



ORIGINAL ARTICLE

Depression and Anxiety Levels of Parents of Children Evaluated with Head Trauma in Emergency Department

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Abstract

Objectives: The fear of having a serious pathology with the symptoms of head trauma and the prompt for exclusion of pathologies by imaging methods increase the admissions to the emergency services. Nowadays, the increasing frequency of admissions may be due to parents' level of awareness about head trauma, easy access to health services or anxiety and depression levels of parents.

Method: Two hundred children with mild head trauma under 5 years of age were included in the study. After the initial evaluation, a descriptive form and the hospital anxiety and depression scale was filled in order to determine the risk of current anxiety and depression.

Results: The reasons for admission were 37% claim for an imaging modality and 59% being afraid of having an important pathology. However, no significant relationship was found between the anxiety and depression subscale cut-off score. When diagnostic pathologies were examined, anxiety scores were higher in the presence of nasal fractures.

Conclusion: We conclude that the panic and tension situation encountered in the parents of the children we evaluated with head trauma, a general control request, or the persistence of imaging cannot be explained by the current anxiety and depression.

Keywords

Anxiety, Depression, Head trauma, Emergency

applications for trauma to the emergency department and is the leading cause of mortality and morbidity in this age group [1,2]. The majority of traumas are mild head traumas. Although it often occurs with a low-energy mechanism, it causes a severe fear and panic in family members. For this reason, a child, whose general condition is still good, is entering the emergency room with an accompanied by panic, crying and shouting. Especially in our country, the frequency of referral is increasing and even for common reasons such as falls or toy related injuries leaves the physician and parents over against who are worried about having an important pathology or claim for an imaging modality. At this stage, even after the examination and evaluation of the child, and using diagnostic algorithms for necessity of imaging modalities parents usually be urgent about imaging modalities and parents are informed and explained for a long time about follow-up process. Reduction of follow-up period, persistence of radiologic imaging often leads to undesirable situations. Patients are frequently discharged with no significant pathology and conditions for applying again to the emergency service explained detail. Evaluated children are usually mild head trauma and associated skin incision or bleeding increases the level of anxiety in patients. In-house fall or simple skin edema has not been an important cause of admission but nowadays it brings agitated and anxious urgent applications. This may be due to people's level of consciousness about head trauma, easy

Introduction

Childhood head trauma is an important part of the



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access to health services, or anxiety and depression levels of parents. The aim of this study was to investigate the relationship between depression and anxiety levels of the parents of children who were evaluated by minor head trauma and their emergency admission reasons.

Methods

Two hundred children with mild head trauma under 5 years of age were included in the study. Moderate and severe head injuries were excluded. After the first evaluation and initial treatment, during the observation period a descriptive form including information about the child and the hospital anxiety and depression scale filled by the parents. Written approval was obtained from the ethics committee of our hospital during the study planning phase.

Categorical variables are summarized as numbers and percent. Pearson Chi-Square was used in 2 × 2 tables and Fisher Freeman Halton Test was used in the difference comparisons between categorical variables. Jamovi project (2018). Jamovi (Version 0.9.0.3) [Computer Software]. (Retrieved from <https://www.jamovi.org>) (Open source) and the statistical analysis of the level of significance (p-value) was considered as 0.05.

Head trauma evaluation

Clinical findings of children with head trauma are highly variable depending on the severity of trauma. Pediatric The Glasgow Coma Scale (GCS) is often used to assess the state of consciousness and to estimate the severity of injury. Generally, the presence of neurological deficits or new-onset clinical signs indicate pathological changes related to head trauma and require careful evaluation. Patients who are exposed to head trauma but whose consciousness is unchanged and who have GCS 14-15 in their neurological examinations are evaluated as mild head trauma [3]. It is decided in the direction of evidence based clinical algorithms to determine the need for imaging in blunt head trauma [4].

Hospital Anxiety and Depression Scale (HAD)

Hospital Anxiety and Depression Scale is a four-point Likert-type scale developed by Zigmond, et al. to identify patients risk for depression and anxiety, to measure the level and severity [5]. Total of 14 questions and odd numbers measure the anxiety and even numbers measure the depression level. The validity and reliability study of the form was done by Aydemir and it was determined to be safe. It consisted of two subscales: Anxiety (HAD-A) and depression (HAD-D). In Turkey outcome studies anxiety subscale cut-off score was 10/11, depression cut-off score was 7/8. The minimum score that can be obtained from both scales is 0 and the maximum score is 21 [6].

