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Differences Between Adolescent and Adult Cases of Suicidal Drug Intoxication

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ÖZET

Öz kıyım amaçlı adölesan ve erişkin ilaç zehirlenmeleri arasındaki farklılıklar

Amaç: İlaç zehirlenmeleri acil servislere önemli başvuru nedenlerinden biridir. Bu konuda adölesanlar ile erişkinler arasında yapılmış karşılaştırmalı çalışmalar nadirdir. Bu çalışmada adölesan ile erişkin yaş grubu arasındaki ilaç zehirlenme olgularını karşılaştırarak, demografik ve klinik özelliklerinin tanımlanması ve alınabilecek önlemlerin belirlenmesi amaçlanmıştır.

Gereç ve Yöntem: 1Haziran 2009-30 Haziran 2010 tarihleri arasında Acil Tıp Kliniği'ne başvuran adölesan yaş grubu (9-19 yaş) ve erişkinyaş grubu (19 ve üstü yaş) ilaç zehirlenme olguları geriye dönük olarak değerlendirildi. Hastaların yaş, cinsiyet, ilacı ne amaçla aldığı, tedavide antidot kullanımının olup olmadığı, tek veya çoklu ilaç alıp almadığı, aldığı ilacın hangi gruptan olduğu, hastanede kalış süresi ve klinik sonuçlar kaydedildi.

Bulgular: Çalışmaya toplam 278 hasta alındı. Hastaların %39.2'si adölesan (n=109), %60.8'i erişkindi (n=169). Adölesan erkek %15.6 (n=17) iken, erişkin erkek %20.1 (n=34), adölesan kadın %84.4 (n=92), erişkin kadın %79.9 (n=139) olarak bulundu. Ortalama yaş adölesan grupta 16.68±1.774 yıl iken erişkin grupta 27.87±7,264 yıl idi. Tedavide antidot kullanımı adölesanlarda %30 (n=3) iken, erişkinlerde %70 (n=7) idi. Özkıyım amaçlı ilaç alımı adölesanlarda %39.2 (n=109), erişkinlerde %60.8 (n=169) idi. Çokluilaç alımı adölesanlarda %51.9 (n=42) , erişkinlerde %48.1 (n=39) idi. Zehirlenmeye neden olan ilaç grubu adölesanlarda %46.9 (n=23) parasetamol iken, erişkinlerde %65.2 (n=30) antidepresan ilaçlardı. Hastaların hastanede kalış süresi adölesan grupta 1.19±0.775 saat iken, erişkin grupta 1.15±0.617 saat idi. Hiçbir hastamız hayatını kaybetmedi.

Sonuç: Akut zehirlenmeler acil servisler için önemli bir medikal sorundur. Özkıyım amaçlı en yaygın yöntem ilaç alımıdır. Hem erişkinlerde hem adölesanlarda ilaç zehirlenmeleri, kadınlarda daha yaygındır. Özkıyım amaçlı ilaç zehirlenmeleri erişkinlerde adölesanlaragöre daha fazladır. Kullanılan ilaç grubu olarak ilk sırada adölesanlarda parasetamol iken, erişkinlerde antidepresan ilaçlardır. Çoklu ilaç alımı ise adölesanlarda erişkinlere göre daha fazladır. Risk faktörleri belirlenerek bunlara yönelik önlemlerin alınması ve toplumsal eğitim faaliyetlerinin planlanması yoluyla bu tür zehirlenme olgularının sayısının azaltılabilmesi mümkündür.

Anahtar kelimeler: Adölesan, erişkin, zehirlenme, öz kıyım, acil tıp

ABSTRACT

Differences between adolescent and adult cases of suicidal drug intoxication

Objective: Drug intoxications are among the major causes of emergency department admissions. There is a limited number of studies exploring the differences between adolescent and adult cases of intoxication. We aimed to compare adolescent and adult cases of drug intoxication to determine demographic and clinical properties of intoxications and necessary measures that have to be taken in both age groups.

Material and Methods: Adolescent (9-19 years of age) and adult (19 years or older) cases of drug intoxication that presented to our Emergency Department between 1 June 2009 and 30 June 2010 were retrospectiely reviewed. Age, sex, purpose of drug intake, whether or not an antidote was used, single- or multi-drug intake, the group of the offending drug, duration of hospital stay, and clinical outcomes were recorded.

Results: This study included a total of 278 patients, of which 39.2% (n=109) were adolescent and 60.8% (n=169) were adult. Among adolescents, 15.6% (n=17) were male and 84.4% (n=92) were female while %20.1 (n=34) of adults were male and 79.9% (n=139) were female. The mean age was 16.68±1.774 years in the adolescents and 27.87±7.264 in the adults. An antidote was used in 30% (n=3) of the adolescents and 70% (n=7) of the adults. Suicidal drug intake formed 39.2% (n=109) of the cases in the adolescents and 60.8% (n=169) in the adults. Multi-drug intake had a rate of 51.9% (n=42) in the adolescents and 48.1% (n=39) in the adults. Paracetamol was the offending agent in 46.9% (n=23) of the adolescents, while antidepressnats were responsible for 65.2% (n=30) of the drug intoxications in the adults. Duration of hospital stay was 1.19±0.775 hours in the adolescents and 1.15±0.617 hours in the adult cases. None of the patients in both groups died.

