



Analysis of Referrals to External Centers from the Emergency Department of a Public Hospital Serving as Secondary Care

İkinci Basamak Olarak Hizmet Veren Bir Devlet Hastanesinin Acil Servisinden Dış Merkezlere Yapılan Sevklerin Analizi

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ABSTRACT

Aim: To analyze the referrals from the emergency department of a state hospital providing secondary health care services to external centers and to provide ideas for studies to reduce referrals.

Materials and Methods: This retrospective study was conducted in the emergency department of a hospital providing secondary health care. In the study, referrals from the emergency department to external centers between 01.01.2023-31.12.2023 were analyzed.

Results: Within the scope of the study, 375 patients were evaluated. The mean age of the patients was 36.43±25.98 years. According to the age range, the highest number of patient referrals was in the 0-17 age range (34.1%). 70.1% of the patients were male. The most common reason for referral was psychoactive disorder (13.6%). The most common reasons for referral were the absence of a subspecialist (30.4%) and the lack of a specialist in the relevant branch (30.4%). The most common reason for referral was the absence of a pediatric surgery specialist (20%). Considering the institutions to which patients were referred, most referrals were made to city hospitals (48%). Kayseri was the province to which most patients were referred (59.2%).

Conclusion: It is thought that the number of referred patients will decrease with the expansion of physically secure ward patient service for psychiatry clinics in secondary care hospitals and increasing the number of subspecialists and physicians especially in branches where the number of specialists is inadequate.

Keywords: City hospitals, emergency department, patient transfer

ÖZET

Amaç: İkinci basamak olarak sağlık hizmeti veren bir devlet hastanesinin acil servisinden dış merkezlere yapılan sevklerin analizini yaparak sevklerin azaltılmasına yönelik yapılacak çalışmalara fikirler sunmaktır.

Gereç ve Yöntemler: Bu çalışma retrospektif olarak ikinci basamak olarak sağlık hizmeti veren bir hastanenin acil servisinde yapıldı. Çalışmada 01.01.2023-31.12.2023 tarihleri arasında acil servisten dış merkezlere yapılan sevkler analiz edildi.

Bulgular: Çalışma kapsamında 375 hasta değerlendirildi. Hastaların yaş ortalaması 36,43±25,98 oldu. Yaş aralığına göre bakıldığında en fazla hasta sevk 0-17 yaş aralığındaydı (%34,1). Hastaların %70,1'i erkekti. En fazla psikoaktif bozukluk (%13,6) nedeniyle sevk yapıldığı görüldü. Sevk nedenlerinin en sık yan dal uzmanı yokluğu (%30,4) ve ilgili branş uzmanı yokluğu (%30,4) nedeniyle olduğu görüldü. Branş olarak en çok çocuk cerrahi uzmanı yokluğu nedeniyle (%20) sevk yapıldı. Sevk edilen kurumlara bakıldığında en fazla şehir hastanelerine (%48) sevk yapıldı. En fazla hasta sevk edilen il Kayseri (%59,2) oldu.

Sonuç: İkinci basamak hastanelerde psikiyatri kliniği için fiziki olarak kapalı hasta servislerinin yaygınlaştırılması, yan dal uzmanı ve özellikle uzman sayısının yetersiz olduğu branşlarda hekim sayısının artırılması ile sevk edilen hasta sayılarında azalma olacağı düşünülmektedir.

Anahtar Kelimeler: Acil servis, hasta nakli, şehir hastaneleri

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INTRODUCTION

Referral or transfer of a patient from one health institution to another health institution means inter-hospital referral. This situation may vary according to the capacity of hospitals and the regions they serve (1). Referral can be made in cases where a specific specialty is required in the diagnosis and treatment of the patient, when advanced surgical procedures need to be performed, or when the patient needs more comprehensive diagnosis or treatment methods (1,2). In cases where patients need to be treated in intensive care or special care units, referral can be made if these specialized units are not available or occupied in the health institution (3,4).

