ORIGINAL ARTICLE

Prevalence and risk factors of attention deficit hyperactivity disorder in children admitted to the emergency department due to traumas

Ramiz Yazici,[1] Hüseyin Mutlu,[2] Cengizhan Kilicaslan,[3] Ekrem Taha Sert,[2] Kamil Kokulu,[2] Halil Kara,[4] Murat Kilicaslan,[3] Mustafa Ekici,[5] Bensu Bulut[6]

[1]Department of Emergency Medicine,Kanuni Sultan Süleyman Training And Research Hospital Istanbul-*Türkiye*
[2]Department of Emergency Medicine, Aksaray University Medical School, Aksaray-*Türkiye*
[3]Department of Pediatrics Aksaray University Medical School, Aksaray-*Türkiye*
[4]Department of Child and adolescent psychiatry clinic, Aksaray-*Türkiye*
[5]Department of Emergency Medicine, Aydin Ataturk State Hospital, Aydin-*Türkiye*
[6]Department of Emergency Medicine Yenimahalle Training And Research Hospital, Ankara-*Türkiye*

ABSTRACT

BACKGROUND: This study aims to determine the prevalence of Attention Deficit Hyperactivity Disorder (ADHD) symptoms and the associated risk factors in children admitted to the Emergency Department (ED) due to traumas.

METHODS: EChildren aged 3-16 years admitted to the ED for traumas were included in the study. The control group consisted of children aged between 3-16, who visited the pediatric ED for non-traumatic reasons. The Revised Conners Parent Rating Scale (CPRS-R) was administered to parents who agreed to participate following initial intervention and stabilization. Trauma patients were divided into two groups: those diagnosed with ADHD and those without ADHD. Risk factors likely to increase the identification of ADHD were assessed.

RESULTS: The study included 917 children, with both groups showing similar characteristics regarding age, sex, demographic, and cultural factors. The most common reason for ED visits was extremity traumas, accounting for 296 (35.2%) cases. The majority of trauma patients (95.9%) were discharged from the ED after outpatient interventions. All subscale scores of the CPRS-R, except for the social problems subscale, were significantly higher in the study group compared to the control group. Factors that increased the risk of ADHD included admission with extremity traumas ($p<0.001$), previous ED admissions due to traumas ($p<0.001$), and having a family member previously diagnosed with ADHD ($p<0.001$).

CONCLUSION: The prevalence of ADHD symptoms may be higher in children admitted to the ED due to traumas. Furthermore, extremity traumas, previous trauma-related ED-admissions, and a family history of ADHD increase the risk of ADHD.

Keywords: attention deficit hyperactivity disorder; emergency department; risk factor; trauma.

INTRODUCTION

Regardless of health, economic, and social conditions, traumas are one of the leading causes of hospitalization, disability, and deaths among children worldwide.[1,2] Especially in developed countries where health issues are well-managed, unintentional injuries are among the leading causes of disability in children and account for approximately 40% of deaths between the

Cite this article as: Yazici R, Mutlu H, Kilicaslan C, Sert ET, Kokulu K, Kara H, et al. Prevalence and risk factors of attention deficit hyperactivity disorder in children admitted to the emergency department due to traumas. Ulus Travma Acil Cerrahi Derg 2024;30:664-670.

Address for correspondence: Hüseyin Mutlu
Aksaray University Medical School, Aksaray, Türkiye
E-mail: hmutlu70@hotmail.com

Ulus Travma Acil Cerrahi Derg 2024;30(9):664-670 DOI: 10.14744/tjtes.2024.07834
Submitted: 15.05.2024 Revised: 25.07.2024 Accepted: 26.07.2024 Published: 02.09.2024

