

Evaluation of Physical Medicine and Rehabilitation Consultations Requested for Inpatients in a University Hospital

Bir Üniversite Hastanesinde Yatan Hastalardan İstene Fiziksel Tıp ve Rehabilitasyon Konsültasyonlarının Değerlendirilmesi

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ABSTRACT Objective: The aim of this study was to evaluate the consultations requested from the department of physical medicine and rehabilitation (PM&R) with regard to socio-demographic characteristics, clinics of the patients, reasons for consultation, diagnoses and given treatment. **Material and Methods:** The study included patients who were hospitalized between January 1 and December 31, 2017 and who were asked for a PM&R consultation. Consultation forms were scanned retrospectively and examination findings and evaluations were recorded. **Results:** The study included 235 patients who were hospitalized in 13 different clinics. Of the patients, 128 (54.5%) were women and 107 (45.5%) were men. The mean age of the patients was 62 (range: 0-94) years. The departments that most frequently requested PM&R consultation were neurology (48.5%), internal medicine (11.1%), chest diseases (10.6%). The reasons for consultation were cerebrovascular disease (51.5%), walking disorder (13.6%), low back pain (12.2%), knee pain (9.8%), neck pain (6.5%), other causes (3.5%) and respiratory system problems (2.9%), respectively. 23.8% of patients who had PM&R consultation had no history of any additional disease, 40.9% had hypertension, 7.7% had asthma, 6.8% had hypertension and diabetes mellitus and 5.5% had only diabetes mellitus. As a result of consultations, the most diagnosed disease groups were neurological diseases (59.5%) and musculoskeletal disorders (37%). On the other hand, exercise after consultations 47.6% of the patients were treated only with therapeutic therapy, 31.4% with exercise and medical treatment, 25.5% with exercise and conventional physical therapy, 9.3% with medical and physical therapy and 8% were applied all three treatment modalities. **Conclusion:** This study shows that all departments are in contact with the PM&R clinic, PM&R consultation is needed especially due to neurological diseases and musculoskeletal pathologies, and also emphasizes the value of consultation requests and the importance of interdepartmental cooperation.

ÖZET Amaç: Bu araştırmanın amacı fiziksel tıp ve rehabilitasyon (FTR) bölümünden istenen konsültasyon hizmetlerinin hastaların sosyodemografik özelliklerine, konsültasyon istenen kliniklere, istenme nedenlerine, konulan tanılarına ve verilen tedavilere göre dağılımını incelemektir. **Gereç ve Yöntemler:** Bu çalışmaya, 1 Ocak-31 Aralık 2017 tarihleri arasında yatarak tedavi gören ve FTR konsültasyonu istenen hastalar dahil edildi. Hastaların konsültasyon formları geriye dönük olarak tarandı ve muayene bulgu ve değerlendirmeleri kaydedildi. **Bulgular:** Çalışmaya, 13 farklı klinikte yatarak tedavi gören ve bu klinikler tarafından FTR uzman hekim konsültasyonu istenen 235 hasta dahil edilmiştir. Hastaların 128'ini (%54,5) kadınlar, 107'sini (%45,5) erkekler oluşturmuştur. Hastaların yaş ortalaması 62 (0-94) idi. Hastanemizde en sık FTR konsültasyonu isteyen kliniklerin sırasıyla nöroloji (% 48,5), dahiliye (%11,1), göğüs hastalıkları (%10,6), beyin cerrahi (%6,8) ve ortopedi (%6,4) olduğu görüldü. Konsültasyon istem sebepleri ise sırasıyla serebrovasküler hastalık (%51,5), yürütme bozukluğu (%13,6), bel ağrısı (%12,2), diz ağrısı (%9,8), boyun ağrısı (%6,5), diğer nedenler (%3,5) ve solunum sistemi problemleri (%2,9) şeklindeydi. FTR konsültasyonu istenilen hastaların %23,8'inin özgeçmişlerinde herhangi bir ek hastalık öyküsü yok iken, %40,9'unda hipertansiyon, %7,7'sinde astım, %6,8'inde hipertansiyon ile diabetes mellitus bir arada ve %5,5'inde sadece diabetes mellitus vardı. Konsültasyonlar sonucunda en çok tanı konulan hastalık grupları; nörolojik hastalıklar (%59,5), kas-iskelet sistemi hastalıkları (%37) olarak tespit edildi. Diğer taraftan, konsültasyonlar sonrasında hastaların %47,6'sına sadece teropötik egzersiz tedavisi, %31,4'üne egzersiz ve medikal tedavi, %25,5'ine egzersiz ve konvansiyonel fizik tedavi, %9,3'üne medikal tedavi ve fizik tedavi ile %8,9'una her üç tedavi modaliteleribirlikte uygulanmıştı. **Sonuç:** Bu çalışma, bütün bölümlerin FTR kliniği ile ilişki içerisinde olduğunu, özellikle nörolojik hastalıklar ve kas iskelet sistemi orijinli patolojiler nedeniyle FTR konsültasyonuna gereksinim duyulduğunu göstermekte olup, ayrıca konsültasyon istemlerinin değeri ve bölümler arası işbirliğinin önemini vurgulamaktadır.

