

ORIGINAL ARTICLE

Effects of the Covid-19 Pandemic on Forensic Cases in Children Covid-19 Pandemisinin Çocuk Adli Vakalar Üzerindeki Etkileri

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ABSTRACT

Objective: Forensic cases have an important place in admissions to pediatric emergency units. Along with the pandemic period, there have been changes in the frequency and characteristic of emergency services. In this study, it was aimed to investigate the effects of the pandemic on forensic cases in children.

Materials and Methods: The files of the patients admitted to Necmettin Erbakan University Meram Medical Faculty Pediatric Emergency Unit between March 2019 and March 2021 and defined as forensic cases were analyzed retrospectively from the hospital record database.

Results: 505 (48.4%) of the forensic cases were female and 538 (41.6%) were male. When the frequency of admission was evaluated according to the genders, no significant difference was found between the genders ($p>0.05$). The median age of all cases was 3 (0.4-17.85) years. Of the patients, 569 (54.5%) were admitted before the pandemic, and 473 (45.5%) after the pandemic. The diagnosis of foreign body in the nose was more common in boys, and the diagnosis of suicide attempt was more common in girls. It was determined that the cases were hospitalized more frequently during the pandemic period, the cases of foreign bodies in the gastrointestinal tract were less, and the cases of abuse were higher.

Conclusion: The social measurements experienced during the pandemic period, the closure of schools and workplaces have caused changes in the characteristics of forensic cases. More comprehensive studies are required to investigate the effect of the pandemic on forensic cases in children.

Keywords: Abuse; Child; Foreign body; Forensic cases.

ÖZ

Amaç: Adli vakalar çocuk acil ünitelerine başvurularda önemli bir yere sahiptir. Pandemi dönemiyle beraber acil servislere başvuru sıklığı ve vasıflarında değişiklikler olmuştur. Bu çalışmada pandemi sürecinin çocuklardaki adli vakalar üzerindeki etkilerinin araştırılması amaçlanmıştır.

Gereç ve Yöntem: Necmettin Erbakan Üniversitesi Meram Tıp Fakültesi Çocuk Acil Ünitesine Mart 2019- Mart 2021 tarihleri arasında başvuru adli vaka olarak tanımlanan hastaların dosyaları hastane bilgi yönetim sisteminden retrospektif yöntemle incelendi.

Bulgular: Adli vakaların 505 tanesi (%48.4) kız, 538 tanesi (%41.6) erkek cinsiyet idi. Cinsiyetlere göre başvuru sıklığı değerlendirildiğinde cinsiyetler arasında anlamlı farklılık saptanmadı ($p>0.05$). Tüm vakaların yaş ortancası 3 (0.4-17.85) yıl idi. Hastaların 652'si (%62.5) ayaktan, 391'i (%37.5) yatırılarak tedavi edilmişti. Hastaların 569'u (%54.5) pandemi öncesi, 473'ü (%45.5) pandemi sonrası tanı almıştı. Erkek çocuklarda burunda yabancı cisim, kız çocuklarda intihar girişimi tanısı daha sık görülmüştü. Pandemi döneminde vakaların daha sık hastaneye yatırıldığı, gastrointestinal sistemde yabancı cisim vakalarının daha az olduğu, istismar vakalarının daha çok olduğu saptandı.

Sonuç: Pandemi döneminde yaşanan sosyal kısıtlamalar, okul ve iş yerlerinin kapanması adli vakaların özelliklerinde değişimlere sebep olmuştur. Pandeminin çocuklardaki adli vakalara etkisinin araştırılması için daha kapsamlı çalışmalara ihtiyaç vardır.

Anahtar Kelimeler: Adli vaka, Çocuk, İstismar, Pandemi, Yabancı cisim

Introduction

A judicial case is defined as any event that causes the deterioration of health, injury or death of people as a result of intent, negligence, carelessness or carelessness. (1) Forensic cases mostly refer to the emergency services of hospitals. Traumas constitute most of the reasons for admission. In addition, cases such as poisonings, suicide attempts, and suspicions of abuse are also included in the forensic case definition.

Forensic cases are seen in children as well as adults. Even though trauma cases are less common than adults, domestic accidents, accidental poisoning, suspicion of abuse, foreign body aspiration and ingestion constitute an important part of forensic cases in childhood (1-3). Most of the clinical conditions mentioned are preventable. For this reason, examining forensic cases, determining their frequency and

distribution are guidelines in terms of monitoring and improving child health.