ages of 1 and 14.[3] Efforts to reduce traumas include implementing preventive measures in the social life areas of children and providing the public with training courses.[3-6] Attention Deficit Hyperactivity Disorder (ADHD) is the most commonly encountered neuropsychiatric disorder in children,[7,8] and the prevalence of ADHD is between 5% and 9.4%.[9-13] ADHD is characterized by symptoms of inattention, hyperactivity, and impulsivity that commence in the early developmental period but are inappropriate for the child's age and development.[14] With the addition of a high level of physical activity to impulsivity and inattention, the risks of falling and other accidents become inevitable.[14-16] Additionally, children with ADHD often act without thinking or paying attention to their activities, and because of these characteristics, they are exposed to unintentional injuries and traumas even more frequently than the general population.[15-18] Many studies have reported that children with ADHD are exposed to more frequent and serious injuries than those without ADHD and therefore require more frequent hospitalization.[16-20] However, these studies were designed to evaluate the frequency of trauma mostly in children diagnosed with ADHD, not in all children who have experienced trauma. Moreover, there is a lack of prospective studies evaluating larger populations in the literature. In our study, we assumed that the incidence of ADHD symptoms in children admitted to the Emergency Department (ED) due to traumas would be higher than in healthy children. Therefore, we designed our study to identify risk factors that are likely to increase the detection of ADHD in patients admitted to the ED due to traumas.

MATERIALS AND METHODS

Study Description and Design

Our study is a prospective case-control design and was conducted in a tertiary care emergency department where an average of 2,000 trauma patients (60% pediatric age group) were admitted monthly between January 1, 2019 and December 31, 2021. Our study was approved by the local clinical research ethics committee of Aksaray University (Registration no: 2019/10-22). Children aged 3-16 years who were admitted to the emergency department trauma unit for any reason were included in the study. The control group consisted of pediatric patients with similar age and sociocultural characteristics who were admitted to the pediatric emergency department of a tertiary health institution for non-traumatic reasons. Patients in both groups underwent physical examinations and necessary medical interventions. After the general condition of the patients was stabilized, the Revised Conners Parent Rating Scale (CPRS-R) was applied to the parents who agreed to participate in the study, and data such as age, gender, and educational level of the parents were recorded. CPRS-R scale results were evaluated by a child psychiatrist, and patients were invited to the hospital for a face-to-face interview to confirm the diagnosis of ADHD. Patients' medical history, past and current psychiatric disorders, other illnesses, and reasons for presenting to the emergency room were also recorded. Children exposed to traumatic injury were divided into two groups: those with ADHD and those without. Trauma mechanisms were categorized as follows: fall from a height of more than one meter, fall from a height of less than one meter, mild head injuries, extremity trauma, sharp object injuries, eye injuries, animal bites/stings, and others. Glasgow Coma Scale (GCS) and Pediatric Trauma Score (PTS) values were also determined and recorded in the ED. Children previously diagnosed with ADHD or behavioral disorders, those hospitalized for burns and traffic accidents, and those younger than 3 years or older than 16 years were excluded from the study.

The Revised Conners' Parent Rating Scale

The CPRS-R, often used to assess ADHD, is a parental scale consisting of 80 items presented under 14 subscales. Parents rated each item on the CPRS-R based on their child's behavior over the past month as follows: "Never true" (0 points), "Somewhat true" (1 point), "Definitely true" (2 points), or "Absolutely true" (3 points). Through the scoring system, the total score of each subscale was calculated and the test was terminated. The subscales assessed in our study are as follows: cognitive problems/inattention (CG/I), hyperactivity (H), Conners' Global Index-discomfort-impulsivity (CGI-DI), attention deficit hyperactivity disorder index (AD/HD-I), Diagnostic and Statistical Manual of Mental Disorders-Fourth Edition (DSM-IV), DSM-IV-symptom subscale-inattention (DSM-IV-SS-I), DSM-IV-symptom subscale-hyperactivity-impulsivity (DSM-IV-SS-HI), DSM-IV-symptom subscale-total score (DSM-IV-SS-T), anxiety-shyness, social problems, perfectionism, and psychosomatics.[21]

