ORIGINAL ARTICLE / ÖZGÜN ARAŞTIRMA MAKALESİ

Analysis of Patients Admitted to the Emergency Department with A Suicide Attempt

İntihar Girişimi ile Acil Servise Başvuran Hastaların Analizi

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ABSTRACT

Aim: Suicide is an important public health problem worldwide. This study aims to investigate the general characteristics of patients presenting to the emergency department with a suicide attempt.

Material and Methods: Patients who presented to the emergency department with a suicide attempt between 01.12.2019 and 31.05.2020 were investigated prospectively. Age, gender, vital signs, method of suicide attempt, past medical history, additional diseases, and regularly used medications were recorded.

Results: The study included 247 patients. The median age of the patients was 32 (IQR 25-75: 25-41). 157 (63.6%) of the patients were female. While 222 (89.9%) of the patients attempted suicide by medication overdose, 78 (31.6%) of the patients were receiving psychiatric treatment. There was no statistically significant correlation between the suicide attempt method and the psychiatric treatment status of the patients (p>0.05). Similarly, no statistically significant correlation was found between the outcome of the patients and patients' psychiatric treatment receiving status. (p>0.05).

Conclusion: The most frequent method used for suicide in patients who presented to the emergency services with a suicide attempt is medication overuse. There is no relationship between the method of suicide attempt and the psychiatric treatment status of the patients.

Keywords: Emergency department, suicide, psychiatry

ÖZ

Amaç: Özkıyım, dünya çapında önemli bir halk sağlığı sorunudur. Bu çalışmanın amacı acil servise özkıyım girişimi ile başvuran hastaların genel özelliklerini incelemektir.

Gereç ve Yöntemler: 01.12.2019 ile 31.05.2020 tarihleri arasında, Acil servise özkıyım girişimi ile başvuran hastalar prospektif olarak incelendi. Yaş, cinsiyet, vital bulguları özkıyım girişimi yöntemi, özgeçmiş ve ek hastalıkları, düzenli kullandıkları ilaçlar kayıt altına alındı.

Bulgular: Çalışmaya toplam 247 hasta dahil edildi. Çalışmaya dahil edilen hastaların ortanca yaşı 32 (IQR 25-75: 25-41) idi. Hastaların 157'si (% 63.6) kadındı. Hastaların 222'si (% 89.9) ilaçla özkıyım girişiminde bulunurken 78'i (%31.6) psikiyatrik tedavi alıyordu. Hastaların özkıyım girişim yöntemi ile psikiyatrik tedavi alma durumu arasındaki istatistiksel olarak anlamlı bir ilişki saptanmadı (p>0.05). Yine hastaların son durumu ile psikyatrik tedavi alma durumu arasında da istatistiksel olarak anlamlı bir ilişki saptanmadı(p>0.05)

Sonuç: Acil servislere özkıyım girişimi ile başvuran hastalarda en fazla başvurulan yöntem ilaç ile girişimdir. Hastaların özkıyım girişim yöntemi ile psikiyatrik tedavi alması arasında bir ilişki yoktur.

Anahtar Kelimeler: Acil servis, özkıyım, psikiyatri

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Introduction

Suicide is defined as self-directed aggression that occurs with the desire to end one's life (1). In another definition, suicide is explained as death as a result of a direct or indirect negative action carried out by the individual knowing that it will result in death (2). According to the definition of the World Health Organization (WHO), a suicide attempt is a self-harming behavior that does not result in death, is initiated by the individual without habit and is not prevented by others or is the state of using more medication than the treatment dose. Suicide is a major global public health problem (3). Worldwide, more than 800,000 people die each year due to suicide. Approximately 1.5 million people died because of suicide in 2020 (4). Suicide is the second most common cause of death among young adults and the 17th among the general population (5).

Suicide is a serious problem that should be dealt with as it disrupts the patient's compliance with psychiatric treatment and tends to recur (6). A suicide attempt is one of the strongest risk factors for death by suicide. That is, approximately 60% of first planned attempts occur within the first year of thought. Therefore, it is extremely important to understand the risk factors for first-onset suicidal ideation and suicide attempts in the general population and to intervene before a less favorable suicidal course develops (7.8). In a study 13.8% of 2000 patients treated in the psychiatry clinic have been reported to have a history of suicide attempt (9). In another study, 30.2% of 1048 patients hospitalized for the psychotic disorder was found to have a history of suicide attempt (10). This study aims to examine the general characteristics of patients who presented to the emergency department with a suicide attempt.