Keywords: Physical medicine and rehabilitation; consultation; inpatient

Anahtar Kelimeler: Fiziksel tıp ve rehabilitasyon; konsültasyon; yatan hasta

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Physical medicine and rehabilitation (PM&R) is a medical specialty dealing with congenital or acquired neuro-musculoskeletal pathologies.¹ These pathologies lead to short or long term functional restrictions. Within this context, diseases such as spinal cord injuries, cerebrovascular events, and cerebral palsy are involved in rehabilitation scope of this specialty, while physical therapy involves treatment of acute and chronic pain such as cervical or lumbosacral radiculopathies, rotator cuff tendinitis, entrapment neuropathies, lower back pain, and degenerative disorders.²

Consultation is follow up of a patient in line with the knowledge, experience, and recommendations of the relevant physicians on follow up and treatment of a patient and her/his disease.^{3,4} Physician of the patient should receive the medical history, perform a physical examination, order the necessary investigations, and apply for consultation in written form when thinks he/she is insufficient to establish a diagnosis, and an intervention out of his/her specialty is needed whereas the consultant physician should convey his/her knowledge and experience to the primary responsible physician in written and verbal form. Recommendations of the consultant should be followed when the treatment of the patient is planned.^{5,6} One of the most common clinical activities in the field of PM&R is consultation services. Physical therapy and rehabilitation consultation is frequently requested by almost all clinics. PM&R specialists assess physical findings and functional status with consultation, establish the clinical diagnosis or help to set the diagnosis, determine the targets and plan the treatment.⁷ Owing consultations, neuro-musculoskeletal disorders of the patients hospitalized due to diseases other than PM&R are evaluated, enabling the opportunity to arrange appropriate therapies. Although in the literature screening, numerous studies were found in our country about consultation in different specialty areas, studies in the field of PM&R were limited.⁸⁻¹⁰

The objective of this study was to reveal PM&R services delivered by a university hospital, sociodemographic features of the patients, the clinics requested a consultation, causes of requesting a meeting, the diagnoses established as a result of the query, and treatment options applied. By this means,

we aimed to determine the relationship of our clinic with the other departments, to found how and by which means our clinic helped the patients hospitalized in the other clinics, and to emphasize the value of consultation orders and importance of cooperation between the departments.