Statistical Analysis

Statistical analyses were performed using the Statistical Package for the Social Sciences for Windows, version 22.0 (SPSS, IBM Corp., Chicago, IL, USA). The Kolmogorov-Smirnov test was used to determine whether the variables were normally distributed. In the analysis of descriptive statistics, median values (minimum and maximum) were calculated for non-normally distributed variables, and mean ± standard deviation (SD) values were obtained for normally distributed variables. The distribution of categorical variables was shown as number (n) and percentage (%). The Chi-square test, Student's t-test, and Mann-Whitney U test were used for intergroup comparisons. Univariate and multivariate logistic regression analyses were performed to reveal the relationship between clinical variables and ADHD. Odds ratio (OR) and 95% confidence interval (CI) values were also determined. Receiver operating characteristic (ROC) analysis was used to calculate sensitivity and specificity. Area under the curve (AUC) values were also calculated. Delong's test was used to compare AUC values. A p-value <0.05 was considered statistically significant for multivariate logistic regression analysis and other tests. It was estimated that 10% of the children hospitalized in the emergency department trauma unit had ADHD, and

the number of participants to be included in the study was calculated as 865 patients with a marginal error rate of 2% and a 95% CI. For this reason, the dropout rate was chosen as 5% and therefore, it was deemed appropriate to include 908 patients in our study.

RESULTS

We included children between the ages of 3 and 16 who were admitted to the ED trauma unit for any reason. While 428 (46.7%) patients in the study group were females, the mean age was 5.93±4.06 years in this group. The control group consisted of 900 children with a mean age of 6.12±4.18 years, and 47% of them were females. No statistically significant difference was detected between the two groups in terms of age and sex (Table 1). Maternal educational status was observed to be higher in the study group than in the control group. Nevertheless, there was no statistically significant difference between both groups in terms of parental educational status. Except for the social problems subscale scores, there were statistically significant differences between the study group and the control group in all calculated subscale scores of the CPRS-R (Table 1). While the GCS score was 15 in 92.7% of trauma cases, the PTS was also above 8 in 95.6%. Most of the trauma patients (95.9%) were discharged from ED after the outpatient intervention, and the most common complaint of admission to ED was extremity traumas with a rate of 35.2%.

The cases in the study group were then divided into two groups: 76 (8.2%) cases as ADHD+ and 841 (91.8%) as ADHD−. In patients with ADHD, a statistical difference was found in the following criteria: Admission due to extremity traumas (p≤0.001), lower maternal educational level (p=0.021), lower scores of GCS and PTS (p=0.042 and

Table 1. Comparison of demographic characteristics and subscale scores of Conners' parent rating scales-revised between study and control groups

Variables	Study Group (n=917)	Control Group (n=900)	p-value
Age (years)	5.93±4.06	6.12±4.18	0.79
Female			
Maternal Education Level	428 (46.8)	423 (47)	0.31
Primary	538 (58.6)	550 (61.1)	0.053
High School	136 (14.8)	137 (15.2)	0.298
College	243 (26.6)	213 (23.7)	<0.0001
Paternal Education Level			
Primary	266 (29)	273 (30.3)	0.064
High School	300 (32.7)	309 (34.3)	0.348
College	351 (38.2)	318 (35.4)	0.014
Familial ADHD History	84 (9.1)	24 (2.7)	<0.0001
Symptom Subscale Scores			
Hyperactivity	8.71	4.46	<0.0001
CP/I	6.95	4.52	<0.0001
ADHD-I	8.74	5.03	0.009
CGI-DI	6.64	3.29	<0.0001
DSM-IV-SS-I	5.99	3.31	<0.0001
DSM-IV-SS-HI	8.96	5.02	<0.0001
DSM-IV-SS-T	15.36	7.85	<0.0001
SS-TS	61.65	33.65	<0.0001
Psychosomatic	5.32	3.64	<0.0001
Social Problems	8.31	5.97	0.0673
Anxiety-Shyness	24.6	18.9	<0.0001
Perfectionism	9.24	5.68	<0.0001

ADHD-I: Attention Deficit Hyperactivity Disorder Index; CGI-DI: Conners' Global Index-Discomfort-Impulsivity; CP/I: Cognitive Problems/Inattention; CPRS-R: Conners' Parent Rating Scales-Revised; DSM-IV: Diagnostic and Statistical Manual of Mental Disorders-Fourth Edition; DSM-IV-SS-HI: DSM-IV Symptom Subscales-Hyperactivity-Impulsivity; DSM-IV-SS-I: DSM-IV Symptom Subscales-Inattention; DSM-IV-SS-T: DSM-IV Symptom Subscales-Total; SS-TS: Subscales Total Score.

