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CHARACTERISTICS OF PATIENTS WITH EPILEPSY APPLYING TO PEDIATRIC EMERGENCY DEPARTMENT

Çocuk Acile Başvuran Epilepsi Tanılı Hastaların Özellikleri

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ABSTRACT

Objective: Epilepsy is one of the most common neurological diseases of childhood. Pediatric patients diagnosed with epilepsy may present to pediatric emergency departments for various reasons, in addition to follow-up in pediatric neurology/pediatrics outpatient clinics. This study aimed to examine the characteristics of patients diagnosed with epilepsy presenting to the pediatric emergency department, their reasons for admission, and the follow-up process in the pediatric emergency department. **Method:** This is a retrospective study. 802 emergency visits from 492 patients diagnosed with epilepsy who presented to the Pediatric Emergency Department of Ankara Bilkent City Hospital between January 1, 2020, and December 31, 2021, were included. **Results:** The mean age of the patients was 99.4 ± 64.3 months, 59.8% were male, and 40.2% were female. Thirty-four percent of the patients had a chronic disease accompanying their epilepsy, and those with comorbidities presented to the emergency department more frequently than those without ($p<0.05$). There was no statistically significant difference between the ages of patients with and without comorbidities ($p>0.05$). It was shown that the duration of follow-up for epilepsy did not affect the frequency of pediatric emergency department visits. The most common reason for patient visits to the pediatric emergency department was seizures (69.1%), followed by upper and lower respiratory tract infections (10.9%), acute gastroenteritis (6%), allergies (1%), and psychiatric conditions (1.5%). Irregular antiepileptic drug (AED) use was the most common cause of seizures. Of the 554 seizure visits, 161 received AED treatment in the emergency department. At the end of follow-up and treatment, 32.5% of the patients were admitted to pediatric inpatient wards, and 5.1% were admitted to the pediatric intensive care unit. **Conclusion:** Establishing an emergency epilepsy clinic for patients diagnosed with epilepsy can reduce healthcare costs and prevent unnecessary workforce loss; the establishment of such clinics in our country is recommended.

Keywords: Epilepsy, Pediatric emergency department, Seizure

ÖZET

Amaç: Epilepsi çocukluk çağının en sık rastlanan nörolojik hastalıklarından birisidir. Epilepsi tanılı çocuk hastaların çocuk nöroloji/çocuk sağlığı ve hastalıkları poliklinik izlemi dışında çocuk acil servislerine de farklı nedenlerle başvuruları olabilmektedir. Çalışmamızda; çocuk acil servise başvuran epilepsi tanılı hastaların özelliklerinin, başvuru nedenlerinin ve çocuk acil serviste izlem sürecinin incelenmesi amaçlanmıştır. **Yöntem:** Çalışmamız retrospektif bir çalışma olup, çalışmaya 1 Ocak 2020– 31 Aralık 2021 tarihleri arasında Ankara Bilkent Şehir Hastanesi Çocuk Acil Servisine başvuran epilepsi tanılı 492 hastanın 802 acil başvurusu dahil edildi. **Bulgular:** Hastaların yaş ortalaması 99,4 ± 64,3 ay, %59,8'i erkek, %40,2'si kızdı. Hastaların %34'ünde epilepsiye eşlik eden ek bir kronik hastalık vardı ve ek hastalığı olanlar olmayanlara göre acile daha sık başvuru yapmışlardı ($p<0.05$). Ek hastalığı olan ve olmayan hastaların yaşları arasında istatistiksel olarak anlamlı farklılık yoktu ($p>0.05$). Hastaların epilepsi takip süresinin çocuk acil servise başvuru sıklığını etkilemediği gösterildi. Hastaların çocuk acil servise başvuru nedenlerinden en sık olanı nöbet (%69,1), diğerleri üst ve alt solunum yolu enfeksiyonu (%10.9), akut gastroenterit (%6), alerji (%1) ve psikiyatrik (%1.5) nedenlerdi. Nöbet nedeni olarak en sık düzensiz antiepileptik ilaç (AEİ) kullanımı gösterildi. Nöbet nedeniyle yapılan 554 başvurunun 161'ine acil serviste AEİ tedavisi uygulanmıştı. Takip ve tedavi sonlanımında hastaların %32,5'u çocuk yataklı servislerine, %5,1'i çocuk yoğun bakım ünitesine yatırılmıştı. **Sonuç:** Epilepsi tanılı hastalar için acil epilepsi kliniği oluşturulması sayesinde sağlık bakım hizmetleri için yapılan harcamalar azaltılıp ve gereksiz işgücü kaybının önüne geçilebilir; ülkemizde bu tarz kliniklerin oluşturulması önerilebilir.