MATERIAL AND METHODS

Patients who received in-patient treatment in various clinics with PM&R consultation ordered between January 1 and December 31, 2017 were included in the study. Files of the patients with consultation order were screened retrospectively. Sociodemographic features, medical disease diagnoses, departments that ordered consultation, causes of consultation orders, the diagnoses established as a result of consultation and treatments applied or recommended by the consultant physician (hospitalization, outpatient PM&R, medical therapy, exercise, referral to another clinic out of the city) were recorded. Outpatients who presented for examination, patients referred from other institutions and consulted, those transferred to another service without consultation despite the consultation order and patients who died were excluded from the study. This study was conducted following the principles of the Declaration of Helsinki and approved by the Aksaray University Ethics Committee (19/04/2018, no: 2018/66).

STATISTICAL ANALYSIS

Statistical analysis was performed using SPSS 16.0 package software (SPSS Inc. Released 2007. SPSS for Windows, Version 16.0. Chicago, SPSS Inc.). Normality of the data was determined using the Kolmogorov-Smirnov test. Non-normally distributed variables were expressed as median (min-max). Frequency distributions were expressed as a percentage (%). The "p" value less than 0.05 was considered statistically significant.

RESULTS

Files of 235 patients who received in-patient treatment with PM&R consultation ordered within one year were included in the study. All patients were consulted to our clinic by the clinics where they received in-patient treatment. The consultations were

ordered by 13 different departments with nine being from internal medicine departments (n:197), and four surgical departments (n:38). Of all patients, 128 (54.5%) were female and 107 (45.5%) were male. The mean age of the patients was found as 62 (min: 0; max: 94) years. When the distribution of the departments that ordered consultation was examined; the department which ordered the most common consultations was neurology (48.5%) followed by internal medicine (11.1%) and thoracic diseases (10.6%). Number of consultations by clinics are given in Table 1. The most common cause of requesting consultation was found as cerebrovascular disease (51.5%) followed by gait disorder (13.6%), lower back pain (12.2%), knee pain (9.8%), neck pain (6.5%), other causes (3.5%), and respiratory rehabilitation (2.9%) (Table 2). The diagnosis was established in 226 of the patients with consultation order, while no any neuromusculoskeletal pathology was found in 9 patients. Diagnosis of neurologic disease was established in 59.5% of the patients with consultation order; musculoskeletal system disease was diagnosed in 37%. When causes and results of the consultation were evaluated; the most commonly diagnosed disease was hemiparesis (49.5%), knee osteoarthritis (11.4%), lumbar disc hernia (9.8%), and cervical disc hernia (9.1%). Consultation results according to the diagnosed diseases are presented in Table 3. As a result of consultations, therapeutic exercise treatment alone was administered and recommended in 47.6%,

TABLE 1: Clinics that requested consultation in order of frequency.

Clinics that requested consultation	Number (n)	Percentage (%)
Neurology	114	48.5
Internal Diseases	26	11.1
Thoracic Diseases	24	10.6
Neurosurgery	16	6.8
Orthopedics	15	6.4
Cardiology	10	5.1
Intensive Care	9	4.2
Palliative	5	2.5
Cardiovascular Surgery	5	2.2
Pediatrics	4	1
Psychiatry	3	1
Infectious Diseases	2	1
Urology	2	1

TABLE 2: Causes of requesting consultation in order of frequency.

	Percentage (%)
Cerebrovascular events	51.5
Gait disorder	13.6
Lower back pain	12.2
Knee pain	9.8
Neck pain	6.5
Other causes	3.5
Respiratory rehabilitation	2.9

TABLE 3: Most common diagnoses as a result of Physical Medicine and Rehabilitation consultations.

	Percentage (%)
Hemiparesis (right/left)	49.5
Knee osteoarthritis	11.4
Lumbar disc hernia	9.8
Cervical disc hernia	9.1
Lumbar/cervical spondylosis	6.0
Tetraparesis	4.7
Non-neuromusculoskeletal disease	3.5
Other diseases	6.0

exercise and medical therapy in 31.4%, exercise and conventional physiotherapy in 25.5%, medical and physical treatment in 9.3%, and all three treatment modalities in 8.9% of the patients.