Table 2. Comparison of factors in determining patients with and without attention deficit hyperactivity disorder presenting to the emergency department due to traumas

	All Trauma Cases (n=917)	Traumas (ADHD+) (n=76)	Traumas (ADHD−) (n=841)	p-value
Age (years)	6.12±4.18	6.08±4.06	6.14±4.21	0.139
Female	428 (46.8)	35 (46.1)	393 (47.2)	0.063
GCS	12.87±3.36	12.68±3.06	13.02±2.98	0.042*
PTS	9.05±1.95	8.55±2.34	9.27±1.89	<0.001*
Maternal Education Level				
Primary School	538 (58.6)	41 (54)	497 (59.1)	0.056
High School	136 (14.8)	10 (13.2)	125 (14.7)	0.298
University	243 (26.6)	24 (32.8)	219 (26.2)	<0.021*
Paternal Education Level				
Primary	266 (29)	23 (30.3)	243 (28.9)	0.064
High School	300 (32.7)	24 (31.6)	276 (32.8)	0.078
College	351 (38.2)	29 (38.1)	322 (38.3)	0.424
Familial ADHD History	84 (9.2)	21 (27.7)	63 (7.5)	<0.001*
Trauma Mechanism				
Fall >1 m	27 2.9)	3 (3.9)	24 (2.6)	0.053
Fall <1 m	286 (31.2)	25 (32.9)	261 (31.1)	0.218
Minor Head Traumas	153 (16.7)	19 (25.0)	134 (15.9)	<0.001*
Extremity Traumas	296 (35.2)	23 (30.2)	183 (21.7)	<0.001*
Sharp Object Injuries	45 (4.9)	4 (5.2)	41 (4.8)	0.164
Ocular Traumas	28 (3)	3 (3.9)	25(2.9)	0.058
Animal Bites/Stings	14 (1.5)	1 (1.3)	13 (1.5)	0.064
Other Causes	89 (10.9)	9 (11.8)	80 (9.5)	0.087
Previous Trauma-Related ED Visit	109 (11.9)	18 (23.7)	91 (10.8)	<0.001*
Outcomes				
Discharge from ED	879 (95.9)	72 (94.8)	807 (96)	0.298
Admitted to Clinic	37 (4.1)	4 (5.1)	33 (4)	0.091
Exitus	1	-	1	

Data are presented as mean±standard deviation (SD), median and 25th-75th percentiles, or n (%). *p-value <0.05. ADHD: Attention Deficit Hyperactivity Disorder; ED: Emergency Department; GCS: Glasgow Coma Scale; PTS: Pediatric Trauma Score.

Table 3. Predictors of attention deficit hyperactivity disorder determined by univariate and multivariate logistic regression analyses

Variables	Univariate Logistic Regression		Multivariate Logistic Regression	
	OR (95% CI)	p-value	OR (95% CI)	p-value
GCS	1.72 (1.05-3.16)	0.042	1.32 (0.67-3.84)	0.116
PTS	2.24 (1.14-4.28)	<0.001	1.78 (0.94-3.44)	0.082
Maternal Higher Education	1.85 (1.06-2.91)	0.021	1.38 (1.28-5.96)	0.197
Familial ADHD History	2.52 (1.46-3.97)	<0.001	2.32 (1.38-4.56)	<0.001*
Minor Head Traumas	1.96 (1.18-4.28)	<0.001	1.93 (1.67-4.95)	0.065
Extremity Traumas	2.43 (1.49-3.46)	<0.001	2.26 (1.75-3.53)	<0.001*
Previous Trauma-related ED Visit	2.76 (1.58-4.28)	<0.001	2.49 (1.67-4.95)	<0.001*

ADHD: Attention Deficit Hyperactivity Disorder; CI: Confidence Interval; ED: Emergency Department; GCS: Glasgow Coma Scale; OR: Odds Ratio; PTS: Pediatric Trauma Score. *p-value <0.05.

