

Why Algologists Underworked in the Pandemic?

Pandemide Algologlar Neden Az Çalıştı?

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ABSTRACT

Background:The aim of this study is to examine the effect of the COVID-19 pandemic on the number of applications to the Algology Outpatient Clinic and the interventional treatments applied.

Methods: The clinical and demographic data of the patients who applied to the Algology Outpatient Clinic between 01.03.2019 and 01.03.2021 were scanned retrospectively. Patients were classified in terms of age, gender, cause of pain and interventional treatment. According to the data obtained, the patients were divided into two groups as before the pandemic (Group I) and during the pandemic (Group II).

Results: A total of 14412 patient (9194 patients in Group I and 5218 patients in Group II) data were analyzed. In both Group II (63.3%) and Group I (69.4%) women's admission rate was higher. The mean age was 61.0 in Group II and 55.5 in Group I. Interventional treatment application rate was lower in Group II (13%) than Group I (52.4%). The most common interventional treatment was for myofascial pain in Group I ($p=0.001$) and for low back pain in Group II ($p=0.001$). In addition, the rate of interventional treatment for joint pain ($p=0.035$) in Group I, upper extremity pain ($p=0.001$) and headache ($p=0.020$) in Group II was higher.

Conclusion: The COVID-19 pandemic caused a decrease in the number of patients who applied to the Algology Outpatient Clinic and the rate of interventional treatments applied. Pharmacological agents preferred more in the treatment. During the pandemic, the rate of interventional treatments for low back pain, headache and extremity pain increased.

Keywords: COVID-19, Pandemic, Pain management

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ÖZET

Amaç: Bu çalışmanın amacı, COVID-19 pandemisinin Algoloji Polikliniğine başvuru sayısı ve uygulanan girişimsel tedaviler üzerindeki etkisini incelemektir.

Yöntem: Algoloji Polikliniğine 01.03.2019 ile 01.03.2021 tarihleri arasında başvuran hastaların klinik ve demografik verileri retrospektif olarak taranmıştır. Hastalar yaş, cinsiyet, ağrı nedeni ve girişimsel tedavi açısından sınıflandırıldı. Elde edilen verilere göre hastalar pandemi öncesi (Grup I) ve pandemi sırasında (Grup II) olmak üzere iki gruba ayrıldı.

Bulgular: Toplam 14412 hastanın (Grup I'de 9194 hasta ve Grup II'de 5218 hasta) verileri analiz edildi. Hem Grup II (%63,3) hem de Grup I'de (%69,4) kadınların başvuru oranı daha yüksekti. Ortalama yaş Grup II'de 61,0 iken Grup I'de 55,5 idi. Girişimsel tedavi uygulama oranı Grup II'de (%13) Grup I'e (%52,4) göre daha düşüktü. En sık girişimsel tedavi Grup I'de miyofasiyal ağrı ($p=0,001$) ve Grup II'de bel ağrısı ($p=0,001$) için uygulanmıştır. Ayrıca, Grup I'de eklem ağrısı ($p=0,035$), Grup II'de üst ekstremitte ağrısı ($p=0,001$) ve baş ağrısı ($p=0,020$) için girişimsel tedavi oranı daha yüksekti.

Sonuç: COVID-19 pandemisi Algoloji Polikliniğine başvuran hasta sayısında ve uygulanan girişimsel tedavi oranında azalmaya neden olmuştur. Tedavide farmakolojik ajanlar daha fazla tercih edildi. Pandemi süresince bel ağrısı, baş ağrısı ve ekstremitte ağrılarına yönelik girişimsel tedavilerin oranı artmıştır.

Anahtar Sözcükler: Covid-19, Pandemic, Pain management, Post-covid, Long-covid

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INTRODUCTION

The World Health Organization declared the COVID-19 pandemic on March 11, 2020 (1). Governments restricted curfew as a precaution. Restrictions were placed on outpatient clinic applications and elective surgeries were stopped (2). Most healthcare workers were assigned to COVID-19 units (3). As a result, people applied to the hospitals less for reasons other than COVID-19 infection (4-6).