It has been reported that with the onset of the pandemic, the time spent at home increased due to the implementation of social restriction measures and the closure of schools/workplaces (4,5). Among the social effects of the pandemic are changes in forensic case characteristics. In this study, it was aimed to evaluate the characteristics of the forensic cases admitted to the pediatric emergency unit of our university before and after the pandemic.

Materials and Methods

The files of patients admitted to Necmettin Erbakan University Meram Medical Faculty Pediatric

Emergency Unit between March 2019 and March 2021 and defined as forensic cases were scanned retrospectively from the hospital record database. The demographic information of the patients, the events leading to the forensic case, and the hospitalization status of the patients were recorded. Patients with missing data were not included in the study. In addition, trauma cases were not included in the study because trauma patients were not followed up in our pediatric emergency unit. Diagnoses were classified as intoxication, foreign body aspiration, foreign body ingestion, foreign body in the body, abuse, suicide attempt, and deadly penetration. The patients were divided into two groups as pre-pandemic and post-pandemic, based on March 11, 2020, which is the date declared as a pandemic in our country.

Statistical analysis of the study Statistical Package for the Social Sciences for Windows version. It was done using 25.0 package program. Descriptive analyzes were used to analyze the distribution and frequency of the data, and Chi-Square tests were used to compare two independent groups. Normally distributed data (mean standard deviation) and non-normally distributed data were expressed as median (minimum-maximum value). The level of significance was accepted as $p < 0.05$ in all statistical analyzes.

This study was carried out with the permission of Necmettin Erbakan University Ethics Committee (2021/3196).

Results

It was seen that 1043 of the 60885 patients who applied to the Pediatric Emergency Unit between March 2019 and March 2021 were forensic cases. Of the forensic cases, 505 (48.4%) were female and 538 (41.6%) were male. When the frequency of admission was evaluated according to the genders, no significant difference was found between the genders ($p > 0.05$). The median age of all cases was 3 (0.4-17.85) years. The median age in girls was 3 (0.4-17.85) years, and the median age in boys was 2.9 (0.2-17.6) years. The median age of girls was significantly lower than boys ($p = 0.031$). Of the patients, 652 (62.5%) were treated as outpatients and 391 (37.5%) were treated as inpatients. Of the patients, 569 (54.5%) were diagnosed before the pandemic, and 473 (45.5%) after the pandemic. Forensic cases constituted 1.2% of total cases before the pandemic and 3% after the pandemic. The distribution of the diagnoses of the patients is given in Table 1.

When the diagnostic groups were evaluated according to gender, it was found that suicide attempt was significantly higher in girls than boys ($p < 0.01$). Diagnostic distributions by gender are given in Table 2.

When the hospitalization status was evaluated according to the pandemic onset date, it was found that the number of forensic cases followed up after the pandemic was significantly lower than before the pandemic ($p < 0.01$).

Table 1. Distribution of Patient Diagnoses

Diagnoses	n	%
Foreign body in the nose	232	20.8
Death out of hospital	11	1
Foreign body in the eye	11	1
Foreign body ingestion	201	18
Foreign body in the ear	38	3.4
Insect bite	5	0.4
Foreign body aspiration	145	13
Intoxication	342	30.6
Asphyxia	1	0.1
Abuse	16	1.4
Suicide	41	3.7

Table 2. Diagnosis Distributions by Gender

Parameters	Female	Male	p value
Foreign body in the nose			
Positive (n, %)	125 (%24.7)	106 (%19.7)	0.05
Negative (n, %)	380 (%75.3)	432 (%80.3)	
Death out of hospital			
Positive (n, %)	10 (%1.9)	1 (%0.1)	0.005
Negative (n, %)	495 (%98.1)	537 (%99.9)	
Foreign body in the eye			
Positive (n, %)	4 (%0.7)	7 (%1.3)	0.421
Negative (n, %)	501 (%99.3)	531 (%98.7)	
Foreign body ingestion			
Positive (n, %)	90 (%17.8)	111 (%20.6)	0.25
Negative (n, %)	415 (%82.2)	427 (%79.4)	
Foreign body in the ear			
Positive (n, %)	19 (%3.7)	19 (%3.5)	0.842
Negative (n, %)	486 (%96.3)	519 (%96.5)	
Insect bite			
Positive (n, %)	2 (%0.3)	3 (%0.5)	0.706
Negative (n, %)	503 (%99.7)	535 (%99.5)	
Foreign body aspiration			
Positive (n, %)	64 (%12.6)	81 (%15)	0.266
Negative (n, %)	441 (%87.4)	457 (%85)	
Intoxication			
Positive (n, %)	169 (%33.4)	195 (%36.2)	0.347
Negative (n, %)	336 (%66.6)	343 (%63.8)	
Asphyxia			
Positive (n, %)	0 (%0)	1 (%0.1)	0.332
Negative (n, %)	505 (%100)	537 (%99.9)	
Abuse			
Positive (n, %)	6 (%1.1)	10 (%1.8)	0.379
Negative (n, %)	499 (%98.9)	528 (%98.2)	
Suicide			
Positive (n, %)	35 (%6.9)	6 (%1.1)	<0.001
Negative (n, %)	470 (%93.1)	532 (%98.9)	