Table 4. Area under the receiver operating characteristic (ROC) curve analysis for Attention Deficit Hyperactivity Disorder

	Familial ADHD History	Extremity Traumas	Previous Trauma-related ED Visit
AUC (95% CI)	0.719 (0.678-0.754)	0.702 (0.662-0.744)	0.758 (0.732-0.818)
Sensitivity (95% CI)	65.3 (60.3-73.1)	66.3 (60.3-74.9)	72.6 (70.4-87.9)
Specificity (95% CI)	57.2 (35.9-71.9)	62.2 (35.9-74.9)	64.7 (51.5-80.9)
+LR (95% CI)	2.03 (1.4-5.4)	2.12 (1.2-3.4)	2.35 (1.5-4.1)
-LR (95% CI)	0.57 (0.4-0.7)	0.52 (0.4-0.8)	0.43 (0.3-0.6)
PPV (95% CI)	70.2 (65.2-87.1)	83.0 (74.2-91.5)	87.9 (75.1-92.3)
NPV (95% CI)	50.4 (32.3-58.9)	50.4 (38.3-60.9)	58.3 (45.2-76.0)
p-value	0.026	0.004	<0.001

ADHD: Attention Deficit Hyperactivity Disorder; ED: Emergency Department; ROC: Receiver Operating Characteristic; AUC: Area Under the Curve; CI: Confidence Interval; +LR: Positive Likelihood Ratio; -LR: Negative Likelihood Ratio; PPV: Positive Predictive Value; NPV: Negative Predictive Value; CI: Confidence Interval.

p≤0.001), having a family member with a history of ADHD (p≤0.001), and admission to ED due to a previous trauma (p≤0.001) (Table 2).

The statistically significant parameters found in trauma patients were included in the regression model. Variables identified as significant in the univariate logistic regression analysis were included in the multivariate logistic regression model. In the multivariate logistic regression analysis, the existence of extremity traumas (OR=2.26, 95% CI=1.75-3.53, p<0.001), admission to the ED due to a previous trauma (OR=2.49, 95% CI=1.75-3.53, p<0.001), and having a family member with the history of ADHD (OR=2.32, 95% CI=1.58-4.56, p<0.001) were found to be independent predictors for ADHD (Table 3).

We performed ROC analysis to determine the predictive power of the presence of extremity traumas, previous ED visits due to trauma, and family history of ADHD. The previous presentation to the ED due to trauma (AUC: 0.758) had higher predictive power for ADHD than extremity traumas (AUC: 0.702) and a family history of ADHD (AUC: 0.716) (Table 4). We found that a previous visit to ED due to trauma predicted ADHD with 72.6% sensitivity and 64.7% specificity.

DISCUSSION

All subscale and total scores of the CPRS-R, except the social problems subscale scores, filled out by the parents of children who applied to the ED due to trauma, were significantly higher in the study group than in the control group. Factors such as the existence of extremity traumas, having a familial history of ADHD, and admission to ED due to previous traumas were also found to be predictive markers for the diagnosis of ADHD in children admitted to the trauma unit. Based on the aforementioned data, it was confirmed that traumatized children are likely to have ADHD. Therefore, our study is one of the rare and interesting studies due to the inclusion of prospective trauma cases and larger populations.

Ertan et al. reported a prevalence of 3.6% in a study of 108 pediatric trauma patients. Since we found a prevalence of 4.1% in our study, we support this finding.[11] ADHD is an important psychiatric challenge of childhood, affecting 3-13% of all children in Europe and the USA, and the frequency of ADHD tends to decrease with age.[2,3] ADHD is a condition that impairs quality of life during both childhood and adulthood if left undiagnosed and therefore untreated.[3-6] Considering the literature, the risk of traumatic injury in patients diagnosed with ADHD has been evaluated in many studies. Rowe et al. found that the risks of burns, poisoning, head trauma, and fractures doubled in patients with ADHD.[4-7] Several studies including similar findings also reveal that ADHD increases the risk of injury.[9-11] In another study performed by Chien et al., overall injuries were reported to increase by 43% in patients with ADHD.[12] Similarly, in the present study, the incidence of ADHD was found to be high in children presenting with trauma.

