



CARPAL TUNNEL SYNDROME AND LOMBER SPINAL STENOSIS; ARE THEY RELEATED DISEASES WITH EACH OTHER

KARPAL TÜNEL SENDROMU VE LOMBER DAR KANAL BİRBİRİ İLE İLİŞKİLİ HASTALIKLAR MIDIR?

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SUMMARY

Background: Carpal tunnel syndrome and lumbar spinal stenosis are diseases that generally progress with signs of nerve compression due to ligament hypertrophy. It is known that some clinical situations can increase the incidence of these diseases. This retrospective study aims to research the correlation between carpal tunnel syndrome and lumbar spinal stenosis.

Patients and method: In this study, 860 patients diagnosed with carpal tunnel syndrome and 228 patients diagnosed with lumbar spinal stenosis in the last three years in our clinic were evaluated.

Results: Patients with a diagnosis of carpal tunnel syndrome were graded according to their symptoms as mild (305), moderate (422), or severe (133). A total of 134 patients (15%) showed concurrent lumbar spinal stenosis. Seven of the 305 patients with mild carpal tunnel syndrome also had lumbar spinal stenosis (2%). For the 422 patients with moderate carpal tunnel syndrome, the presence of lumbar spinal stenosis was seen in 66 patients (15%). Of the 133 patients with a severe degree of carpal tunnel syndrome, 61 (45%) also had a diagnosis of lumbar spinal stenosis. In the LSS group, 40 patients had mild (17%), 18 (8%) had moderate, and 8 (4%) had severe carpal tunnel syndrome.

Conclusion: According to the literature, the incidence of carpal tunnel syndrome is less than 3% in the general population, and the incidence of LSS is less than 8% in the general population. There have been no studies on the co-incidence of lumbar spinal stenosis and carpal tunnel syndrome. In our study, the presence of one of these diseases is associated with an increased incidence of the other. In order to collect more reliable data, prospective studies should be conducted on larger patient groups planned under standard conditions.

Key words: Carpal tunnel syndrome, lumbar spinal stenosis, incidence

Level of evidence: Retrospective clinical study, Level III

ÖZET

Geçmiş bilgiler: Karpal tünel sendromu ve lomber spinal stenoz, genellikle ligament hipertrofisine bağlı sinir bası bulgularıyla seyreden hastalıklardır. Bazı klinik durumların, bu hastalıkların görülme sıklığını artırdığı bilinmektedir. Bu çalışmada, karpal tünel sendromu ve lomber spinal stenoz görülen hastalarda beraber görülme insidansının ne olduğu sorusuna cevap aranmıştır.

Hastalar ve yöntem: Çalışmada, hastanemizde son 3 yılda tanı almış 860 karpal tünel sendromu hastası ile, 228 lomber spinal stenoz hastası incelenmiştir.

Bulgular: Karpal tünel sendromu tanısı alan 860 hastanın sonuçlarına göre hastalar hafif (305), orta (422) ve ağır (133) olarak derecelendirilmiştir. Toplam 134 hastada (% 15) lomber spinal stenozun eşlik ettiği belirlenmiştir. Hafif derecede karpal tünel sendromlu 305 hastanın 7'sinde (% 2), orta derece karpal tünel sendromlu 422 hastanın 66'sında (% 15), ağır derece karpal tünel sendromlu 133 hastanın 61'inde (% 45) lomber spinal stenoz saptanmıştır. Lomber spinal stenoz tanısı alan hastalardan ise hastaların 40 (% 17)'inde hafif, 18 (% 8)'inde orta, 8 (% 4)'inde ağır derecede karpal tünel sendromunun eşlik ettiği saptanmıştır.

Sonuç: Yapılan çalışmalar, karpal tünel sendromu görülme insidansının genel popülasyonda % 3'ün altında, lomber stenoz insidansının ise % 8'in altında olduğunu göstermektedir. Lomber spinal stenoz ve karpal tünel sendromunun birlikte görülmesine yönelik bir araştırmaya literatürde rastlanmamaktadır. Bu çalışmada, birlikte görülme insidansları, normal popülasyonda görülme insidanslarından daha yüksek olup, karpal tüneldeki sıkışma bulguları ağırlaştıkça lomber spinal stenoz görülme sıklığının da arttığı saptanmıştır. Sonuç olarak bu çalışmanın verileri, lomber spinal stenoz veya karpal tünel sendromunun varlığında bir diğzerinin de klinik tabloya eşlik edebileceği, bu nedenle azimsanmayacak oranlarda olan bu birlikteliğin akıldan çıkartılmaması gerektiği fikri ileri sürülmüştür.