Anahtar Kelimeler: Çocuk acil servis, Epilepsi, Nöbet

INTRODUCTION

Epilepsy is a condition characterized by sudden, recurrent, and unprovoked seizures resulting from abnormal and excessive electrical discharges in cortical neurons. It is one of the most common neurological disorders in childhood (Kwan & Brodie, 2006). In developed countries, the incidence of epilepsy in children has been reported to range between 20 and 70 per 100,000, whereas in developing countries, it has been found to be 64 to 124 per 100,000 (Hauser, 2008). Etiologically, epilepsy is classified into six categories: structural, genetic, infectious, metabolic, immune, and unknown causes. These categories are interrelated, and a single epileptic etiology may fall into more than one group (Hirtz et al., 2003; Scheffer et al., 2017). The primary goals of epilepsy treatment are to achieve early seizure control, prevent neuronal damage through complete seizure management, minimize the side effects of antiepileptic drugs, ensure normal growth and development, and improve the patient's quality of life (Fisher et al., 2017). Accordingly, patients are regularly followed and treated by pediatric neurology or general pediatrics outpatient clinics. In addition to routine outpatient follow-up, these patients may also present to pediatric emergency departments for various reasons. Although neurological emergencies constitute approximately one-third of all pediatric emergency admissions, about 75% of children presenting with acute neurological symptoms are evaluated due to seizures, headaches, or other paroxysmal causes (Mastrangelo & Baglioni, 2021). In line with this, a study conducted in Turkey reported that, during a 12-month period, 0.28% of 118,518 emergency department visits were due to seizure disorders, highlighting the local burden of epilepsy-related emergency admissions (Ataş Berksoy et al., 2017).
In patients with epilepsy, presentations to the pediatric emergency department may occur not only due to seizures but also for other reasons such as injuries, intoxications, or infections (Mühlenfeld et al., 2022; Sapkota et al., 2022). However, there is limited data in the literature regarding both epilepsy-related and non–epilepsy-related causes of emergency visits, as well as the clinical course and management of these patients in pediatric emergency settings. In this study, it was aimed to retrospectively evaluate pediatric patients with a diagnosis of epilepsy who presented to the emergency department and to investigate their characteristics, reasons for admission, and the clinical course during their follow-up in the emergency unit.

MATERIALS and METHODS

A total of 1,946 emergency department (ED) visits made by 643 pediatric patients aged between 1 month and 18 years who had a diagnosis of epilepsy and presented to the Pediatric Emergency Department of Ankara Bilkent City Hospital between January 1, 2020, and December 31, 2021, were retrospectively reviewed. To avoid repeated data from frequent attenders, 1,144 ED visits from 140 patients with four or more presentations were excluded. The study therefore included 802 ED visits from 492 patients, which were analyzed in detail. Patients whose medical records were incomplete, whose clinical or laboratory data were unavailable, or who had been assigned an incorrect diagnostic code (n = 11) were excluded from the study. The evaluated parameters included demographic characteristics (age, sex), seizure frequency, etiology of epilepsy, current medications, presence of comorbidities, reason for ED presentation, mode of admission (self-referred or ambulance-transported patients), laboratory and imaging findings, and ED course, including diagnosis, treatment, length of stay, and outcome (observation in ED, admission to pediatric inpatient unit or intensive care unit admission, or death). The classification of the "etiology of epilepsy" was based on the 2017 guidelines of the International League Against Epilepsy (ILAE), categorizing cases as genetic, structural, metabolic, infectious, immune, or unknown (Scheffer et al., 2017). If a patient fulfilled the criteria for more than one etiological category, classification was made based on the most prominent underlying cause determined by the treating physician, prioritizing structural causes over others when applicable. The term "comorbid conditions" included additional chronic medical or neurodevelopmental disorders such as cerebral palsy, autism spectrum disorder, intellectual disability, congenital syndromes, and metabolic diseases diagnosed prior to or during the follow-up period.

Neuroimaging referred to cranial imaging studies performed during the ED evaluation, which included cranial computed tomography (CT) and/or magnetic resonance imaging (MRI), as clinically indicated. Liver function tests encompassed biochemical markers such as aspartate aminotransferase (AST), alanine aminotransferase (ALT), albumin (ALB), and gamma-glutamyl transferase (GGT), among others. The study protocol was approved by the Clinical Research Ethics Committee of Ankara Bilkent City Hospital Health Practice and Research Center on April 13, 2022 (Approval No: E2-22-1678).