Previous studies evaluating gender differences in children with ADHD reported that ADHD was mostly observed in males at the rate of 56-72%.[8-16] Inanc et al. also reported that boys were exposed to accidents and injuries more frequently than girls.[14] Similarly, in our study, traumas and ADHD were more common in males (53.9%). In studies conducted so far, most of the cases admitted to the ED consist of minor traumas with a GCS greater than 13 and a PTS greater than 8.[3,6,10-12] While falling was the most common trauma mechanism in ADHD patients in the study by Maxon et al., the upper or lower extremity traumas from injuries and sprains to fractures and amputations were stated as the most common trauma mechanisms in the study by Rucklidge et al.[10,15] Similarly, Ozer et al.[16] found that ADHD was the most common psychiatric disorder in children with hand fractures. In this study, while most of the cases were minor traumas (95.9%), the most common type of presentation to the ED was extremity trauma (35.2%). We also found that pediat-

ric trauma patients with extremity trauma were more likely to have ADHD and confirmed this by univariate or multivariate analysis (AUC at 95% CI: 0.702). In our study, we found that trauma-related visits to the ED in trauma patients diagnosed with ADHD were more frequent than those of trauma patients without ADHD. In the study by Ertan et al., the subscale scores of the CPRS-R were significantly higher in patients frequently visiting the ED due to traumas.[11] In a survey performed by Pastor and Reuben with children diagnosed with ADHD, the patients were found to have many histories of traumatic events.[17] Also, another study reported that there was a significant correlation between the number of recurrent traumas and the incidence of ADHD.[10] Consistent with the findings reported in the literature, we found that presenting to the emergency department due to a previous trauma was an independent predictor for ADHD, detected with 72.6% sensitivity and 64.7% specificity.

In many studies investigating the siblings of ADHD patients, it was asserted that ADHD symptoms such as inattention, hyperactivity, and impulsivity were higher in the siblings compared to those in the general public.[18,21] Our findings also indicate that there were three times more ADHD patients in the families of trauma patients than in those of the controls. In addition, the existence of a patient with ADHD in the family of trauma patients increases the risk of ADHD in the trauma patient by 2.32 times.

The main strengths of our study were the high number of patients included in the sample and the fact that all parents and patients were evaluated by child psychiatry. Our study also has various limitations. The main limitation is that the study was conducted in a single center. Therefore, our findings cannot be generalized to the entire pediatric population. Another limitation is that ADHD symptoms were determined only based on parental reports immediately after the traumas using a single clinical assessment scale, CPRS-R. The emotional reactions of parents to their children's injuries may have influenced the children's reactions and thus may have caused the children to exhibit a higher level of problematic behaviors. However, we consider that the study may be a source of inspiration for clinicians in the diagnosis of ADHD.

CONCLUSION

In the present study, it was determined that the symptoms of ADHD were higher in children admitted to the ED due to traumas. The existence of extremity traumas, admission to the ED due to previous traumas, and having a family member with ADHD were found to increase the risk of ADHD. Since the late diagnosis of ADHD may have lifelong adverse effects on individuals, increased awareness among the trauma team may lead to more children being diagnosed and treated. We also suggest that such efforts can lead to a decrease in the number of injuries. Novel studies carried out in multiple centers may yield more generalizable results as references for all clinicians.

Ethics Committee Approval: This study was approved by the Aksaray University Medical School Ethics Committee (Date: 23.10.2019, Decision No: 2019/01-39).

Peer-review: Externally peer-reviewed.

Authorship Contributions: Concept: H.M., E.T.S., H.K., C.K.; Design: H.M., R.Y., H.K., K.K.; Supervision: R.Y., E.T.S., K.K., M.K., M.E.; Resource: R.Y., H.M., B.D., M.E.; Materials: H.M., H.K., C.K.; Data collection and/or processing: M.K., H.K., M.E.; Analysis and/or interpretation: R.Y., K.K., M.E., B.B.; Literature search: H.M., H.K., M.K., C.K.; Writing: R.Y., H.K., H.M.; Critical reviews: H.K., H.M., E.T.S.

Conflict of Interest: None declared.

Financial Disclosure: The author declared that this study has received no financial support.