Chronic pain patients are elderly patients who often have additional comorbidities. This population is also in the high-risk group for COVID-19 infection (7). The stress and anxiety levels of societies increase in epidemics (8-10). Depression and anxiety are also common in patients with chronic pain. And depressive disorders are an independent risk factor for mortality (11). The negative effects of increased stress (12) and chronic pain (13) on cellular immunity constitute another risk factor for Covid-19 infection.

Regarding patient management during the pandemic period; American Interventional Pain Association (ASSIP), American Academy of Pain (AAPM), and American Association for Regional Anesthesia and Pain (ASRA) have published emergency tables and triage recommendations (14,15).

In this process, chronic pain became a health problem that both physicians and patients delayed. Chronic pain patients could not apply to the Algology Outpatient Clinic adequately, and pain specialists prescribed medication to the patients instead of applying interventional treatment due to the restriction of elective surgical procedures. In this study, we aimed to examine the effect of the COVID-19 pandemic on the applications to the Algology Outpatient Clinic and the interventional treatment methods applied.

MATERIAL and METHODS*Ethical approval*

Ethical approval of the current study was obtained from the Clinical Research Ethics Committee of the Sağlık Bilimleri University Dışkapı Yıldırım Beyazıt Research And Training Hospital on 03.05.2021 (Approval Number:110/13). The Helsinki Declaration criteria were taken into consideration in the conduct of the study.

Study population

The clinical and demographic data of patients who admitted to Algology Outpatient Clinic between 01.03.2019-01.03.2021 were retrospectively

evaluated. To access these data, with the Origo HBYS program used by the hospital's information processing unit on selected dates, the records of all patients who applied to the [BLINDED] Algology Outpatient Clinic were accessed. With this computer transcript, the files of the patients who applied to Algology Outpatient Clinic were accessed. The data of the patients whose files could be accessed and whose records were available were evaluated.

Patients were categorized in terms of age, gender, cause of pain (myofascial pain, back pain, neck pain, abdomino-pelvic pain, joint pain, headache, upper-lower extremity pain) and interventional treatments (Erector spina plane block, dry needling, trigger point injection, epidural steroid injection, facet medial branch block, dorsal root ganglion block, spinal cord stimulation, intra-articular injection, sympathetic ganglion block, somatic nerve block, occipital nerve block, gasser ganglion block, sphenopalatin ganglion block).

According to the data obtained, the patients were divided into two groups as before the pandemic (between 01.03.2019-01.03.2020) (Group I) and during the pandemic (between 01.03.2020-01.03.2021) (Group II).The comparative statistical analyses were performed between the two groups.

Statistical Analysis

The Statistical Package for Social Sciences version 2015 (SPSS Inc, USA) was used for statistical analysis. Descriptive statistics for all analyzed variables were expressed as numbers and percentages. The conformity of measurable data to normal distribution was evaluated with the Kolmogorov-Smirnov test. Since the dependent variable of the study did not fit the normal distribution, median (min-max.) values were given for age. The quantitative variables were presented as frequency and percent, and Pearson chi-square test or Fischer's exact test was used to make comparison between two groups. A p value of <0.05 was considered as significant.

RESULTS

The data of a total of 14412 patients were evaluated. The number of patients admitted to our Algology Outpatient Clinic was 9194 (63%) in Group I and 5218 (37%) in Group II. The number of patients who underwent interventional procedures was 4826 (52.4%) in Group I and 681 (13%) in Group II. Median age of the study population was 61 (17-103 years) in Group I and 56 (20-90 years) in Group II. Male/Female ratio in Group I was 1478/3350 and 431/250 in Group II. (Table-1)

Table-1. The demographic and clinical characteristics of patients

Variable	Group I (Before the pandemic)	Group II (During the pandemic)
Age (year)	61.05±14.37 (17-103)	55.56 ±13.97 (20-90)
Gender		
Female	3350 (69.4%)	431 (63.3%)
Male	1478 (30.6%)	250 (36.7%)
Number of patients		
Admitted to Algology Clinic	9194	5218
Interventional treatment applied	4828 (52.4%)	681 (13%)

The causes of pain in order of frequency in patients undergoing interventional treatments in the Algology Clinic: In Group I myofascial pain (n:2092), back pain (n:1174), joint pain (n:522), neck pain (n:309), headache (n:179), abdomino-pelvic pain (n:47), lower extremity pain (n:36) and upper extremity pain (n:11); In Group II back pain (n:332), myofascial pain (n:147), joint pain (n:58), lower

extremity pain (n:47), headache (n:38), neck pain (n:24), upper extremity pain (n:20) and abdomino-pelvic pain (n:15) (Table-2).