Material and Methods:

This study was conducted prospectively by including patients who presented to the Department of Emergency Medicine, Bursa Training and Research Hospital between 01.12.2019 and 31.05.2020 with a suicide attempt. The study was carried out with the approval of the clinical research ethics committee of the same hospital with the protocol number 2011-KAEK-25-2019/11-05. Age, gender, vital signs, method of suicide attempt, medical history, and additional diseases, regularly used medications, alcohol, and substance addiction status, suicide attempt and emergency service admission times, laboratory results, emergency service treatments (activated charcoal, gastric lavage, antidote), and outcome (admission, discharge, referral, and exitus) variables were recorded by preparing a data collection form. All patients over the age of 18 who presented to the emergency department with a suicide attempt were included in the study. Cases with unknown medication/substance intake and patients with missing file information were excluded from the study. Thus, a total of 247 patients were included in the study.

Statistical Analysis

IBM SPSS Statistics for Windows, Version21.0 (IBM Corp. Armonk, NY: USA. Released 2012) package program was used for statistical analysis. Descriptive statistics were expressed as mean ± standard deviation (minimum-maximum) and median to range and/or interquartile range (IQR) for numerical variables while categorical variables were explained as number of cases and (%). The Kolmogorov-Smirnov test was used for the normality distribution of the data. Whether the assumption of homogeneity of variances was met was investigated with Levene's test. Chi-square and Fisher's exact tests were used to analyze whether there was a relationship between categorical variables. The results were given at a 95% confidence interval. $p<0.05$ was considered statistically significant.

Results

A total of 247 patients were included in the study. The median age of the patients in the study was 32 (IQR 25-75: 25-41) and 157 (63.6%) of the patients were female. The median heart rate of the patients was 86/min (IQR 25-75: 78-97), the median SBP value was 120 mm/Hg (IQR 25-75: 110-130), and the mean value of fever was 36.38±0.50 °C (Table 1).

Variables	Value
Age Median IQR (25-75)	32(25-41)
GCS Median IQR (25-75)	15 (15-15)
SBP mm/Hg Median IQR (25-75)	120 (110-130)
DBP mm/Hg Median IQR (25-75)	73 (70-80)
Fever °C Median ± SD	36,38 ± 0,50
SpO2 % Median IQR (25-75)	98 (97-99)
Pulse /min Median IQR (25-75)	86 (78-97)

GCS: Glasgow coma scale, SBP: Systolic blood pressure, DBP: Diastolic blood pressure

Table 1. Clinical Data of the Patients

222 (89.9%) of the patients attempted suicide with medication overuse and 78 (31.6%) were receiving psychiatric treatment. Of the patients who attempted suicide, 114 (46.2%) were hospitalized (Table 2).

Variables		n	%
Gender	Female	157	63,6
	Male	90	36,4
Suicide Attempt Method	Drug	222	89,9
	Sharp object	9	3,6
	Jump from a high place	8	3,2
	Firearm	1	0,4
	Hanging	5	2
	Other	2	0,8
Psychiatric Treatment	No	169	68,4
	Yes	78	31,6
Additional diseases	No	184	74,5
	Yes	63	25,5
Outcome	Discharge	53	21,5
	Service Admission	114	46,2
	ICU	52	21,1
	Exitus	1	0,4
	Other	27	10,9
	Total	247	100

ICU: Intensive Care Unit

Table 2. Clinical and demographic data

The most commonly used medications in suicide attempts were antidepressants being present in 23.4% (n=52) of the cases and NSAIDs in 20.3% (n=45) of the cases (Table 3).

Variables	Frequency	Percentage
Antidepressant	52	23,4
NSAID	45	20,3
Antipsychotic	28	12,6
Organophosphate	2	0,9
Antihypertensive	9	4,1
Paracetamol	37	16,7
Antibiotic	21	9,5
Antidiabetic	7	3,2
PPI	8	3,6
Superwarfarin	5	2,3
Anticonvulsant	13	5,9
Antiarrhythmic	5	2,3
Total	222	100

NSAID: Non-Steroid Anti-Inflammatory Drug, PPI: Proton Pump Inhibitor

Table 3. Drugs Used for Suicidal Purposes

No statistically significant correlation was found in the chi-square analysis performed to determine the relationship between the suicide attempt method and the status of receiving psychiatric treatment (p>0.05). Similarly, no statistically significant correlation was found in the chi-square analysis performed to determine the relationship between the outcome of the patients and the status of receiving psychiatric treatment (p>0.05) (Table 4).