REFERENCES

1. Zametkin AJ, Ernst M. Problems in the management of attention deficit hyperactivity disorder. N Engl J Med 1999;340:40e6. [CrossRef]
2. Angold A, Costello EJ, Erkanli A. Comorbidity. J Child Psychol Psychiatry 1999;40:57e87. [CrossRef]
3. Davis BW, Diler RS, Birmaher B. Associations of lifetime depression with trauma exposure, other environmental adversities, and impairment in adolescents with ADHD. J Abnorm Child Psychol 2009;37:857–e71.
4. Biederman J, Faraone SV. Attention-deficit hyperactivity disorder. Lancet 2005;366:237e48. [CrossRef]
5. Faraone SV, Biederman J, Spencer T, Wilens T, Seidman LJ, Mick E, et al. Attention-deficit/hyperactivity disorder in adults: an overview. Biological Psychiatry 2000;48:9–20. [CrossRef]
6. Christoffel KK, Donovan M, Schofer J, Wills K, Lavigne JV. Psychosocial factors in childhood pedestrian injury: a matched case-control study. Kids'n'Cars Team. Pediatrics 1996;97:33–42.
7. Rowe R, Maughan B, Goodman R. Childhood psychiatric disorder and unintentional injury: findings from a national cohort study. J Pediatr Psychol 2004;29:119–e30.[CrossRef]
8. Cantwell DP. Attention deficit disorder: a review of the past 10 years. J Am Acad Child Adol Psy 1996;35:978–e87. [CrossRef]
9. Pless IB, Taylor HG, Arsenault L. The relationship between vigilance deficits and traffic injuries involving children. Pediatrics 1995;95:219–e24. [CrossRef]
10. Rucklidge JJ, Brown DL, Crawford S, Kaplan BJ. Retrospective reports of childhood trauma in adults with ADHD. J Atten Disord 2006;9:631–e41. [CrossRef]
11. Ertan C, Özcan ÖÖ, Pepele MS. Paediatric trauma patients and attention deficit hyperactivity disorder: correlation and significance. Emerg Med J 2012;29:911–4. [CrossRef]
12. Chien WC, Chung CH, Lin FH, Yeh CB, Huang SY, Lu ML, et al. The risk of injury in adults with attention-deficit hyperactivity disorder: A nationwide, matched-cohort, population-based study in Taiwan. Research in Developmental Disabilities 2017;65:57–73. [CrossRef]
13. Chen VC, Chan HL, Wu SI, Lee M, Lu ML, Liang HY, et al. Attention-deficit/hyperactivity disorder and mortality risk in Taiwan. JAMA Netw Open 2019;2:e198714. [CrossRef]
14. İnanç DÇ, Baysal SU, Coşgun L, Taviloğlu K, Ünüvar E. Çocukluk çağı yaralanmalarında hazırlayıcı nedenler Orijinal Araştırma. Türk Pediatri Arşivi 2008:43:84–8.
15. Maxson RT, Lawson KA, Pop R, Yuma-Guerrero P, Johnson KM. Screening for attention-deficit/hyperactivity disorder in a select sample of injured and uninjured pediatric patients. J Pediatr Surg 2009;44:743e8
16. Ozer K, Gillani S, Williams A, Hak DJ. Psychiatric risk factors in pediat-

ric hand fractures. J Pediatric Orthop 2010;30:324e7. [CrossRef]
17. Pastor PN, Reuben CA. Identified attention-deficit/hyperactivity disorder and medically attended, nonfatal injuries: US school-age children, 1997e2002. Ambul Pediatr 2006;6:38e44. [CrossRef]
18. Biederman J. Attention-deficit/hyperactivity disorder: a selective overview. Biological Psychiatry 2005;57:1215–20. [CrossRef]
19. Chen MH, Hsu JW, Huang KL, Bai YM, Ko NY, Su T P, et al. Sexually transmitted infection among adolescents and young adults with attention-deficit/hyperactivity disorder: a nationwide longitudinal study. J American Academy of Child & Adolescent Psychiatry 2008;57:48–53.
20. Vitola ES, Bau CHD, Salum GA, Horta BL, Quevedo L, Barros FC, et al. Exploring DSM-5 ADHD criteria beyond young adulthood: phenomenology, psychometric properties and prevalence in a large three-decade birth cohort. Psychological Med 2017;47:744–54. [CrossRef]
21. van Dongen EV, von Rhein D, O'Dwyer L, Franke B, Hartman CA, Heslenfeld DJ, et al. Distinct effects of ASD and ADHD symptoms on reward anticipation in participants with ADHD, their unaffected siblings, and healthy controls: a cross-sectional study. Molecular Autism 2015;6:1–12. [CrossRef]