Statistical Analysis

Statistical analyses were performed using the IBM Statistical Package for the Social Sciences (SPSS) version 22. Numerical data were expressed as mean ± standard deviation, while categorical data were presented as numbers and percentages. The distribution of numerical data was assessed using the Shapiro-Wilk test. Variables showing normal distribution were analyzed using the Student's t-test (for independent groups) and Paired Samples t-test (for paired comparisons). For variables that did not meet the assumption of normality, non-parametric tests such as the Mann-Whitney U test or Wilcoxon signed-rank test were considered as appropriate alternatives, although such cases were rare in this dataset. The Chi-square test was applied for the comparison of categorical variables. A p-value < 0.05 was considered statistically significant.

RESULTS

During the study period, a total of 146,826 patients made 247,308 visits to the pediatric emergency department. The proportion of patients presenting with a diagnosis of epilepsy was 43/10,000 among all patients and 78/10,000 among all emergency department visits. The mean age of the patients was 99.4 ± 64.3 months, and 59.8% were male while 40.2% were female. A comorbid chronic condition accompanied epilepsy in 34% of the patients. Although there was no significant age difference between patients with and without comorbidities, those with additional diseases had more frequent emergency department visits ($p < 0.05$). The most common comorbid conditions among patients presenting with epilepsy were autism and other developmental disorders, cerebral palsy, structural abnormalities of the central nervous system, and metabolic diseases. Additionally, 19 patients had a tracheostomy, and 18 patients had a percutaneous endoscopic gastrostomy (PEG). Among the patients who presented to the pediatric emergency department due to epileptic seizures, 63% had attended a pediatric neurology outpatient clinic within the previous six months ($p < 0.05$). Regarding seizure frequency, 6.1% experienced daily seizures, while 31.9% had fewer than one seizure per year. Analysis of epilepsy etiology revealed that 18.6% were due to structural causes, 5.2% to metabolic causes, 5.1% to genetic causes, 3.2% to infectious causes, and 0.6% to immune causes; the etiology was unknown in 60.6% of the cases. Etiological data were unavailable in 6.6% of the patients. The rate of antiepileptic drug (AED) use was 51.3%. While 6.2% of patients were on four or more AEDs, 10.7% were not receiving any medication. The most commonly used antiepileptic drug was levetiracetam, followed by valproic acid (Table 1).

Table 1. Demographic Characteristics of Patients and Clinical Features of the Epilepsy Type

Gender	n (%) / (n=492)*
Male	294 (59.8%)
Female	198 (40.2%)
Neurology Outpatient Clinic Visit in the Last 6 Months	**n (%) / (n=802)****
Yes (within last 6 months)	505 (63.0%)
No (within last 6 months)	297 (37.0%)
Seizure Frequency	**n (%) / (n=802)****
Everyday	49 (6.1%)
> 1 per Month	135 (16.8%)
Once per Month	148 (18.5%)
Once per 6 Months	94 (11.7%)
Once per Year	120(15.0%)
< 1 per Year	256 (31.9%)
Etiology of Epilepsy	**n (%) / (n=802)****
Structural	149 (18.6%)
Metabolic	42 (5.2%)
Genetic	41 (5.1%)
Infectious	26 (3.2%)
Immune	5 (0.6%)
Unknown	486 (60.6%)

Table 1 continued.

Data Unavailable	53 (6.7%)
Comorbid Condition	**n (%) / (n=802)****
Yes	273 (34.0%)
No	529 (66.0%)
Use of AEDs	**n (%) / (n=802)****
1 drug	410 (51.3%)
2 drugs	171(21.3%)
3 drugs	85 (10.5%)
More than 4 drugs	50 (6.2%)
No AED use	86 (10.7%)

* Number of Patients Presenting to the Positron Emission Tomography with a Diagnosis of Epilepsy
** Total Number of PED Visits with a Diagnosis of Epilepsy
AED: Antiepileptic Drug; PED: Pediatric Emergency Department