Anahtar Sözcükler: Karpal tünel sendromu, lomber dar kanal, insidans

Kant Düzeyi: Retrospektif klinik çalışma, Düzey III

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INTRODUCTION:

Carpal tunnel syndrome (CTS) and lumbar spinal stenosis (LSS) show two different pathologies; however, ligament hypertrophy generally plays a role in their etiopathogenesis. In the literature, the incidence of CTS in the general population has been reported as 0.1–0.5%, and the incidence of LSS is between 1.7–8%^{5,8-9}. Although many mechanisms and diseases have been defined in the etiopathogenesis of CTS and LSS, there are no studies in the literature about the relationship between CTS and LSS. In this study, we investigate whether a relationship is present between CTS and LSS, two conditions that generally progress with ligament hypertrophy, and whether the incidences of LSS in CTS patients and CTS in LSS patients are higher than in a normal population.

MATERIALS AND METHODS:

In our study, 1026 CTS patients diagnosed by electromyography (EMG), and 228 LSS patients with a lumbar spinal canal diameter of less than 10 mm diagnosed using lumbar computerized tomography (LCT) or lumbar magnetic resonance (LMR), in Adana Çukurova State Hospital in the last three years were evaluated. CTS and LSS cases that developed secondary to trauma were excluded. LSS symptoms in CTS patients and CTS symptoms in LSS patients were investigated. The data for 860 of the 1026 CTS patients were obtained. A claudication complaint, particularly up to 100 m, was accepted as a basis for LSS symptoms. A total of 227 patients were compared using imaging methods in terms of LSS. The patients without LSS symptoms were accepted as normal. A total of 88 patients with an LSS diagnosis (n=228) and CTS symptoms who received EMG were included in the evaluation. Numbness observed in the hands and fingers, especially at night, was questioned as a symptom of CTS. The LSS patients were classified according to the presence/absence of CTS, and the degree by EMG if present, and the CTS patients were classified according to the degree of CTS by EMG (mild, moderate, or severe) and the presence/absence of LSS.

RESULTS:

The total number of patients was 1254. The number of LSS patients was 228 (18%) and the number of CTS patients was 1026 (82%). 204 of the CTS patients (19%) were male and 822 (81%) were female. The age

at which symptoms were seen for the CTS patients was 32–76 (mean: 54) years. 155 of the LSS patients (68%) were male and 73 (32%) were female. The age at which symptoms were seen for the LSS patients was 38–82 (mean: 64) years.

The LSS patients were diagnosed, using lumbar CT or lumbar MRI, with a spinal canal diameter of 10 mm or less. In the LSS patients, the CTS degree based on the EMG results was compared separately, depending on whether CTS was present, and according to the degree of CTS if it was present (Figure-1).

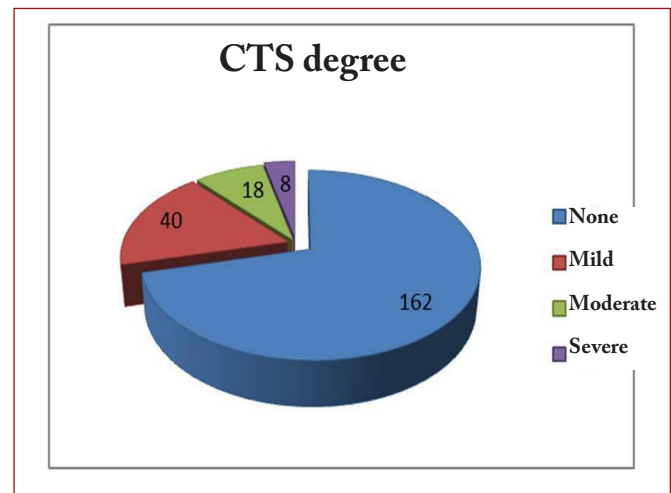


Figure-1. CTS degree according to EMG in LSS patients.

According to these results, the EMGs of 88 of the 228 LSS patients with signs of CTS were investigated. CTS was accepted as absent in the other patients due to the lack of CTS symptoms and signs. 12 patients (14%) whose EMGs were evaluated were found to be normal. CTS of various degrees was detected in 66 patients (86%). No CTS was detected in a total of 162 of the 228 patients (71%). Of the 40 CTS patients, 14 (17%) had mild, 18 (8%) had moderate and eight (4%) had severe degrees of CTS.