Interventional treatments were more common applied in Group I for myofascial pain (p=0.001), neck pain (p=0.001) and joint pain (p=0.035), in Group II for back pain (p=0.001), upper extremity pain (p=0.001) and headache (p=0.020) (Table-2).

Table 2 : Comparison of interventional treatments in patients who applied to the Algology Outpatient Clinic during and before the COVID-19 pandemic.

Cause of pain	Group I (Before the pandemic) (n=4828)	Group II (During the pandemic) (n=681)	Test Value X ² ; p
Myofascial pain	2092 (43.3%)	147 (21.5%)	572.984; 0.001
Erector spina plane block	19 (0.9%)	55 (74.3%)	
Dry needling	108 (5.1%)	6 (5.3%)	
Trigger point injection	1965 (93.9%)	86 (4.2%)	
Back pain	1174 (24.3%)	332 (48.7%)	41.159; 0.001
Epidural steroid injection	374 (31.8%)	64 (19.2%)	
Facet medial branch block/RFT	545 (46.4%)	143 (43%)	
Dorsal root ganglion block	251 (21.3%)	122 (36.7%)	
Spinal cord stimulation	4 (0.3%)	3 (0.9%)	
Neck pain	309 (6.4%)	24 (3.5%)	19.727; 0.001
Epidural steroid injection	21 (6.7%)	8 (33.3%)	
Facet medial branch block/RFT	288 (93.2%)	16 (66.6%)	
Joint pain	522 (10.8%)	58 (8.5%)	6.542; 0.035
Intra-articular injection	522 (100%)	58 (100%)	
Abdomino-Pelvic pain	47 (0.9%)	15 (2.2%)	0.348; 0.555
Sympathetic ganglion block/RFT	35 (74.4%)	10 (66.6%)	
Somatic nerve block/RF	12 (25.5%)	5 (33.3%)	
Lower extremity pain	36 (0.7%)	47 (6.9%)	3.769; 0.052
Sympathetic ganglion block/RFT	8 (22.2%)	20 (42.5%)	
Peripheral nerve block/RFT	28 (77.7%)	27 (57.4%)	
Upper extremity pain	11(0.2%)	20 (2.9%)	Fisher; 0.001
Sympathetic ganglion block/RFT	11 (100%)	2 (10%)	
Peripheral nerve block/RFT	0 (0%)	18 (90%)	
Headache	179 (3.7%)	38(5.5%)	9.796; 0.020
Occipital nerve block/RFT	130 (72.6%)	23 (60.5%)	
Gasser ganglion block/RFT	22 (12.2%)	12 (31.5%)	
Sfenopalatin ganglion block/RFT	27 (15%)	3 (7.8%)	

The p values written in bold represent statistical significance. Pearson's chi-square test and Fischer's exact test were applied. RFT: Radiofrequency thermocoagulation therapy

DISCUSSION

Treatment management of chronic pain patients has become difficult in the COVID-19 pandemic. Patients tended to stay away from hospitals. Physicians tended to avoid time consuming invasive procedures (16). Furthermore, agents such as steroids and opioids used in the treatment of pain can also suppress the immune system (17-19). This was another factor that made pain management difficult. On the other hand, social isolation during the pandemic caused mood disorders. Anxiety and depression added to the chronic pain adversely affected the immune system (20). Consequently, while chronic pain suppresses the immune system, sometimes treatment can also suppress it.

The number of applications to the Algology Outpatient Clinic was found to be decreased in this study, as in many medical centers. In addition, it has been determined that the rates of interventional treatments applied in our clinic have decreased during the COVID-19 pandemic. This means that the majority of chronic pain patients do not have access to treatment during the pandemic. In order to overcome this problem, telemedicine systems were used in some countries (21).

The median age of the patients was 61 before the pandemic and 56 during the pandemic. Considering the warnings for the elderly to stay at home due to the high risk of death, this was an expected result.