DISCUSSION

Fundamental of rehabilitation is not to establish a diagnosis and treatment of the disease as in other medical specialties. The main goal is to maximize the condition of patients in physical, psychological, social, professional and non-professional issues and education. To achieve this, multidirectional and interdisciplinary teamwork is done. Therefore, PM&R is a specialty aiming to establish the physiological, psychological and social balance of the person with a disability.⁷

Today both the number of specialties has been increased, and specific diagnostic and therapeutic methods have shown a significant evolution in all branches. Collaborative work of the relevant specialist is inevitable in cases with more than one diseases.

Scientific help or consultancy, which a physician receives from physicians working in the related specialties, for conditions of her/his patient is named as consultation.^{5,6,11} Nowadays where specialization is increasing, consultation has become one of the individual factors of the patient-physician relationship. Even for complicated cases, in which decision for diagnosis and treatment is challenging, either help is sought from more specialists or these cases are discussed in case meetings including relevant specialists. Therefore, one should give due importance to consultations that should be a part of medical education.^{6,12}

In our study, consultation ordered from PM&R clinic for in-patients were retrospectively evaluated. Looking to the literature, there were numerous publications about consultations ordered from the different clinics, only one study by Hız et al. 2000 was found regarding consultations requested from PM&R clinic.¹³ Consultations were required from the in-patients by the relevant specialist and performed by a specialist in our clinic. In our study, PM&R consultations were ordered in patients from 13 different clinics within one year. When the clinics were divided into internal medicine and surgical clinics, consultation ordered from the internal medicine clinics at a higher rate (83%). In the study by Hız et al., this rate was similar to our survey at 79%.¹³ In a study by Kılıç et al., evaluating consultations ordered from the psychiatry department, the frequency of consultations requested from the internal medicine clinics was similarly found as 70%.¹⁰ Higher rate of consultations from internal departments may be explained by that patients hospitalized in these departments have medical diseases with a chronic course and these patients require more in-patient treatment. Furthermore, a longer duration of hospitalization in patients treated in internal medicine clinics than those treated in surgical clinics may be a factor in recognition of physical disorders by the relevant specialists.

The leading three clinics that most commonly ordered consultation were neurology (48.5%), internal medicine (11.1%), and thoracic diseases (10.6) clinics; respectively. In the study by Hız et al., similarly to our research, the clinics that most commonly

requested consultations were reported as neurology (27%), internal medicine (21%), and pediatrics (10%) (13). When causes for requesting a consultation were analyzed; the most common cause of consultation order was cerebrovascular disease (51.5%), followed by gait disorder (13.6%), lower back pain (12.2%), knee pain (9.8%), neck pain (6.5%), other causes (3.5%), and respiratory rehabilitation (2.9%). When all consultations were evaluated and the purposes of consultations requested from the patients and the diagnoses established as a result of physical therapy evaluation were compared; the most commonly diagnosed disease groups were found as hemiparesis by 49.5%, knee osteoarthritis by 11.4%, lumbar disc pathologies by 9.8%, and cervical disc pathologies by 9.1, while no any neuromusculoskeletal disorder was found in 3.5% of the patients. In the study by Hız et al., similarly to our research, when all consultations were evaluated; the most common disease group was found as neurologic diseases (43% and most common: cerebrovascular diseases) followed by musculoskeletal system disorders (31% and most common: vertebral disorders and osteoarthritis), and rheumatic diseases (19%), while no any neuromusculoskeletal illness was found in 6% of the patients.¹³ Looking to the causes of consultations ordered from the clinics with highest rates of consultation orders; consultations requested from the neurology, thoracic diseases, neurosurgery and orthopedics clinics were mostly ordered for rehabilitation purpose, while nearly all consultations requests from the clinic of the internal disease were ordered for diagnosis and treatment purposes.