Conclusion: Acute intoxications are an important medical problem for emergency departments. The most common suicide method is drug intake. Drug intoxications were more prevalent in women in both adolescent and adult age groups. Suicidal drug intoxications were more common in the adults compared to the adolescents. Paracetamol was the most commonly taken drug in the adolescents while antidepressants were the most common drugs in the adults. Multi-drug intake was more common in the adolescents than the adults. It is possible to reduce the number of drug intoxications by determining risk factors, taking necessary measures, and planning appropriate population-based educational activities.

Key words: Adeolescent, adult, intoxication, suicide, emergency medicine

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INTRODUCTION

Suicide is an act of self-mutilation resulting from serious emotional or communicational problems (1). It is reportedly the tenth most cause of death worldwide (2). It is known that nearly one million people die each year as a result of suicide (3). Underlying psychiatric and personality disorders have been reported to be the main risk factors for suicide attempts (2). Suicidal intoxication refers to self-mutilation by intentional intake of any chemical substance. Today, the magnitude of social, cultural, socioeconomic, and health issues related to potentially toxic substances has been progressively increased as the access to them has been increasingly easy (1,4).

Admissions due to intoxications are highly common in emergency departments; some of them need treatment at intensive care units. While adult intoxications are usually secondary to suicide attempts, accidental intoxications are more common in children (4). Lifetime prevalence of suicide attempts in adolescents has been reported to be 3.5-11% (1). In the USA, suicide attempts ranks third among causes of death between the ages of 10 and 19 (5,6). Adolescence is a critical period for suicide attempts (7). In the USA, the risk of suicide attempts between 10 and 19 years of age has increased by 23% between 2001 and 2004 (6). According to the data provided by Turkish Statistical Institute, the suicide rate in Turkey is around one in 3.37 million between 5 and 14 years of age (8). Despite being more common in females, suicide attempts are more successful in males (9). There is limited information about drug intoxication among adolescents (10). We aimed to compare adolescent and adult cases of drug intoxication to determine demographic and clinical properties of intoxications and necessary measures that have to be taken in both age groups.

MATERIAL AND METHODS

This study included 278 adolescent (9-19 years of age) and adult (19 years or older) patients who presented to our clinic between 1 June 2009 and 30 June 2010 with suicidal drug intake. Their medical records were reviewed for relevant information including age, sex, purpose of drug intake, whether or not an antidote was used, single- or multi-drug intake, the group of the offending drug, duration of hospital stay, and clinical outcomes. Accidental intoxications were excluded from the study.

Statistical Analysis

They were expressed as mean±standard deviation, median, and percentage. χ^2 and Mann-Wittney U tests were used for statistical analysis. A p value of less than 0.05 was considered statistically significant.

RESULTS

This study enrolled a total of 278 patients meeting the age criteria (39.2% (n=109) adolescents and 60.8% (n=169) adults) who were diagnosed to have drug intoxication between 1 June 2009 and 30 June 2010.

Among adolescents, 15.6% (n=17) were male and 84.4% (n=92) were female; among adults, %20.1 (n=34) were male and 79.9% (n=139) were female. Female-to-male ratio was 5.41 in the adolescents while it was 4.08 in the adults (p=0.342). The mean age was 16.68±1.774 years in the adolescents and 27.87±7.264 in the adults. Duration of hospital stay was 1.19±0.775 hours in the adolescents and 1.15±0.617 hours in the adults (p=0.625). None of the patients in both group died. Multi-drug intake had a rate of 51.9% (n=42) in the adolescents and 48.1% (n=39) in the adults (p=0.006). An antidote was

Table 1: Demographic properties of adolescent and adult cases of intoxication

	Adolescent n (%)	Adult n (%)	p	t
Total	109 (39.2)	169 (60.8)		
Sex				
Male	17 (15.6)	34 (20.1)	0.342	
Female	92 (84.4)	139 (79.9)		
Age (years)	16,68±1.774	27.87±7.264	0.000	9.824
Antidote Use	3 (30)	7 (70)	0.490	
Suicide	109 (39.2)	169 (60.8)	0.262	
Multi-drug intake	42 (51.9)	39 (48.1)	0.006	
Duration of hospital stay (hours)	1.19±0.775	1.15±0.617	0.625	0.489
Amount of Drug	8.15±13.85	7.83±12.11	0.839	0.203

Table 2: Offending Drugs in the adolescent and adult cases of drug intoxication

Drug	Adolescent n (%)	Adult n (%)	p
Paracetamol	23 (46.9)	26 (53.1)	0.222
Antidepressant	16 (34.8)	30 (65.2)	0.501
NSAID	19 (41.3)	27 (58.7)	0.750
Aspirin	5 (83.3)	1 (16.7)	0.036
Antidiabetic	2 (66.7)	1 (33.3)	0.563
Antibiotic	14 (48.3)	17 (51.7)	0.291
Antipsychotic	4 (33.3)	8 (66.7)	0.770