In two different studies conducted in Turkey, it was reported that women applied to Algology Outpatient Clinic more frequently and that female gender was a risk factor for chronic pain (22,23). Similarly, in this study, most of the patients who applied to the Algology Outpatient Clinic both before and during the pandemic were women.

Myofascial pain syndrome is one of the most common causes of chronic pain (24). As in all viral diseases, myalgia and muscle-joint pain are considered to be the precursor symptoms of the disease in COVID-19 (25). The persistence of symptoms for 12-24 weeks in COVID-19 infection is defined as Long-COVID syndrome (26). While the incidence of Long-COVID syndrome is estimated to be 10-35%, this rate can reach 85% in hospitalized patients (27). In a study, musculoskeletal complaints were reported in 77% of patients with Long-COVID syndrome (28). The overall prevalence of post-COVID myalgia, joint pain, and chest pain ranges from 5-18%, 4-12%, and 7-23%, respectively, during the first year after infection (29).

Although increased anxiety and sedentary living conditions with the pandemic are risk factors for myofascial pain (30). Our interventional treatments for myofascial pain have decreased during the pandemic. What was the reason for this decrease? During the pandemic period, we tried to treat these patients primarily with pharmacological agents. We did not prefer trigger point injection and dry needling since they need to be repeated frequently.

However, in this study, it was found that the number of erector spina plane blocks applied during the pandemic increased compared to the before the pandemic. Chest and back pain is very common in COVID-19 infection, affecting a large muscle group (31,32). For this reason, erector spina plane block, which includes more than one muscle group and deeply located muscles, was preferred in the treatment.

The incidence of acute low back pain has increased in the COVID-19 pandemic (33). Both viral infection and sedentary life are risk factors for this increase (34,35). In this study, while 24% of the interventional treatments applied before the pandemic were for low back pain, it was the most frequently applied interventional treatment with 49% during the pandemic.

The surgery of these patients were delayed because non-emergency surgeries were not performed for a while. These patients applied to the Algology Outpatient Clinic. We preferred interventional treatments in these patients who were not treated with medical agents or surgically.

Headache is the most common central nervous system symptom in COVID-19 infection (36). In this study, it was determined that the interventional treatments performed for headache during the pandemic period increased compared to the before pandemic period. Occipital nerve block was performed more frequently in the before pandemic period and Gasser ganglion block was performed more frequently during the pandemic. Occipital nerve block is frequently applied in migraine and tension-type headaches. Gasser ganglion block is used in the treatment of patients with trigeminal neuralgia. In patients with trigeminal neuralgia, whose pain severity is much higher than migraine and tension-type headaches, interventional treatments were performed more frequently, despite the pandemic restrictions.

Cases of neuropathic pain in the extremity have been reported after COVID-19 infection (37). In a recent study, neurofilament light chain values were measured in patients with neuropathic pain after COVID-19 infection. A positive correlation was found between neurofilament light chain and pain intensity. These findings suggest that post-COVID-19 neuropathic pain is associated with axonal degeneration (38). Recently, we have been seeing extremity pains in neuropathic character that started after COVID-19 infection in outpatient clinic. In most of these patients we could not detect an etiology. And we applied diagnostic and therapeutic nerve blocks to these patients. This study showed us that interventional treatment for neuropathic pain in both the upper and lower extremities were performed more frequently than before the pandemic. We thought that this increase might be related to extremity pain, which is frequently observed in long-COVID syndrome.

This study includes the current data of patients who applied to the Algology Outpatient Clinic before the pandemic. The number of applications to the Algology Outpatient Clinic and the causes of pain in patients who underwent interventional treatments were examined in detail. The limitation of the study is that the etiology of the patients who received only pharmacological treatment was not evaluated.

CONCLUSION

In the COVID-19 pandemic, the number of patients who applied to Algology Outpatient Clinic and the rate of interventional treatments were decreased compared to the pre-pandemic period. During COVID-19 pandemic, pharmacological treatments were preferred more. The rate of interventional treatments applied for low back pain, headache and extremity pain during COVID-19 infection has been increased compared to before the pandemic.

Conflict of interest

No conflict of interest was declared by the authors.

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