Table 3. Diagnosis Distributions by Pandemic Start Date

Parameters	Before Pandemic	After Pandemic	p value
Foreign body in the nose			
Positive (n, %)	123 (%21.6)	108 (%22.8)	0.651
Negative (n, %)	443 (%78.4)	369 (%77.2)	
Death out of hospital			
Positive (n, %)	6 (%1.1)	5 (%1.1)	0.615
Negative (n, %)	563 (%98.9)	469 (%98.9)	
Foreign body in the eye			
Positive (n, %)	7 (%1.2)	4 (%0.8)	0.761
Negative (n, %)	563 (%98.8)	470 (%99.2)	
Foreign body ingestion			
Positive (n, %)	124 (%21.8)	77 (%16.2)	0.024
Negative (n, %)	445 (%78.2)	397 (%83.8)	
Foreign body in the ear			
Positive (n, %)	18 (%3.2)	20 (%4.2)	0.365
Negative (n, %)	551 (%96.8)	454 (%95.8)	
Insect bite			
Positive (n, %)	2 (%0.4)	3 (%0.6)	0.512
Negative (n, %)	567 (%99.6)	471 (%99.4)	
Foreign body aspiration			
Positive (n, %)	78 (%13.7)	67 (%14.1)	0.843
Negative (n, %)	491 (%86.3)	407 (%85.9)	
Intoxication			
Positive (n, %)	206 (%36.2)	177 (%37.3)	0.704
Negative (n, %)	363 (%63.8)	297 (%62.7)	
Asphyxia			
Positive (n, %)	1 (%0.2)	0 (%0)	0.361
Negative (n, %)	568 (%99.8)	474 (%100)	
Abuse			
Positive (n, %)	3 (%0.5)	13 (%2.7)	0.004
Negative (n, %)	566 (%99.5)	461 (%97.3)	
Suicide			
Positive (n, %)	20 (%3.5)	21 (%4.4)	0.449
Negative (n, %)	549 (%96.5)	453 (%95.6)	

When the diagnostic groups were evaluated according to the onset date of the pandemic, it was found that the patients with a foreign body diagnosis in the gastrointestinal tract were significantly higher before the pandemic than after the pandemic ($p=0.024$) while the number of patients with a diagnosis

of abuse was significantly higher after the pandemic ($p=0.004$). It was observed that 7 (53.8%) of the abused patients applied during the period of social restrictions due to the pandemic. Diagnostic groups according to the onset date of the pandemic are given in Table 3.

Table 4. Diagnostic Groups According to Hospitalization Status

Parameters	Outpatient	Inpatient	p value
Gender			
Female (n, %)	293 (%51.5)	212 (%44.7)	0.029
Male (n, %)	276 (%48.5)	262 (%55.3)	
Foreign body in the nose			
Positive (n, %)	229 (%35.1)	2 (%.5)	<0.001
Negative (n, %)	423 (%74.9)	389 (%99.5)	
Foreign body in the eye			
Positive (n, %)	11 (%1.7)	0 (%0)	0.01
Negative (n, %)	641 (%98.3)	391 (%100)	
Foreign body ingestion			
Positive (n, %)	170 (%26.1)	31 (%7.9)	<0.001
Negative (n, %)	482 (%73.9)	360 (%92.1)	
Foreign body in the ear			
Positive (n, %)	38 (%5.8)	0 (%0)	<0.001
Negative (n, %)	614 (%94.2)	391 (%100)	
Insect bite			
Positive (n, %)	1 (%0.2)	4 (%1)	0.069
Negative (n, %)	651 (%99.8)	387 (%99)	
Foreign body aspiration			
Positive (n, %)	92 (%14.1)	53 (%13.6)	0.802
Negative (n, %)	560 (%85.9)	338 (%86.4)	
Intoxication			
Positive (n, %)	95 (%14.6)	288 (%73.7)	<0.001
Negative (n, %)	557 (%85.4)	103 (%26.3)	
Asphyxia			
Positive (n, %)	0 (%0)	1 (%0.3)	0.196
Negative (n, %)	652 (%100)	390 (%99.7)	
Abuse			
Positive (n, %)	10 (%1.5)	6 (%1.5)	0.99
Negative (n, %)	642 (%98.5)	385 (%98.5)	
Suicide			
Positive (n, %)	1 (%0.1)	40 (%10)	<0.001
Negative (n, %)	651 (%99.9)	351 (%90)	