ORİJİNAL ÇALIŞMA - *ÖZ*

Travma nedeniyle acil servise başvuran çocuklarda dikkat eksikliği hiperaktivite bozukluğunun yaygınlığı ve risk faktörleri

Ramiz Yazici,[1] Hüseyin Mutlu,[2] Cengizhan Kilicaslan,[3] Ekrem Taha Sert,[2] Kamil Kokulu,[2] Halil Kara,[4] Murat Kilicaslan,[3] Mustafa Ekici,[5] Bensu Bulut[6]

[1]Kanuni Sultan Süleyman Eğitim ve Araştırma Hastanesi, Acil Tıp Anabilim Dalı, İstanbul, Türkiye
[2]Aksaray Üniversitesi Tıp Fakültesi, Acil Tıp Anabilim Dalı, Aksaray, Türkiye
[3]Aksaray Üniversitesi Tıp Fakültesi, Pediatri Anabilim Dalı, Aksaray, Türkiye
[4]Çocuk ve Ergen Psikiyatrisi Kliniği, Serbest Çalışan Doktor, Aksaray, Türkiye
[5]Aydın Atatürk Devlet Hastanesi, Acil Tıp, Aydın, Türkiye
[6]Yenimahalle Eğitim ve Araştırma Hastanesi, Acil Tıp Kliniği, Ankara, Türkiye

AMAÇ: Travma nedeniyle acil servise başvuran çocuklarda dikkat eksikliği hiperaktivite bozukluğu (DEHB) semptomlarının görülme sıklığını ve DEHB ile ilişkili risk faktörlerini belirlemek.

GEREÇ VE YÖNTEM: Çalışmaya travma nedeniyle acil servise başvuran 3-16 yaş arası çocuklar alındı. Kontrol grubu, travma dışı nedenlerle çocuk acil servisine başvuran 3-16 yaş arası çocuklardan oluşturuldu. Revize Conners Ebeveyn Değerlendirme Ölçeği (CPRS-R), ilk müdahale ve stabilizasyondan sonra katılmayı kabul eden ebeveynlere uygulandı. Travma hastaları iki gruba ayrılmıştır: DEHB olanlar ve DEHB olmayanlar. DEHB'nin belirlenmesini artırabilecek risk faktörleri belirlenmiştir.

BULGULAR: Çalışmada, her iki gruptaki 917 çocuğun yaş, cinsiyet, demografik ve kültürel özellikler açısından benzer özelliklere sahip olduğu bulunmuştur. Acil servise en sık başvuru şikayeti 296 (%35.2) olguda ekstremite travmaları idi. Travma hastalarının çoğu (%95.9) ayakta tedavi müdahalesinin ardından acil servisten taburcu edilmiştir. Sosyal sorunlar alt ölçek puanı hariç, CPRS-R'nin tüm alt ölçek puanları çalışma grubunda kontrole kıyasla anlamlı derecede yüksekti. Ekstremite travmaları ile başvuru ($p<0.001$), önceki travmalar nedeniyle acil servise başvuru ($p<0.001$) ve daha önce DEHB tanısı almış bir aile üyesine sahip olma ($p<0.001$) DEHB riskini artıran faktörler olarak bulunmuştur.

SONUÇ: Travma nedeniyle acil servise başvuran çocuklarda DEHB semptomlarının görülme sıklığı daha yüksek olabilir. Ayrıca ekstremite travmaları, daha önce geçirilmiş travma nedeniyle acil servise başvuru ve ailede daha önce DEHB tanısı almış birey olması DEHB riskini artıran faktörlerdir.

Anahtar sözcükler: Acil servis; dikkat eksikliği hiperaktivite bozukluğu; risk faktörü; travma.

Ulus Travma Acil Cerrahi Derg 2024;30(9):664-670 DOI: 10.14744/tjtes.2024.07834