Results

When the trauma mechanisms of the children inclu-

Table 1: Study group demographics.

	n (%)
Gender	
Female	67 (33.5)
Male	133 (66.5)
Mechanism	
Falls	123 (61.5)
Toy related injury	10 (5)
Fall from high	46 (23)
Collision with a fixed object	17 (8.5)
Bicycle Crash	4 (2)
Place	
Home	168 (84)
Garden	11 (5.5)
Street	21 (10.5)
History of head trauma	
Yes	15 (7.5)
No	185 (92.5)
Systemic illness	
Yes	2 (1)
No	198 (99)
Physical examination findings	
Scalp edema	68 (34)
Incision and bleeding in scalp	35 (17.5)
Face edema	10 (5)
Incision and bleeding on face	16 (8)
Nasal edema	3 (1.5)
Nasal incision or bleeding	1 (0.5)
Normal physical finding	67 (33.5)
Imaging	
X-ray	127 (63.5)
CT	73 (36.5)
Pathology	
None	189 (94.5)
Clinical follow up	1 (0.5)
Linear fracture	9 (4.5)
Nasal fracture	1 (0.5)

CT: Computed Tomography.

ded in the study were examined, it was observed that the most frequent was 61.5% falls. 84% of the trauma occurred at home. 39.5% of the children included in the study were first child, 92.5% had old head trauma and 1% had systemic disease. According to physical examination findings, it was found that 33.5% did have normal findings and 34% had scalp swelling, 17.5% had scalp incision and bleeding. According to the pathology findings, 94.5% of the patients had no pathology, 4.5% of them had linear fractures and 0.5% of them had nasal fractures. The occurrence of the traumas did not show a significant difference during the day, while the person who undertook the child was 93% mom and 93.5% was housewife. The mechanisms of trauma and existing pathologies are summarized in Table 1.

When the reasons for emergency admissions were examined, 12.5% had vomiting, 2.5% had headache,

Table 2: Comparison of the anxiety subscale.

		Anxiety		p
		Below cut-off (0-10)	Above cut-off (11-21)	
The first child	Yes	66 (37.71)	13 (52)	0.172*
	No	109 (62.29)	12 (48)	
Sistemic illness	Yes	1 (0.57)	1 (4)	0.235**
	No	174 (99.43)	24 (96)	
Physical examination	Scalp edema	59 (33.71)	9 (36)	0.103**
	Incision and bleeding in scalp	34 (19.43)	1 (4)	
	Face edema	8 (4.57)	2 (8)	
	Incision and bleeding on face	15 (8.57)	1 (4)	
	Nasal edema	3 (1.71)	0 (0)	
	Nasal incision or bleeding	0 (0)	1 (4)	
	Normal physical finding	56 (32)	11 (44)	
Pathology	None	167 (95.43)	22 (88)	0.021**
	Clinical follow up	0 (0)	1 (4)	
	Lineer fracture	8 (4.57)	1 (4)	
	Nasal fracture	0 (0)	1 (4)	

*Pearson Chi Square test; **Fisher Freeman Halton test.

Table 3: Relationship between the cut-off point of Anxiety subscale and the cause of emergency admissions.

		Anxiety		P
		Below cut-off (0-10)	Above cut-off (11-21)	
Emergency admission reasons				
Nausea	Yes	5 (2.86)	1 (4)	0.556**
	No	170 (97.14)	24 (96)	
Vomiting	Yes	21 (12)	4 (16)	0.526**
	No	154 (88)	21 (84)	
Headache	Yes	5 (2.86)	0 (0)	0.999**
	No	170 (97.14)	25 (100)	
Dizziness	Yes	2 (1.14)	0 (0)	0.999**
	No	173 (98.86)	25 (100)	
General control	Yes	22 (12.57)	2 (8)	0.745**
	No	153 (87.43)	23 (92)	
Desire to imaging studies	Yes	65 (37.14)	9 (36)	0.912*
	No	110 (62.86)	16 (64)	
Fear of something important happens	Yes	101 (57.71)	17 (68)	0.328*
	No	74 (42.29)	8 (32)	

*Pearson Chi Square test; **Fisher Freeman Halton test.

12% for general control, and 37% had the desire to imaging studies, and 59% fear of something important happens. When the anxiety status of the parents of the children included in the study was examined, 87.5% were below the threshold (0-10), 12.5% were above the threshold (11-21), and the depression status was below 60%. (0-7) and 40% above threshold (8-21).