Emergency departments play an important role in the correct determination of the need for referral of patients and especially in the transfer process of critically ill patients. In patient referrals, referrals due to inappropriate indication status, especially non-urgent or non-essential additional examination evaluation requests cause an increase in density and workload in healthcare institutions (5). In the statement of the American College of Emergency Physicians (ACEP) titled 'Appropriateness of Patient Transport between Hospitals', it was stated that the referral chain clearly defined in the aforementioned documents was not operated appropriately and that patients, their relatives and tertiary healthcare system employees were negatively affected by this situation (6-8).

In this study, it was planned to analyze the referrals made from the emergency department of a state hospital providing secondary health care services to external centers and to present opinions and solutions to reduce referrals.

MATERIAL and METHODS

Data Collection

Prior to the study, the approval of Hacı Bektaş Veli University Non-Interventional Clinical Research Ethics Committee numbered 2024/06 and dated 25/07/2024 was obtained. This retrospective study was conducted in a hospital providing secondary health care emergency department. In the study, referrals from the emergency department to external centers between 01.01.2023-31.12.2023 were analyzed. The study was conducted in a state hospital in a province in the Central Anatolia region of Turkey. During the specified period, a total of 658 referrals were made throughout the hospital and 396 of the referrals were made from the emergency department. All patients referred from the emergency department to an external center were analyzed and patients who did not generate sufficient data were excluded from the study. Patients who initiated referral procedures but refused referral or left without permission were excluded from the study. Patient data were accessed by accessing archive files from the unit coordinating referral procedures throughout the hospital.

The obtained data were then detailed with the data in the hospital electronic data system. The month of admission (month), age, gender, area of referral in the emergency department, complaint of admitted, diagnosis, reason for referral, branch of referral, hospital and province were recorded.

Statistical Analysis

Statistical Package for Social Sciences for Windows 21.0 (SPSS 21.0) program was used to analyze the data. Descriptive statistics (frequency, percentage distribution) were used for statistical analysis. Results were given as mean \pm SD, or frequency (percentage). The relationships between categorical variables were analyzed by Pearson chi-square test or Fisher-Freeman-Halton exact test and Bonferroni corrected Z-test was used as a post-hoc test. Statistical significance level $p < 0.05$ was considered significant.

RESULTS

The study included 375 patients. The mean age of the patients was 36.43 ± 25.98 years. According to the age range, the highest number of patient referrals was in the 0-17 age range (34.1%). 70.1% of the patients were male. The highest number of referrals were made in September (13.1%) and the lowest number in February (4.8%). The units referred from the emergency department were trauma area (33.9%), red area (27.7%), yellow area (21.6%) and pediatric emergency department (16.8%) in order of frequency. The most common reasons for referral to the emergency department were behavioral disorders (13.3%), traffic accidents (13.1%) and abdominal pain (9.9%). Regarding the reasons for referral according to diagnoses, the most common reasons for referral were psychoactive disorder (13.6%), intracranial hemorrhage (9.3%) and hemopneumothorax (8%), respectively. The most common reasons for referral were the absence of a subspecialist (30.4%) and the absence of a specialist in the relevant branch (30.4%). Pediatric surgery (20%), psychiatry (13.6%) and the need for a hand surgery subspecialist (9.9%) were the most frequently referred departments, respectively. Regarding the institutions to which patients were referred, it was observed that most referrals were made to city hospitals (48%). The provinces to which patients were referred were Kayseri (59.2%), Adana (11.2%) and Ankara (9.1%) in order of frequency. The data related to the study are given in Table 1.

In the comparative analyses performed in the study, there was no significant difference in the reasons for referral according to months ($p = 0.932$).

There was a significant difference in the reasons for referral according to gender ($p < 0.05$). Accordingly, it was observed that male patients had more admitted than female

Table 1. Evaluation of referred patients.