When the diagnoses were evaluated according to the hospitalization status of the patients, it was found that patients with a diagnosis of foreign body in the gastrointestinal tract and intoxication cases were followed up with a significantly higher rate of hospitalization ($p<0.001$). It was determined that patients with a diagnosis of foreign body in the nose and eye were followed up with a significantly lower rate of hospitalization ($p<0.05$). Diagnostic groups according to hospitalization status are given in Table 4.

Discussion

Forensic cases occupy an important place in admissions to emergency services (1). It has been reported that the number of applications to emergency services decreased with the pandemic process (6,7). However, there are few studies in the literature on the characteristics of forensic cases admitted to pediatric emergency services during the pandemic period. The aim of this study is to examine the features of forensic case applications before and after the pandemic.

In our study, the median age of forensic cases was determined as 3 years. The mean age of forensic cases was 5.8 (1) in the study of Yazar et al., 8.7 (8) in the study of Özdemir et al., 8.9 (9) in the study of Sever et al., 7.6 (10) in the study of Akça et al., 7.4 in the study of Esen et al. (11). The reason for the lower median age in our study compared to other studies may be related to the fact that trauma cases were not followed up in our center. Foreign body and intoxication cases in the nose comprised 70% of our study group. Especially the incidence of accidental poisoning and foreign body in the nose at young ages may have caused the median age in our study to be lower than in other studies.

In our study, no significant difference was found between the genders in terms of forensic case application. In many studies, it has been reported that forensic cases are more common in boys than girls (9,12,13). According to the data of the American Center for Disease Control and Prevention (CDC), non-fatal traumas are more common in boys than girls (14). The fact that forensic cases did not differ between genders in our study may be related to the fact that trauma patients were not followed up in our center.

In our study, when forensic case types were evaluated according to gender, suicide attempts were more frequent in girls than boys. There are studies in the literature showing that the frequency of suicide is higher in girls (10,15,16). The results of our study are compatible with the literature in this respect.

In our study, the number of outpatient forensic cases was lower after the pandemic than before the pandemic. Along with the pandemic, there has been a significant decrease in the number of applications to hospitals due to both social restrictions and the concern of SARS CoV-2 virus transmission from the hospital (7). The reason for the lower number of outpatient forensic cases after the pandemic may be attributed to the

fact that cases without severe and serious disease are admitted to the hospital less frequently. Despite all the restrictions and concerns, the fact that the cases with serious health problems requiring admission to the hospital were admitted to the hospital more and a significant portion of them were hospitalized may have led to this result.

In our study, it was found that forensic cases with a diagnosis of foreign body in the gastrointestinal tract at the onset of the pandemic were seen less frequently after the pandemic than before the pandemic. The social restrictions caused by the pandemic and the closure of schools and workplaces increased the time people spend at home (4,5). The decrease in foreign body ingestion of children during the pandemic period may be related to the increase in parental supervision at home. The increase in the time spent with parents at home may have brought about a decrease in domestic accidents by increasing the attention on children. In our study, it was determined that abuse cases were more common after the pandemic. It has been reported that factors such as curfews and social and economic negativities during the pandemic process increase conflicts in the home (17). There are studies in the literature reporting that cases of abuse in children increase during the pandemic process (18,19). On the other hand, it has been reported that cases of abuse that existed due to restrictions during the pandemic period applied to the hospital less frequently (20, 21). The negative psychosocial effects of the pandemic on society may have led to more cases of child abuse. In our study, it is seen that there were a total of 13 abuse cases during the one-year period evaluated within the scope of the pandemic period. As reported in the literature, if the frequency of admission to hospital of abuse cases decreased during the pandemic period, more abuse incidents and cases than our current findings may have occurred in this period. So, the number of abuse cases may be less than it is.

Our study has some limitations. Among the limitations are the retrospective and single-centered study, the absence of trauma cases in the study group.

In conclusion, in our study, it was determined that the median age of forensic cases admitted to our hospital was 3 years, and suicide attempts were more common in girls. Along with the pandemic process, it was determined that forensic cases were followed up more frequently by hospitalization, gastrointestinal foreign body cases were less frequent after the pandemic, and abuse cases were more frequent after the pandemic. More randomized controlled studies are needed to examine the effect of the pandemic process on forensic cases in children.

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