Discussion

Adolescents and young adults between 15 and 29 have the highest rate of death resulting from suicide. Additionally, it is the third most prevalent cause of death in the 10 to 14 age group and the second most common cause of death up to the age of 34 years and above (11). According to the WHO, children and adolescents up to the age of 15 years have the lowest global suicide rates (per 100,000 inhabitants), which continuously increase until the age of 70 years or more (5). In a study by Dogan et al., 63.5% of the patients exposed to medication intoxication were between the ages of 18-30 (12). Similarly, in a study by Gentil et al., the most common age range of patients who presented to the emergency department with a suicide attempt was 25-44 years with a rate of 37.4% (13). In our study, the median age was 32, which is consistent with the literature. In the study of Wang et al. in 2006 with patients who attempted suicide, female patients were found to commit suicide more than male patients (8). Similarly, in their study, Gentil et al. discovered that women attempted suicide more (53.3%) than men. Additionally, Esen et al. found the rate of women (70.4%) was quite high. In our study, the rate of women was 63.6%, which is consistent with the literature (13). The number of nationwide data related to the methods of suicide is fairly limited. Although the ICD-10 collects X-codes for external causes of death, such as suicide methods, in many countries information regarding suicide methods is not gathered. According to the WHO database of mortality, 76 of the 194 WHO Member States published data regarding suicide methods between 2005 and 2011.

			Psychiatric Treatment		Total	Chi-square Test
			No	Yes		
Suicide Attempt Method	Drug	n	151	71	222	χ^2=1,854, p>0.05
		%	68,0%	32,0%	100,0%	
	Sharp object	n	6	3	9	
		%	66,7%	33,3%	100,0%	
	Jump from high	n	5	3	8	
		%	62,5%	37,5%	100,0%	
	Firearms	n	1	0	1	
		%	100,0%	0,0%	100,0%	
	Hanging	n	4	1	5	
		%	80,0%	20,0%	100,0%	
	Other	n	2	0	2	
		%	100,0%	0,0%	100,0%	
Outcome	Referral	n	20	9	29	χ^2=9,022, p>0.05
		%	69,0%	31,0%	100,0%	
	Discharge	n	40	13	53	
		%	75,5%	24,5%	100,0%	
	Service Admission	n	73	41	114	
		%	64,0%	36,0%	100,0%	
	ICU	n	12	11	23	
		%	52,2%	47,8%	100,0%	
	Ex	n	1	0	1	
		%	100,0%	0,0%	100,0%	
	Other	n	23	4	27	
		%	85,2%	14,8%	100,0%	
Total		n	169	78	247	
		%	68,4%	31,6%	100,0%	

ICU: Intensive Care Unit

Table 4. Analysis of Suicide Attempt Method, Emergency Outcome, and Psychiatric Treatment Status

Those countries constitute 28% of all suicides worldwide. That is, 72% of the suicide methods are not known. It is anticipated that the records are kept more accurately in countries with high-income. In those countries, 50% of the suicides were reported to be hanging and suicides with firearms were the second with a rate of 18%. The US has the highest rate of suicides with firearms with a rate of 46%, which increases the proportion of suicides with firearms in countries with high income. In others, that rate was 4.5% (5). In our study, contrary to the literature, the most commonly used method was medication overuse (89.9%). In their study, Ozkose et al. reported that 75.9% of patients committed suicide by overusing medications (14). The most commonly used suicidal medications were antidepressants, then Non-Steroid Anti-Inflammatory Drugs (NSAID), and then paracetamol. Dogan et al. found the most commonly used medications are antidepressants, paracetamol, and NSAIDs like in our study (12). In the study with 509 poisoning patients, Zohre et al. identified the most frequently used medications are antidepressants (17.6%), followed by analgesics (12.8%) and psychotropic medications (6.1%) (15).

The majority of suicides and suicide attempts result from psychiatric diseases, which are at least 10 times as high as in the general population. It is reported that the rate of completed suicides ranges between 60% and 98% (11, 16, 17). In the study of Dogan et al., 77.0% of the patients with medication intoxication did not have a psychiatric diagnosis (12). In our study, 68.4% of the patients were not receiving any psychiatric treatment, and no relationship was found between the psychiatric treatment with the suicide method and emergency room outcome.

This study has some limitations. The first one is that the study was single-centered. The second is that the study had a low number of patients. However, this may be because the study coincided with the COVID-19 pandemic period.

As a result, the most frequently used method in patients who presented to the emergency services with a suicide attempt is medication overuse. There is no relationship between the suicide attempt method and the psychiatric treatment.

Conflict of Interest: The authors declare no conflict of interest regarding this study.

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