Demographic Data	n	%	Reason for Admitted	n	%
Gender					
Male	263	70.1	Behavioral disorder	50	13.3
Female	112	29.9	Traffic accident	49	13.1
Age Range			Abdominal pain	37	9.9
0-17	128	34.1	Piercing and sharp instrument injury	36	9.6
18-35	70	18.7	Loss of consciousness	30	8
36-54	70	18.7	Fall from height	29	7.7
55-72	68	18.1	Shortness of breath	19	5.1
73-90	39	10.4	Burn	13	3.5
Shipped Area			Development of motor and sensory deficits	12	3.2
Trauma	127	33.9	Fatigue	11	2.9
Red area	104	27.7	Headache	10	2.7
Yellow area	81	21.6	Nausea and vomiting	9	2.4
Pediatric emergency	63	16.8	Chest pain	9	2.4
Reason for Referral			Ingestion of chemicals	9	2.4
Need for a subspecialist	114	30.4	Work accident	8	2.1
Absence of a specialty specialist	114	30.4	Electric shock	6	1.6
Advanced examination and treatment*	54	14.4	Seizure	6	1.6
Intensive care unit/center	41	10.9	Aspiration	5	1.3
Burn unit/center	19	5.1	Gunshot wound	4	1.1
Need for DSA**	16	4.3	Assault	4	1.1
Stroke center	14	3.7	Diarrhea	4	1.1
Hyperbaric oxygen therapy	2	0.5	Blunt trauma	4	1.1
Device malfunction	1	0.3	Bloody vomiting	3	0.8
Referred Health Institution			Suicide attempt	3	0.8
City hospital	180	48	Difficulty swallowing	3	0.8
Faculty of medicine	77	20.5	Wound infection	2	0.5
Private health institution	50	13.3	Diagnoses		
Mental and nervous diseases hospital	47	12.5	Psychoactive disorder	51	13.6
Training and Research Hospital	21	5.6	Intracranial hemorrhage	35	9.3
Referred City			Hemopneumothorax	30	8
Kayseri	222	59.2	Tendon incision and hand injury	27	7.2
Adana	42	11.2	Acute appendicitis	24	6.4
Ankara	34	9.1	Burn	18	4.8
Konya	32	8.5	Aortic dissection	14	3.7
Nevşehir (inter city)	22	5.9	Ischemic stroke	14	3.7
Aksaray	11	2.9	Pneumonia	13	3.5
Mersin	3	0.8	Amputation	12	3.2
Tokat	3	0.8	Maxillofacial fracture	12	3.2
Sivas	1	0.3	Intra-abdominal organ injury	11	2.9
Samsun	1	0.3	Foreign body in feeding and respiratory tract	8	2.1
Kırşehir	1	0.3	Diabetic ketoacidosis	8	2.1
Kırıkkale	1	0.3	Cholelithiasis	7	1.9
Antalya	1	0.3	Bleeding disorder	6	1.6
Afyon	1	0.3	Corneal perforation	6	1.6
Distribution of Referrals by Branches			Chemical ingestion	6	1.6
Pediatric surgery	75	20	Malignancy	6	1.6

Psychiatry	51	13.6	Acute renal failure	5	1.3
Hand surgery	37	9.9	Gastrointestinal bleeding	5	1.3
Brain surgery	35	9.3	Drug intoxication	5	1.3
Cardiovascular surgery	20	5.3	Pelvic fracture	5	1.3
Gastroenterology	17	4.5	Status epilepticus	5	1.3
Neurology	16	4.3	Vascular injury	4	1.1
Pediatric gastroenterology	15	4	Arterial embolism	3	0.8
Thoracic surgery	14	3.7	Cardiac arrhythmia	3	0.8
Thoracic diseases	13	3.5	Meningoencephalitis	3	0.8
Plastic surgery	13	3.5	Vertebral fracture	3	0.8
General surgery	12	3.2	Gastroenteritis	2	0.5
Pediatric endocrinology and metabolism	9	2.4	Carbon monoxide poisoning	2	0.5
Internal medicine	7	1.9	Massive hemoptysis	2	0.5
Ophthalmology	6	1.6	Post operative complication	2	0.5
Orthopedics	6	1.6	Sepsis	2	0.5
Pediatric neurology	5	1.3	Acute liver failure	1	0.3
Hematology	4	1.1	Electrolyte disturbance	1	0.3
Cardiology	4	1.1	Hepatic encephalopathy	1	0.3
Oncology	3	0.8	Invagination	1	0.3
Pediatric hematology	3	0.8	Heart failure	1	0.3
Pediatric cardiology	3	0.8	Cardiac defect formation	1	0.3
Anesthesiology and re-animation	3	0.8	Crimean Congo hemorrhagic fever	1	0.3
Infectious diseases	2	0.5	Massive pleural effusion	1	0.3
Underwater medicine and hyperbaric	2	0.5	Metabolic disease	1	0.3
Rheumatology	2	0.5	Esophageal stricture	1	0.3
Pediatric surgery	1	0.3	Pericarditis	1	0.3
			Prosthesis dislocation	1	0.3
			Rhabdomyolysis	1	0.3
			Tuberculosis	1	0.3
			Tendon incision	1	0.3
			Wegener's syndrome	1	0.3