The majority of patients (77.1%) were brought to the pediatric emergency department by their families or caregivers without the use of emergency medical services, whereas 19.6% were brought in by ambulance, and 27 patients were transferred from other hospital departments. The most frequent time of presentation was between 12:00 and 18:00 (37.9%). Following triage assessment, 18.6% of patients were evaluated in the green zone, 79.9% in the yellow zone, and 12 patients required immediate intervention in the red zone of the pediatric emergency department. Overall, 65% of the patients had visited the emergency department more than once within a year. Among the 554 patients who presented due to seizures, 55.9% had one seizure-related visit per year, while 32.3% presented more than once annually for recurrent seizures. Additionally, 54.4% of the patients had no emergency department visits for reasons other than seizures. The most common reason for presentation to the pediatric emergency department was seizure (69.1%), followed by upper respiratory tract infection, lower respiratory tract infection, acute gastroenteritis, allergic reactions, and psychiatric causes. Approximately 45.1% of patients experiencing seizures presented to the emergency department within the first hour after the episode, and 12.8% had a recurrent seizure during their stay in the emergency department. Among patients presenting with seizures, the most frequent underlying cause was poor adherence to antiepileptic medication, particularly in those with drug-resistant epilepsy (Table 2).

Table 2. Causes of Seizures in Patients Presenting to the Pediatric Emergency Department

Cause of Seizure	n (%) / (n=554)*
Irregular Use of AEDs	140 (25.3%)
Drug-Resistant Epilepsy	118 (21.3%)
Infection	80 (14.4%)
Hypoglycemia	9(1.6%)
Trauma	6 (1.1%)
Intracranial Mass	6 (1.1%)
Ventriculoperitoneal Shunt Dysfunction	5 (0.9%)
Hypocalcemia	4 (0.8%)
Aspiration/Hypoxia	3 (0.5%)
Reflex Seizure (hot water)	3 (0.5%)
Substance Use	2 (0.4%)
Cerebrovascular Event	1 (0.2%)
Unknown	177 (31.9%)

*n=554, Emergency Visits Due to Seizures in the Pediatric Emergency Department

Among the patients brought to the pediatric emergency department due to seizures, 83.3% underwent laboratory investigations, and 38.2% received neuroimaging during their emergency evaluation (Table 3). Among the 554 patients who arrived with an active seizure or experienced a recurrent seizure in the emergency department, 161 received antiepileptic medication, with up to three drugs administered during a single visit. The most frequently used antiepileptic drug in the emergency department was levetiracetam (24.5%), followed by benzodiazepines (12%). Among the patients admitted to the pediatric emergency department, 21.2% were observed for less than one hour and 3.6% for more than 24 hours. When stratified by reason for admission, 20.2% of seizure-related visits and 24.1% of non-seizure-related visits were observed for less than one hour, while 3.8% and 3.1%, respectively, required observation for more than 24 hours. Overall, 32.5% of patients were hospitalized in pediatric wards and 5.1% were admitted to the pediatric intensive care unit (PICU). Among seizure-related visits, 33.6% resulted in ward admission and 5.6% required PICU care, while for non-seizure-related visits, 29.7% were admitted to the ward and 3.4% to the PICU.

Table 3. Neuroimaging and Laboratory Findings of the Patients

Neuroimaging	**n (%) / (n=802)***
Performed	306 (38.2%)
Not performed	496 (61.8%)
Laboratory Tests	**n (%) / (n=802)***
Performed	668 (83.3%)
Not performed	134 (16.7%)
Leukocyte Count	**n(%) / (n=668)****
Normal	599 (89.7%)
Abnormal	69 (10.3%)
C-Reaktif Protein	**n(%) / (n=668)****
Normal	613(91.8%)
Increased	55 (8.2%)
Liver Function Tests	**n(%) / (n=668)****
Normal	643 (96.3%)
Abnormal	25 (3.7%)
Blood gas analysis	n(%) / (n=668)**
Normal	657 (98.3%)
Abnormal	11 (1.7%)
Lumbar Puncture	**n(%) / (n=802)***
Performed	5 (0.6%)
Normal	5 (0.6%)
Anormal	0 (0%)
Not performed	797 (99.4%)
COVID-19 Test	**n(%) / (n=802)***
Performed	41 (5.1%)
Not performed	761 (94.9%)
Positive	23 (2.9%)
Negative	18 (2.2%)

*Total Number of Pediatric Emergency Department Visits with a Diagnosis of Epilepsy
** Patients Who Underwent Laboratory Testing in the Pediatric Emergency Department

