Drug abuse–related visits in a pediatric emergency department: a descriptive study

Consultas relacionadas con el consumo de drogas de abuso en un servicio de urgencias pediátrico: estudio descriptivo

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In Spain, acute poisonings involving illegal drugs in children account for a small proportion of all poisonings, approximately 2.8%, and for 0.08% of emergency department (ED) visits.[1,2] In pediatric patients, psychosocial characteristics are key determinants of substance use, particularly having parents who use drugs or the presence of psychiatric disorders.[3] According to the 2023 Survey on Drug Use in Secondary Education in Spain (ESTUDES), alcohol, tobacco, and cannabis are the most commonly used substances, although use of sedative-hypnotics and amphetamines has increased.[4]

We describe the experience of a single center through an observational, analytical, cross-sectional study analyzing the profile and management of patients with poisoning due to drugs of abuse treated in a pediatric emergency department (PED) between 2018 and 2023. A comparative analysis was performed between voluntary and accidental use. Patients aged 0 to 18 years with drugs of abuse detected in urine by qualitative chromatographic immunoassay, or blood ethanol levels > 50 mg/dL, were included.

For the statistical analysis, quantitative variables were expressed as median and interquartile range (IQR), and qualitative variables as absolute values and percentages. Differences across groups were analyzed using the chi-square test or, when expected cell counts were < 5, Fisher's exact test. Student's t test for independent samples was used when the distribution met the assumption of normality; otherwise, the nonparametric Mann–Whitney U test was applied. In all cases, statistical significance was established at $P < .05$. IBM SPSS Statistics version 25.0 for Windows was used.

The study was approved by the center's Clinical Research Ethics Committee. The recommendations of the Declaration of Helsinki on biomedical research were followed, and all aspects related to the confidentiality of the collected data were respected.

A total of 247 episodes were included, representing 0.06% of ED visits during the study period. Clinical and sociodemographic characteristics and the comparative analysis of patients with voluntary or accidental exposure are shown in Table 1. Median age was 16 years, and 68% were female. The most frequent drug was cannabis, followed by alcohol and cocaine. Opioid use was uncommon (2.8%). In 52.2% of episodes, the patient reported previous substance use. No patient died. The most frequent diagnoses were anxiety-depressive disorder and behavioral disorder. A total of 80% of patients admitted substance use. Significant differences between voluntary and accidental exposures were observed in the type of drug, the person accompanying the patient on arrival at the ED, the presence of a drug-using parent, and the need for hospital admission. Table 2 illustrates the characteristics of episodes according to the type of drug used. There were 9 cases of polysubstance use, defined as the presence of > 3 drugs. Of these, 7 patients had a past medical history of psychopathology and 5 presented with acute poisoning symptoms, mainly behavioral changes (44.4%). All had used cannabis, and 8 had used amphetamines.

Despite measures implemented to prevent substance use among minors, it remains a problem. At the center studied, drug poisonings represented 0.06% of ED visits. Regarding opioid use, no increase has so far been reported in Spain comparable to the problem observed in the United States in recent years.[5,6] Drug poisonings have a bimodal distribution: accidental poisonings predominate in preschool children, whereas voluntary poisonings predominate in adolescents.[1,2] In both types of poisoning, psychosocial factors play an important role. In voluntary use, management is more complex, presentation is delayed, and polysubstance use is a rare finding, sometimes with suicidal intent; consequently, these patients often require more stabilization measures. This population has a high prevalence of psychopathology, predominantly anxiety-depressive disorder.[7] Cannabis is the most widely used substance, probably because of its anxiolytic effects.[8,9]

An increase has been observed in reports of accidental poisoning by illegal drugs in children, mainly cannabis and cocaine.[10] Several studies emphasize the importance of socioeconomic and family environment as risk factors. In many acute poisonings, patients had already been exposed to the substances, either actively or passively. Half of the parents of children with accidental poisoning admitted using the drug involved. In this sample, patients with accidental exposure more frequently arrived at the ED accompanied by family members, did not initially acknowledge contact with the drug, and their parents subsequently reported habitual contact with drugs. They less frequently had a history of mental disorders and more often required intervention by social services.[11]

Clinical signs associated with drug use are usually nonspecific. Cocaine use was more frequently associated with symptoms, particularly behavioral changes. It is crucial to include these poisonings in the differential diagnosis of patients presenting with neurological or behavioral symptoms to avoid unnecessary testing.[12,13] Management in the PED is usually conservative, and most patients require only observation and monitoring.[14] Almost 80% of voluntary users of illegal substances acknowledged such use when asked directly. Given the prevalence of these substances among adolescents and the upward trend in their use, routinely asking about substance use in primary care consultations and EDs could help identify this at-risk group and allow appropriate preventive measures to be initiated.[15] However, in patients with accidental exposure, parents do not usually acknowledge contact with the drug, and therefore a high index of suspicion should be maintained in the presence of behavioral changes or unexplained neurological symptoms.