A statistically significant relationship was found between

the pathology rates of the parents of the children included in the study according to hospital anxiety levels ($p = 0.021$). Parents' anxiety scores were higher in the nasal fracture group and necessity of clinical follow-up [Table 2](#).

There were no statistically significant relationships between the causes of admission to the emergency room, trauma mechanism and existing pathologies in

Table 4: Relationship between the cut-off point of anxiety subscale and the mechanism of trauma and its consequences.

		Anxiety		P
		Below cut-off (0-10)	Above cut-off (11-21)	
History of head trauma	Yes	14 (8)	1 (4)	0.699**
	No	161 (92)	24 (96)	
Mechanism	Falls	109 (62.29)	14 (56)	0.822**
	Toy related injury	8 (4.57)	2 (8)	
	Fall from high	39 (22.29)	7 (28)	
	Collision with a fixed object	15 (8.57)	2 (8)	
	Bicycle Crash	4 (2.29)	0 (0)	
Place	Home	147 (84)	21 (84)	0.899**
	Garden	10 (5.71)	1 (4)	
	Street	18 (10.29)	3 (12)	
Result	Discharged	173 (98.86)	24 (96)	0.139**
	Hospitalization	2 (1.14)	0 (0)	
	Treatment refuse	0 (0)	1 (4)	
Who care for the child	Mom	163 (93.14)	23 (92)	0.999**
	Baby-sitter	6 (3.43)	1 (4)	
	Family member	6 (3.43)	1 (4)	
Mother Working Status	Yes	9 (5.14)	4 (16)	0.062**
	No	166 (94.86)	21 (84)	

*Pearson Chi Square test; **Fisher Freeman Halton test.

Table 5: Depression subscale cut-off score.

		Depression		p
		Below cut-off (0-7)	Above cut-off (8-21)	
The first child	Yes	49 (40.83)	30 (37.5)	0.637*
	No	71 (59.17)	50 (62.5)	
Sistemic illness	Yes	2 (1.67)	0 (0)	0.518**
	No	118 (98.33)	80 (100)	
Physical examination	Scalp edema	39 (32.5)	29 (36.25)	0.683**
	Incision and bleeding in scalp	22 (18.33)	13 (16.25)	
	Face edema	4 (3.33)	6 (7.5)	
	Incision and bleeding on face	11 (9.17)	5 (6.25)	
	Nasal edema	2 (1.67)	1 (1.25)	
	Nasal incision or bleeding	0 (0)	1 (1.25)	
	Normal physical finding	42 (35)	25 (31.25)	
Pathology	None	114 (95)	75 (93.75)	0.454**
	Clinical follow up	0 (0)	1 (1.25)	
	Lineer fracture	6 (5)	3 (3.75)	
	Nasal fracture	0 (0)	1 (1.25)	

*Pearson Chi Square test; **Fisher Freeman Halton test.

the evaluation based on the anxiety subscale cut-off score. The data are summarized in [Table 3](#) and [Table 4](#).

When the depression subscale scores of the children in the parents of the children were examined, there was no statistically significant relationship between the first

child, the presence of systemic disease, physical examination findings and the pathology rates, and the reasons for admission to the emergency department ($p > 0.05$ for each of the children). The data are summarized in [Table 5](#) and [Table 6](#).

Table 6: Relationship between the cut-off point of depression subscale and the cause of emergency admissions.

		Depression		P
		Below cut-off (0-7)	Above cut-off (8-21)	
Emergency admission reasons				
Nausea	Yes	5 (4.17)	1 (1.25)	0.405**
	No	115 (95.83)	79 (98.75)	
Vomiting	Yes	16 (13.33)	9 (11.25)	0.663*
	No	104 (86.67)	71 (88.75)	
Headache	Yes	3 (2.5)	2 (2.5)	0.999**
	No	117 (97.5)	78 (97.5)	
Dizziness	Yes	2 (1.67)	0 (0)	0.518**
	No	118 (98.33)	80 (100)	
General control	Yes	13 (10.83)	11 (13.75)	0.534*
	No	107 (89.17)	69 (86.25)	
Desire to imaging studies	Yes	45 (37.5)	29 (36.25)	0.858*
	No	75 (62.5)	51 (63.75)	
Fear of something important happens	Yes	67 (55.83)	51 (63.75)	0.265*
	No	53 (44.17)	29 (36.25)	

*Pearson Chi Square test; **Fisher Freeman Halton test.