The majority of the consultations requested from the neurology clinic were ordered due to cerebrovascular diseases, and these orders were for the patients with hemiparesis (stroke) which was the most commonly diagnosed, and these consultations were ordered for initiation of exercise programs in the early period and early mobilization. Although medical therapies are focused on acute periods of stroke, rehabilitation therapies should also be immediately initiated. Many of clinical problems in patients with stroke result from immobility and physiological deconditioning. Therefore, early rehabilitation as soon as possible is essential, and

physical therapy and rehabilitation activities should be started immediately. Prolonged bad rest will bring together many complications. Early mobilization is helpful for prevention of complications, and leave positive effects on patients' contact with the environment and mental status.¹⁴⁻¹⁷ In our clinic, such patients are started to exercise therapy immediately after consultation and taken to the active rehabilitation process later. Therefore, physical therapy and rehabilitation clinic constitutes the most crucial part of the treatment following acute medical therapy.

On the other hand, a large part of the consultations ordered from the internal medicine clinics was made due to lower back and knee pains, and as a result, most common diagnoses of knee osteoarthritis, lumbar and cervical disc pathologies were established. Thus, almost all of these consultations were requested for diagnosis and treatment. Today lower back and knee pain are among the leading disorders seen in the community. In such cases, physical therapy and rehabilitation method and therapies with the active involvement of patients are recommended instead of medical therapy methods as therapeutic approaches. In this context exercises, physical therapy modalities, injections, and manipulative therapies have been commonly performed in recent years, and these approaches constitute the first part of the treatment, which provides a favorable result. As such these treatment modalities reduce the rate of surgery both in lumbar and cervical disc pathology and in the case of osteoarthritis. Therefore, PM&R and physical therapy programs are of paramount importance in these disorders.¹⁸ All consultations from the thoracic clinic were ordered for rehabilitation purpose. Since the majority of these patients have chronic obstructive pulmonary disease (COPD) and similar disorders, respiratory exercises are critical. In addition to respiratory exercises, rehabilitative approaches such as home exercises, relaxation exercises, postural drainage, joint range of motion and gait education are used in these patients.^{19,20} Consultations ordered from the neurosurgery and orthopedics departments were requested for rehabilitation, as these orders were more commonly made in the postoperative period.

Early recovery is critical also in these patients. As in other patients, exercise programs are initiated from the first period, and possible joint contractures, and thus compression wounds and gait problems are avoided.

As a result of the consultations, almost all patients were shown or performed exercises about their disorders, while exercise treatments were carried out by a physiotherapist daily during hospitalization especially in patients in the neurology clinic, thoracic diseases, neurosurgery, orthopedics, palliative, and intensive care units.

The main limitations of our study were its retrospective (screening previous records), single-center study design and duration (including 1 year period) of the study. Patients who presented to the emergency department and outpatient clinics, and referred to PM&R outpatient clinics for consultation were not included in the study. In this study, only consultations requested from in-patients were evaluated, and therefore the results should not be generalized for all patients. Further comprehensive prospective studies using structured interview techniques are needed to determine PM&R morbidities in patients presenting to hospitals in our country.

CONCLUSION

In conclusion; this study shows that all departments are in contact with the PM&R clinic, especially PM&R consultation is needed due to neurological diseases and musculoskeletal pathologies, and also emphasizes the value of consultation requests and the importance of interdepartmental cooperation. Therefore, rehabilitation education and training related to diagnosis and treatment of musculoskeletal diseases should be given particular concern when PM&R specialty education programs are planned. Since today multidisciplinary approach is preferential for treatment of patients, consultation should be generalized, because there is a continuous relationship between the other clinics and PM&R clinic, consultation orders play an essential role in increasing the cooperation between departments, and facilitates treatment of patients.

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Conflict of Interest

No conflicts of interest between the authors and / or family members of the scientific and medical committee members or members of the potential conflicts of interest, counseling, expertise, working conditions, share holding and similar situations in any firm.

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