* The scope of advanced examination and treatment consists of the need for closed psychiatric closed service, invasive and surgical procedures performed at the 3rd Step level, and referrals for high-level research of patients who cannot be diagnosed. **DSA:** Digital Subtraction Angiography

patients, especially trauma-related admissions. There was a significant relationship between the complaints of admitted according to age ranges ($p < 0.05$). Accordingly, it was observed that the highest number of patient referrals was in the 0-17 age range (34.1%) and the most common reason for referral was abdominal pain (21.4%). There was a significant difference in the reasons for referral based on diagnosis according to age ranges ($p < 0.05$). According to this result, all of the referrals due to acute appendicitis, intra-abdominal organ injury, penetrating and sharp instrument injury, foreign body in the feeding or respiratory tract, and status epilepticus were in the 0-17 age range. There was a significant difference in the reasons for referral according to age range ($p < 0.05$). In this study, the most common reason for referral in the 0-17 (55.5%) age range was the absence of a branch specialist, in the 18-35 (60%) and 36-54 (40%) age ranges was the absence of a subspecialists, and in the 55-72 (26%) and 73-90 (23%) age

ranges was the need for further investigation and treatment. When the reasons for referral were analyzed according to age ranges and branch distribution, a significant difference was observed ($p < 0.05$). In this study, it was observed that the most common reason for referral in the 0-17 (55.5%) age range was due to lack of pediatric surgery specialists, in the 18-35 (60%) and 36-54 (40%) age ranges it was due to lack of subspecialists, and in the 55-72 (26%) and 73-90 (23%) age ranges it was due to further investigation and treatment. When the reasons for referral were analyzed according to age ranges and branch distribution, a significant difference was observed ($p < 0.05$). In this case, it was observed that referrals were made due to the absence of pediatric surgery specialist (58.7%) and pediatric gastroenterology specialist (11.9%) in the 0-17 age range. On the other hand, in the age range of 18-35 years, 37.4% of referrals were made by psychiatry specialists due to the need for a closed service and 22.8% of referrals were

made by orthopedics to a center with hand surgery. In the age range of 36-54 years, the most common referrals were made by psychiatrists due to the need for closed service (27.1%) and by neurosurgeons for Digital Subtraction Angiography (20%). When the referrals of the patients on the basis of branch were evaluated, a significant difference was observed ($p<0.05$). In this evaluation, it was seen that 92.1% of psychiatry patients were referred to mental and nervous health hospitals, and 51.3% of the referrals made due to the lack of hand surgery specialists were made to private health institutions.

DISCUSSION

The chain of referral between hospitals is of great importance in providing health services more efficiently. Thanks to the referral system, health resources are used more efficiently and health services become more sustainable (9-11). However, it is predicted that patients and their relatives will be more comfortable to receive treatment in the center where the patients are located with the evaluation of the most common reasons for referral by analyzing the reasons for referral and reducing patient referrals to external centers (9,10).

When the studies conducted in the literature are examined, it is seen that referrals due to lack of specialist physicians are in the first place (5,12,13). In referrals made out of the province by state hospitals operating as secondary care, it has been observed that advanced examination and treatment and lack of specialist physicians are the most common reasons for referral (12,13). In this study, similar to the literature, the most common reasons for referral were lack of specialists, lack of subspecialists and advanced tests and treatment.

