc herniation, structural anomaly, history of surgery or tumor in the lumbar region, pregnant women, traumatic L.B.P, disc herniation, history of advanced and professional exercise for at least six months, joint degenerative disorders, history of chronic diseases affecting pain (including cancer, polyneuropathy, diabetes, osteoporosis and other related diseases), inability or lack of cooperation when performing clinical examinations and diagnostic tests, osteoporosis, pelvic or spinal fractures.

SIJD diagnosis method

Specific Gillet test, supine to sit test, compression test, sitting flexion test, (FABER) patrice test, distraction test, Gaenslen's test and Yeoman's test were used to determine the SIJ involvement[16-18]. Since the result of one test is not sufficient to diagnose SIJ-related problems, therefore, several diagnostic tests were used and if the result of three tests was positive, SIJD was confirmed[18-22]. To investigate the pain states, we used questions that were raised Telli et al.'s study. These included five questions in the field of pain-causing states, which were answered using Yes-No format[23].

Study method

Eligible patients that referred to specialized clinics and offices of orthopedic and neurosurgery physicians were identified and the study objectives were explained to them. After obtaining the patients' consent, the necessary diagnostic tests were performed to evaluate SIJ-related problems. They were then statistically evaluated if they had this syndrome. Patients were assured that their information would be kept confidential and that their cooperation or non-cooperation would not affect provision of the desired services and the necessary medical services will be provided to them in the best possible way.

Data analysis

The data was analyzed using the SPSS16.

Results

Results showed that out of 190 LBP patients, 82 (43.2%) had SIJ and 108 (56.8%) did not have such syndrome.

Table I showed the demographic characteristics of patients with and without SIJ. The results showed no statistically significant difference between all demographic characteristics of patients (except for gender, employment and physical activity status).

Results showed, the amount of pain in standing is equal to 74 (38.9), in walking is equal to 129 (67.9) and in climbing stairs is equal to 83 (43.7), in getting out of a car is equal to 113 (59.5%) and in the state of rising from a chair was also equal to 78 (41.1%).

Also, although level of pain was different in SIJD and non-SIJD patients in most items, this level was not statistically significant. However, this difference was statistically significant in the case of Item "getting out of a car", and pain level was higher in SIJD patients than other patients (p = 0.000) (**Table II**).

Table I: Comparison of Demographic Data Between SJD and No SJD.

-		No N (%)	No SJD	SJD	P-value
Sex	Male Female	93(48.9) 97(51.1)	66(61.1) 42(38.9)	27(32.9) 55(67.1)	0.000
Occupation	Yes No	22(11.6) 168(88.4)	18(16.7) 90(83.3)	4(4.9) 78(95.1)	0.012
Marital status	Marital status Single	104(54.7) 86(45.3)	59(54.6) 49(45.4)	45(54.9) 37(45.1)	0.97
Activity	Yes No	58(30.5) 132(69.5)	39(36.1) 69(63.9)	19(23.2) 63(76.8)	0.055
Education level	Reading and writing Diploma University	51(26.8) 118(62.1) 21(11.1)	29(26.9) 66(61.1) 13(12)	22(26.8) 52(63.4) 8(9.8)	0.797
Age					

Table II: Comparison of Pain Characteristics Between SJD and No SJD Groups.

-			No	No SJD	SJD
Pain on	**Prolonged standing**	Yes No	74(38.9) 116(61.1)	38(35.2) 70(64.8)	36(43.9) 46(56.1)
	Getting out of a car	Yes No	113(59.5) 77(40.5)	52(48.1) 56(51.9)	61(74.4) 21(25.6)
	Walking some distance	Yes No	129(67.9) 61(32.1)	72(66.7) 36(33.3)	57(69.5) 25(30.5)
	Climbing stairs	Yes No	83(43.7) 107(56.3)	45(41.7) 63(58.3)	38(46.3) 44(53.7)
	Rising from a chair	Yes No	78(41.1) 112(58.9)	35(32.4) 73(67.6)	43(52.4) 39(47.6)

Discussion

Result showed, out of 190 LBP patients, 82 (43.2%) had SIJD and 108 (56.8%) did not have SIJD. In previous studies, Ramirez et al. showed that the SIJD prevalence was 40% among 136 LBP patients in Brazil[24]. Wieczorek et al. also observed SIJD prevalence in 51 patients (60.7%)[25]. Similarly, Rawat et al. reported that was 13.3% of LBP patients had SIJD[26]. Other studies also investigated the prevalence of SIJD in different study populations. The SIJD prevalence was also reported to be was 30% among Indian students in a study by Sivakumar et al.[27]. Madani et al. also reported that SIJD prevalence was 72.3% among patients with lumbar disc hernia (LDH) in Tehran, Iran[20], which are consistent with the results of the present study, which confirm the significant prevalence of SIJD in patients.

Results of comparing demographic characteristics of patients with and without SIJD showed that no significant difference between the two groups of patients in terms of all demographic variables except for gender, occupation and physical activity. In fact, the employment rate of SIJD patients was reported to be 4.9% compared to patients without SIJD (16.7%). The daily physical activity of SIJD patients was much lower than that of patients without SIJD, which is consistent with the results of a study by Dehghan Manshadi et al. in Hamedan, Iran where the level of physical activity was 24% and 50% in the SIJD and non-SIJD groups, respectively[28].

According to the findings, the prevalence of SIJD was higher in women than men. Various studies have investigated the SIJD status in LBP patients and other patients. Wieczorek et al. showed that the LBP prevalence was higher in women (67.2%) than men[25]. Telli et al.[23] also showed that the SIJD prevalence was 63.2% among women, which is consistent with the results of the present study. Other relevant studies have investigated the relationship between the SIJD prevalence and

gender. For example, Telli et al.[23] investigated that the SIJD prevalence among LDH women and showed that SIJD affects 75.6. % of them, while the same prevalence was 57.1% in the non-SIJD group (P<0.005). Sivakumar et al. also investigated the SIJD prevalence among 590 students and found that the prevalence of this disorder in female students (n=347, 59%) was higher than male students (n=243, 41%)[27].

Conclusions

Due to the high prevalence of the joint in SIJD patients, it is suggested to perform therapeutic interventions and rehabilitation in these patients.

Conflict of Interests

No conflict of interest.

Ethical Approval

R.MEDILAM.REC.1401

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