DISCUSSION

This study provides a detailed overview of pediatric epilepsy-related visits to a tertiary emergency department over a two-year period. By excluding frequent attenders and focusing on distinct patient encounters, it offers a more representative picture of emergency needs in children with epilepsy. The findings demonstrate that the majority of visits were seizure-related, with generalized tonic-clonic seizures being the most common type. Additionally, a significant portion of cases involved medication non-adherence and febrile illnesses, underscoring preventable factors. These results emphasize the importance of tailored interventions to reduce avoidable emergency presentations and optimize the acute management of pediatric epilepsy. The primary goals of epilepsy treatment are to achieve early seizure control, prevent neuronal damage through complete seizure management, minimize the side effects of antiepileptic drugs, ensure normal growth and development, and improve the patient's quality of life. Accordingly, patients are regularly followed and treated at pediatric neurology and general pediatrics outpatient clinics. In addition to routine outpatient follow-up, these patients may also present to pediatric emergency departments for various reasons. Although the most common causes of emergency visits are seizure-related events—such as recurrent seizures, status epilepticus, or prolonged seizures—patients may also present due to injuries, intoxications, or infections. In our study, 69% of the patients presented with seizure-related complaints, while 31% sought care for non-seizure-related reasons. Although there are numerous studies investigating emergency department visits among adult patients with epilepsy, research focusing on pediatric epilepsy patients presenting to the emergency department is limited, with most existing studies concentrating primarily on febrile convulsions. Therefore, data on children with a known diagnosis of epilepsy presenting to pediatric emergency departments remain scarce in the literature (Bozali et al., 2021; Lekoubou et al., 2018; Öztürk et al., 2011). In a study conducted among adults presenting to the emergency department with seizures, 50.2% of the 862 patients were male, and 49.8% were female (Bozali et al., 2021). Similarly, Ünver et al. (2015) reported that 52.5% of pediatric patients were male. In our study, the male predominance was more pronounced, with 59.8% of patients being male and 40.2% female. This difference may reflect the higher prevalence of epilepsy among males during childhood. Furthermore, the male-to-female distribution in our cohort was statistically significant ($p < 0.05$), suggesting a meaningful gender-related pattern in pediatric epilepsy emergency visits. According to

the 2017 classification of the International (ILAE); epilepsies are categorized by etiology into genetic, structural, metabolic, infectious, immune, and unknown types (Scheffer et al., 2017). In a study conducted by Girot et al., it was reported that among 60,578 emergency department visits, 990 were seizure-related, and 580 of these involved patients with a known diagnosis of epilepsy. Among these patients, the etiology of epilepsy was structural/ metabolic in 268 (59.8%), genetic in 44 (9.8%), and undetermined in 136 (30.3%) cases (Girot et al., 2015). In a study by Ackermann et al., the etiologies of epilepsy were reported as structural in 23%, infectious in 11%, genetic in 10%, metabolic in 1%, and unknown in 54% of cases (Ackermann et al., 2019). In a study conducted in our country by Ünver et al., the etiology of epilepsy was identified as symptomatic (structural) in 47.1% of patients and genetic (idiopathic) in 16.7% (Ünver et al., 2015). In our cohort, the majority of epilepsy cases were classified as having an unknown etiology, while the remaining cases were distributed among structural, genetic, and metabolic categories. This high proportion of cases with undetermined cause may reflect limitations in access to advanced diagnostic tools such as genetic testing or metabolic panels in routine clinical settings, especially in emergency contexts. Previous studies have reported variable rates of unknown etiology depending on the healthcare infrastructure, diagnostic criteria, and study population. For instance, studies conducted in tertiary centers with access to comprehensive diagnostics often report lower rates of unknown etiology, highlighting the importance of early and thorough etiological work-up in pediatric epilepsy. These findings underscore the need for improved diagnostic pathways, particularly for children presenting through emergency services, where time and resource constraints may limit full etiological investigation. In our study, 34% of the patients presenting to the pediatric emergency department with a diagnosis of epilepsy had at least one comorbid condition. It was found that patients with comorbidities visited the emergency department more frequently compared to those without additional diseases. Consistent with our findings, Lekoubou et al. also reported that the presence of comorbidities may have a significant impact on the frequency of emergency department visits (Lekoubou et al., 2018). In the study conducted by Burrows et al., 48% of patients presenting to the emergency department with a diagnosis of epilepsy were receiving monotherapy (a single AED), while 18% were not receiving any treatment (Burrows et al., 2020). In a study conducted by Girot et al., 48.7% of patients presenting to the emergency department with a diagnosis of epilepsy were taking a single AED, 43.9% were using two or more AEDs, and 7.4% were not receiving any medication (Girot et al., 2015). In our study, 51.3% of the patients were receiving monotherapy, 6.2% were taking four or more AEDs, and 10.7% were not receiving any medication. In the study conducted by Noble et al., patients with a diagnosis of epilepsy most frequently presented to the emergency department due to seizures and postictal anxiety. This finding was attributed to insufficient knowledge and awareness regarding the management of epilepsy and seizures (Noble et al., 2012). In our study, the most common reason for presentation to the emergency department was seizures (554 visits, 69.1%). Other reasons for admission included upper and lower respiratory tract infections, acute gastroenteritis, allergic reactions, psychiatric causes, and various other conditions. One of the primary goals in the management of epilepsy is to prevent seizure recurrence (Ashrafi, M. R., & Heidari, M. (2018)). To achieve this, various AEDs are used in clinical practice. One of the most important causes of recurrent seizures is the discontinuation or irregular use of AEDs (Tang, X. H. et al., 2017). In our study, when evaluating the factors triggering seizures among patients presenting to the pediatric emergency department, the most common cause was irregular use of AEDs, accounting for 25.2% (140 visits). Similarly, in the study conducted by Bozali et al., 34.7% of epilepsy patients presenting to the emergency department with seizures were found not to be using their medications regularly (Bozali et al., 2021). In our study, neuroimaging was performed in 38.2% of emergency department visits made by patients with a diagnosis of epilepsy. In a study conducted in Mersin on patients presenting to the emergency department with seizures, cranial computed tomography (CT) scans were performed in 62.7% of cases to evaluate for possible injuries