For the 860 patients for whom EMG results were obtained, according to those results the patients were divided into three groups according to the degree of CTS: mild (305, 35%), moderate (422, 49%) and severe (133, 16%). According to these results, 134 of the 860 patients (15%) were diagnosed with LSS regardless of the degree of CTS. Seven (2%) of the 305 patients with mild CTS had LSS, 66 (15%) of the 422 patients with moderate CTS had LSS, and 61 (45%) of the 133 patients with severe CTS had LSS (Figure-2).

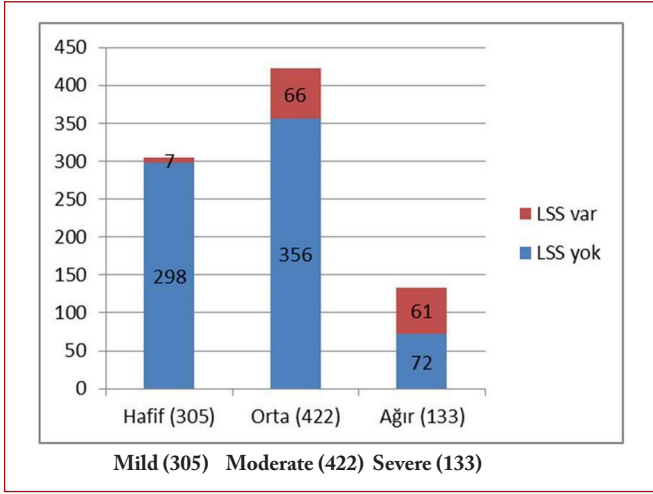


Figure-2. LSS number according to CTS degree.

DISCUSSION

In some studies, the incidence of CTS has been reported as between 0.1% and 4%, and it is generally accepted to be less than 3%^{1,2,6}. It is most commonly seen in the third to the fifth decades, and is three times more frequent in women⁹. Although many factors have been blamed for CTS etiopathogenesis, it is due to compression of the median nerve in the carpal tunnel due to thickening of the transverse carpal ligament. Clinical symptoms and signs depending on this have been revealed¹⁰. In the patients included in our study, the mean age at which CTS was seen was 54, and it was seen three times more frequently in women, compatible with the findings in the literature. According to the results of our study, CTS of different levels of severity was observed in 28% of the patients diagnosed with LSS. 17% of them had mild, 8% had moderate, and 4% had severe degrees of CTS. These rates are higher than the values stated in the literature and the incidence of CTS in the general population. The incidence of lumbar spinal stenosis increases with the increased elderly population. It has been reported as between 1.7% and 8% in the general population⁴. Classic degenerative stenosis is often observed in people aged 60 or more⁷. The signs and symptoms of lumbar spinal stenosis in patients occur due to changes in bone and connective tissues around the spinal canal and nerve roots, disc degeneration, and ligament and facet hypertrophy and osteophyte formation³.

Patients are often admitted due to lower back pain, leg pain, and neurological claudication complaints⁷. According to the results of our study, 15% of CTS patients had LSS, regardless of the degree of CTS. This ratio was detected as 2% in mild CTS, 15% in moderate CTS, and 45% in severe CTS. When all degrees of CTS were considered, the rate was twice the general incidence rate shown in the literature. Although the LSS incidence rate was compatible with the literature findings in patients with mild CTS, it was considerably higher for patients with severe CTS.

When the data presented here is considered, it can be observed that the LSS incidence in the presence of CTS and the CTS incidence in the presence of LSS are increased. These results can be explained in several ways: 1) a common mechanism in their pathogenesis, such as degenerative processes causing ligament hypertrophy; 2) development of hypertrophy in the ligaments of both sites due to heavy professional labor; 3) some diseases that can be shown in the etiology and can cause both clinical conditions; and 4) an independent increase in the incidences of both conditions with age. Despite this, there are some unexplained situations in our study: 1) because our study was a retrospective study, the patients were generally determined by screening the files of previously-diagnosed patients; 2) extra pathologies such as pregnancy and rheumatoid arthritis that can cause LSS and CTS could not be determined; and 3) the data in the literature used for comparison belongs to general populations from different countries, while the patients included in our study were only from a single clinic in Adana. Geographical and socio-economical differences between the compared patient groups can affect the results.

In the literature, we could not find any information about whether there is a relationship between LSS and CTS, and whether the incidence of one increases in the presence of other. This study reveals that LSS and CTS are each more likely to occur in the presence of the other, and it could shed light on new clinical studies. In order to obtain more reliable data, further studies that include prospective large study groups, planned under standard conditions, are required.

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