Table 7: Relationship between the cut-off point of depression subscale and the mechanism of trauma and its consequences.

		Depression		P
		Below cut-off (0-7)	Above cut-off (8-21)	
History of head trauma	Yes	10 (8.33)	5 (6.25)	0.584*
	No	110 (91.67)	75 (93.75)	
Mechanism	Falls	74 (61.67)	49 (61.25)	0.990**
	Toy related injury	6 (5)	4 (5)	
	Fall from high	27 (22.5)	19 (23.75)	
	Collision with a fixed object	11 (9.17)	6 (7.5)	
	Bicycle Crash	2 (1.67)	2 (2.5)	
Place	Home	102 (85)	66 (82.5)	0.225*
	Garden	4 (3.33)	7 (8.75)	
	Street	14 (11.67)	7 (8.75)	
Result	Discharged	119 (99.17)	78 (97.5)	0.504**
	Hospitalization	1 (0.83)	1 (1.25)	
	Treatment refuse	0 (0)	1 (1.25)	
Who care for the child	Mom	110 (91.67)	76 (95)	0.473**
	Baby-sitter	4 (3.33)	3 (3.75)	
	Family member	6 (5)	1 (1.25)	
Mother Working Status	Yes	8 (6.67)	5 (6.25)	0.907*
	No	112 (93.33)	75 (93.75)	

*Pearson Chi Square test; **Fisher Freeman Halton test.

There was no significant correlation between depression subscale scores of parents and the presence of traumatic variables or a history of old head trauma [Table 7](#).

Discussion

Childhood head trauma is the most serious public health problem not only in developing countries but also in developed countries. In many studies, it has

been pointed out that traumas such as falls, high falls or traffic accidents, which are the main etiological reasons of childhood traumas, can be prevented or prevented before they occur with effective measures and training [1,7-9]. This can only be achieved by identifying the problem and bringing solutions.

An increase in the level of awareness about head traumas may increase the status of parents who encounter this situation and adaptation to the physician's referrals in the referenced health institution. We believe that minor head trauma to emergency departments and insistence of current response and imaging methods at the time of admission are due to insufficiency and misleading information level. In order to prevent this situation, more education can be given to public education.

The most evident reaction of individuals to the disease in general is anxiety, fear and panic.

These reactions have been shown to have an effect on patient healing and behavior. Reactions such as tension, anger and depression can be observed in the presence of disease. Anxiety and depression reactions of individuals to the disease may affect the way they deal with the disease. These responses may increase, especially in pathologies requiring surgery and the need for surgery [10].

Whether an event is perceived as stressful or not depends on the nature of the incident and the person's coping and defense mechanisms. Anxiety warns of imminent dangers and allows the person to take measures to cope with the threat element [11]. In our study, we observed that the face, such as nasal fracture, had a certain deformity from the outside, or increased in cases of overt injury such as edema and ecchymosis. We are of the opinion that the fear of fear of additional injury as a result of permanent damage development or the fear of additional injury is reflected in their anxiety levels. Communicating with the families in the intensive care setting in the intensive care setting may have positive consequences for the patient follow-up. In multicentre studies conducted, it was shown that the physician's communication with the family may increase the patient compliance especially in the case of imaging and follow-up decisions in minor head trauma [12].

The low level of education of parents of sick children may affect the data of our study.

Low levels of education, lack of knowledge about the disease, incorrect attitudes and insufficiency of problem solving capacity may have played a role in the anxiety and depression levels of parents of sick children.

Conclusion

In our study, we concluded that the panic and tension we encountered in the parents of the children we evaluated were independent of the current anxiety and depression levels. In the presence of an open nasal trauma,

independent of the intracranial injury, we found that parents' anxiety levels were higher. The cause of this difference can be explained by the state of concern in the presence of parental injuries or paralysis in the face of a more common injury such as a nasal fracture. We found that a general control request or imaging insight in intracranial injuries is not at levels that can be explained by current anxiety and depression. This may be due to different reasons, such as the inability to deal with the incident or a lack of information. It can be considered as one of the effective solution methods.

Keypoints

The common causes of emergency admission for minor head trauma are parents fear of something important happens and desire to imaging modalities to exclude intracranial pathology.

Despite minor injuries admissions reasons cannot be explained by the current anxiety and depression levels of parents. This may be due to different reasons, such as the inability to deal with the incident or a lack of knowledge.

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Declaration of Interest

There is no financial and non-financial competing interest.

There is no conflict of interest between authors.

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