Table 3: Characteristics of multi-drug and single-drug intoxications

	Multi-drug n (%)	Single-drug n (%)	p
Total	81 (29.2)	196(70.8)	
Sex			
Male	14 (27.5)	37 (72.5)	0.756
Female	67 (29.6)	159 (70.4)	
NSAID	26 (56.5)	20 (43.5)	0.000
Aspirin	4 (66.7)	2 (33.3)	0.063
Antidepressant	28 (62.2)	17 (37.8)	0.000
Paracetamol	27 (55.1)	22 (44.9)	0.000
Antidiabetic	2 (66.7)	1 (33.3)	0.152
Antibiotic	20 (69.0)	9 (31.0)	0.000
Antipsychotic	5 (41.7)	7 (58.3)	0.045

used in 30% (n=3) of the adolescents and 70% (n=7) of the adults (p=0.49) (Table 1).

Paracetamol was the offending agent in 46.9% (n=23) of the drug intoxications in the adolescents, while antidepressants were responsible for 65.2% (n=30) of the drug intoxications in the adults. Aspirin-induced drug intoxications were significantly more common in the adolescents (83.3%, p=0.036) (Table 2).

Multi-drug intake and single-drug intake were responsible for 29.2% and 70.8% of drug intoxications, respectively. Single-drug intake was more common in females (70.4% vs 29.6%, respectively; p=0.756). NSAIDs, paracetamol, antibiotics, and antipsychotics were significantly more common in multi-drug intoxications (p=0.000 for all) (Table 3).

DISCUSSION

Drug intoxications have an important place among emergency department admissions owing to a need for a meticulous management and favorable outcomes associated with appropriate management. Increasingly easier access to toxic substances and potentially preventable and reversible nature of drug intoxications make these cases interesting; however, they also pose an important healthcare burden on healthcare providers and patients. There are a limited number of studies exploring the differences between adolescent and adult cases of intoxication.

It has been reported that women more frequently suffer drug intoxications. Özköse et al. reported that 75% of their cases were women while Göksu et al. and Akköse et al. reported women formed 68.8% and 62.4%, respectively, of their study populations (11-13). Özdemir et al. also reported that drug intoxications were more common in female subjects (14). Similarly, we revealed that drug intoxications were more frequent in females than males in both adolescents and adults, such that the female-to-male ratio was 5.41 in adolescents and 4.08 in adults. It has been reported that domestic conflicts, school failure, parental loss, and deprivation of love due to emotional, physical, and social factors increase the tendency for suicide (12). We suggest that familial and societal support, professional help, and increased awareness of families and society of suicidal drug intoxications would minimize them, especially in adolescent females. To our opinion, adults attempt suicide due to difficulties of unemployment and the inability to adapt hardships of life. In our study, the mean age was 16.68±1.774 years in the adolescent patients and 27.87±7.264 in the adult patients. We think that this was a result of active, fragile lifestyle at such young ages.

Literature data suggest that suicidal intoxications are more common than accidental intoxications (11). In our study suicidal intoxications were more common in the adults compared to the adolescents.

In our study the rate of multi-drug intoxication was 51% in the adolescents and 48.1% in the adults. The rate of multi-drug intoxication in the adolescents was compatible with the literature data (15). While some researchers have mentioned analgesics as the most common intoxicating agents (11,12,16), some others reported psychoactive drugs as the most common offending drugs (17). Our study results indicated that paracetamol was the most common offending drug in the intoxications of adolescents, while antidepressants ranked first in the adults. We suggest that both analgesics and antidepressants are widely available to many people, making them the most common offending

agents in intoxications.

Three adolescents and seven adults were administered an antidote. Such low numbers of antidote use probably stemmed from the intake of drugs without antidotes.

Ozcan et al reported that intoxication cases are usually discharged within first 24 hours, as was the case in our study (18). This was because our cases were not too severe to require hospitalization. Andıran and Ozcan reported death rates of 0.4% and 0%, respectively, in cases of suicidal intoxication (18,19). Cases resulting in death usually occur after intentional intoxications. In agreement with the literature, no death occurred in our study. This is probably because most intoxication was unintentional, with the drug dosages remaining too low to threaten life. In the suicidal drug intoxications affecting females of both groups, the real intention was to draw attention of other people, thereby occurring with less toxic drugs at lower doses. According to the results of our study, drug intoxications were more common in females in both adolescents and adults. Drug intoxications were mostly for suicidal purposes in the adults. The adolescents were most commonly intoxicated with paracetamol, while adult intoxications mostly occurred with antidepressants. The adolescents tended to be intoxicated by multiple drugs taken simultaneously, as compared to adults who tended to take single drug. We believe that intoxications can be minimized by determining risk factors, taking appropriate measures, and planning social education programs.

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