(Bozali et al., 2021). In a study conducted by Huff et al., cranial CT scans were performed in 35% of patients presenting to the emergency department with seizures (Huff et al., 2001). In both our study and the study conducted at Mersin University Emergency Department on patients with epilepsy, the rates of neuroimaging were found to be higher than those reported by Huff et al. This difference may be attributed to the fact that healthcare services in emergency departments are covered by the government in our country, which may lead to a lower threshold for performing neuroimaging. Laboratory investigations were performed in 83.3% of all visits, and it was observed that blood tests were routinely ordered for every patient presenting with seizures. Similarly, in the study conducted by Huff et al., blood tests were obtained in 83% of patients presenting to the emergency department with seizures (Huff et al., 2001). Among the patients who underwent laboratory testing, C-reactive protein (CRP) levels were within the normal range in 91.7%, while an elevation in CRP was observed in 8.2% of cases. Similarly, in the study conducted by Bozali et al. on patients presenting to the emergency department with seizures, infection markers were found to be normal in 80.7% of the patients (Bozali et al., 2021). Among the patients who underwent laboratory testing, 96.2% had normal liver function test results, consistent with findings reported in the literature. Similarly, in the study conducted by Bozali et al. on patients presenting to the emergency department with seizures, liver function tests were normal in 93% of the cases (Bozali et al., 2021). In our study, 62.4% of the patients presenting to the emergency department were discharged home after the observation period, while 32.5% were admitted to pediatric wards and 5.1% were transferred to the pediatric intensive care unit. According to the study by Noble et al., (2012). hospitalizations due to epilepsy were most commonly initiated following an emergency department visit, and 40–60% of emergency admissions among patients with epilepsy resulted in inpatient hospitalization. The hospital admission rate in our study was similar to that reported by Noble et al., (2012). This study has several limitations that should be considered when interpreting the results. First, due to its retrospective design, the study relied on existing medical records, which may be subject to documentation errors or missing data. Although efforts were made to exclude cases with incomplete records, some clinical details, especially regarding seizure characteristics or medication adherence, might not have been fully captured. Second, the study was conducted at a single tertiary care center, which may limit the generalizability of the findings to other healthcare settings, particularly primary care or rural hospitals. Additionally, the classification of epilepsy etiology depended on previously documented diagnoses, and access to advanced diagnostic modalities such as genetic testing was not uniformly available, potentially contributing to the high proportion of cases with unknown etiology. Lastly, while the exclusion of frequent attenders helped reduce data clustering, it may have omitted important patterns related to recurrent emergency department use. Despite these limitations, the study provides valuable insights into the profile and acute care needs of pediatric patients with epilepsy in emergency settings. In conclusion, there is limited information in the literature regarding the epilepsy-related and non–epilepsy-related causes of emergency department visits among patients with epilepsy, as well as their management processes in emergency units. In our study, the characteristics of patients presenting to the pediatric emergency department with a diagnosis of epilepsy were evaluated. The most common reason for presentation was seizures, and the leading cause of seizures was irregular use of antiepileptic drugs. It was also determined that the presence of comorbid conditions was associated with an increased frequency of emergency department visits.

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