In the study, it was observed that the most common reason for referral was lack of specialists and the most common reason for referral was lack of a pediatric surgery specialist. It is predicted that referrals increased due to the fact that there was only one pediatric surgery specialist in the hospital where the study was conducted and the only physician was on call, fewer shifts and annual leave. Increasing difficulties in the working conditions of pediatric surgery specialists and the fact that the branch is not preferred by physicians with the increase in malpractice lawsuits also decrease the number of specialists (14). It is predicted that the number of specialists will increase and the number of referrals from peripheral hospitals to central hospitals will decrease with the realization of incentives such as eliminating malpractice fears, improving working conditions and increasing income levels for physicians to prefer pediatric surgery specialist.

In Turkey, emergency psychiatric services are provided in the emergency departments of university and training and

research hospitals, emergency departments of psychiatric branch hospitals and emergency departments of state hospitals (15). Psychiatric referrals account for 3-12% of the referrals to emergency departments of general hospitals (15). In this study, psychoactive disorders were the leading cause of referral to an external center with a rate of 13.6%. Since there was no psychiatry closed service in the center where the study was conducted, it was observed that referrals were made to Mental and Nervous Health Hospitals, especially in Adana province. In addition, it is predicted that the referral procedures of patients who were planned to be referred from the psychiatry outpatient clinic in the center where the study was conducted were performed through the emergency department, which increased the referral rate.

Referral from the center where the study was conducted to centers with subspecialists, especially in hand surgery, is in the first place. One of the reasons for this is thought to be the fear of malpractice. As a matter of fact, in a survey study published in the United States of America in 2005, 93% of the physicians surveyed stated that they practiced defensive medicine or performed many practices under the threat of facing medical malpractice claims. Unnecessary referral of patients is among these practices (16,17). In a study in which referrals from a district hospital to the emergency department of a central training and research hospital were evaluated, the necessity for a subspecialist was found at a rate of 17.6%, while the rate of requesting subspecialty consultation in the admitted patients was much lower (5). In their study, Dal et al. reported that evaluation of the patient by a subspecialist was not urgent and the reason for referral was not appropriate in referrals made on the grounds of specialized specialties (5).

In the study, 48% of the referred patients were directed to city hospitals. In recent years, city hospitals have been built in many provinces in Turkey and health services have started to be gathered under a single roof. As such, the workload of city hospitals has increased over time (18,19). It is thought that patients are referred to these centers especially from the surrounding provinces due to reasons such as advanced examination and treatment and lack of subspecialists. Thus, both the increase in the workload of healthcare professionals and the fact that patients have to be treated in other provinces may cause dissatisfaction. In addition, with the increase in patient applications to these centers, there may be disruptions in the referrals to be made especially from secondary health centers due to bed occupancy.

Conclusion

As a result of this study, it was seen that the most common reasons for referral were due to the need for closed services for psychiatric patients, the need for

subspecialists specialists and the branches where the number of physicians is inadequate, especially pediatric surgery and thoracic surgery. In order to reduce referrals and eliminate patient victimization, especially centers with few or no specialist physicians should be taken into consideration when assigning physicians. In addition, the branches where the number of specialists is low should be made more attractive and more preferable with the necessary incentives. In Turkey, it is seen that the number of subspecialists is not yet sufficient and therefore the number of physicians in secondary health centers is low. On the other hand, it is thought that main specialists have an attitude towards directing patients to subspecialists. The underlying reason for this situation is thought to be the fear of malpractice as well as treating the patient at a higher level. Regulations should be made on this issue and the concerns of the main specialists should be eliminated. In addition, more balanced investments should be made in terms of medical equipment and health personnel in the distribution of health services. Otherwise, an increase in referrals from peripheral hospitals to central hospitals will become inevitable.

Ethics Committee Approval: Prior to the study, the approval of Hacı Bektaş Veli University Non-Interventional Clinical Research Ethics Committee numbered 2024/06 and dated 25/07/2024 was obtained.

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