A limitation of this study is its retrospective design, which may have resulted in loss of relevant information and underestimation of the incidence of drug use. The urine screening test used has a high false-positive

Table 1. Sociodemographic and clinical characteristics of patients. Description and comparison of patients with voluntary and accidental exposure to drugs of abuse

	Total exposures N = 247 n (%)	Voluntary exposures N = 229 n (%)	Accidental exposures N = 18 n (%)	*P* value
Age, years [median (IQR)]	16 (14-17)	16 (15-17)	2.6 (1.3-5.3)	< **.01**
Female sex	168 (68)	156 (68)	12 (66.7)	NS
Drug used				
Cannabis	143 (59.7)	135 (59)	8 (44.4)	NS
Cocaine	23 (9.3)	17 (7.4)	6 (33.3)	< **.01**
Ethanol	92 (37.2)	91 (39.7)	1 (5.6)	< **.01**
Amphetamine-type substances	20 (8)	19 (8.3)	1 (5.6)	< **.01**
Opioids	7 (2.8)	7 (3.1)	0	NS
Use of > 1 drug	43 (17.4)	43 (18.8)	0	< **.01**
Use of > 3 drugs	9 (3.6)	98 (3.9)	0	< **.01**
Reason for consultation				
Illegal drug use	56 (22.8)	49 (21.4)	7 (38.9)	NS
Symptoms related to drug use	88 (35.6)	78 (34)	10 (55.5)	NS
Suicide attempt	38 (15.4)	38 (16.6)	0	< **.01**
Arrival at the emergency department				
Accompanied by family members	168 (68)	151 (66)	17 (94.4)	< **.01**
Accompanied by police, friends, or alone	72 (29.2)	71 (31)	1 (5.6)	< **.01**
Spontaneously reports contact with the drug	188 (76.1)	183 (80)	5 (27.8)	< **.01**
History of psychopathology	146 (59.1)	146 (63.7)	0	< **.01**
History of drug exposure	129 (52.2)	129 (56.3)	0	< **.01**
Foreign nationality	24 (9.7)	21 (9.2)	3 (16.7)	NS
Parent with mental illness	50 (20.2)	48 (21)	2 (11.1)	NS
Parent who uses drugs	17 (6.9)	8 (5.3)	9 (50)	< **.01**
Parent of foreign nationality	44 (17.8)	40 (17.5)	4 (22.2)	NS
Unemployed parent	33 (13.4)	29 (12.7)	4 (22.2)	NS
Family structure				
Married parents living together	74 (30)	–	–	–
Separated or divorced parents	88 (35.6)	–	–	–
Deceased father or mother	5 (2)	–	–	–
Institutionalized patient	10 (4)	10 (4.4)	0	NS
Social services intervention	85 (34.4)	70 (30.6)	15 (83.3)	< **.01**
Drug-related signs	138 (55.9)	123 (54)	15 (83.3)	**.02**
Symptoms				
Neurological impairment	111 (44.9)	101 (44)	10 (55)	NS
Behavioral changes	96 (38.9)	86 (37.5)	10 (55)	NS
Headache	11 (4.5)	10 (4)	1 (5.6)	NS
Vomiting	57 (23.1)	55 (24)	2 (11)	NS
Palpitations	7 (2.8)	5 (2)	2 (11)	NS
Vital signs				
Abnormal heart rate	21 (8.5)	17 (7.4)	4 (25)	NS
Abnormal blood pressure	29 (11.7)	25 (11)	4 (25)	NS
Pupillary abnormalities	48 (19.4)	42 (18)	6 (33)	NS
Abnormal temperature	17 (6.9)	16 (7)	1 (5.6)	NS
Emergency department management				
Initial stabilization	62 (25.1)	59 (25.8)	3 (16.7)	NS
Medication	66 (26.7)	64 (28)	2 (11)	NS
Intravenous fluid therapy	95 (38.5)	88 (39)	7 (39)	NS
Activated charcoal	23 (9.3)	22 (9.5)	1 (5.6)	NS
Sample sent to the NIT	12 (4.9)	3 (1.3)	9 (50)	< **.01**
Patient disposition				
Admission to pediatrics	10 (4)	3 (1.3)	7 (38)	< **.01**
Admission to psychiatry	70 (28.3)	70 (30)	0	< **.01**
Admission to the PICU	7 (2.8)	6 (2.6)	1 (5.6)	NS

INT: National Institute of Toxicology; NS: not significant; IQR: interquartile range; PICU: pediatric intensive care unit.
Values in bold denote statistical significance ($P < .05$).

rate and does not adequately discriminate among different types of amphetamine-related substances.

In conclusion, use of substances of abuse in the pediatric population is an important problem. The presence of psychopathology or disadvantaged socioeconomic environments appears to be associated with

Table 2. Characteristics of patients exposed to different toxic substances

	Cannabis N = 143 n (%)	Ethanol N = 92 n (%)	Cocaine N = 23 n (%)	Amphetamines N = 20 n (%)	Opioids N = 7 n (%)
Age, years [median (IQR)]	16.4 (15-17)	15 (14-17)	16 (7-17)	16 (15-17)	17 (15-18)
Female sex	91 (67.4)	58 (63.7)	10 (59)	14 (70)	5 (71.4)
Type of exposure					
Voluntary	106 (78.5)	79 (86.8)	13 (76.5)	19 (95)	4 (57.1)
Accidental	29 (21.5)	12 (13.2)	4 (23.5)	1 (5)	3 (42)
Use of > 1 drug	38 (28.1)	19 (20.6)	14 (82.4)	18 (90)	2 (28.6)
Use of > 3 drugs	9 (6.7)	3 (3.3)	3 (17.6)	8 (40)	1 (14.3)
Reason for consultation					
Illegal drug use	19 (13.3)	38 (41.8)	7 (30.4)	4 (20)	0
Symptoms related to drug use	38 (26.6)	37 (40.7)	5 (21.7)	6 (30)	2 (28.6)
Suicide attempt	27 (18.9)	6 (6.6)	3 (13)	5 (25)	3 (42.9)
Arrival at the emergency department					
Accompanied by family members	106 (74)	45 (49.5)	17 (74)	15 (75)	6 (85.7)
Accompanied by police, friends, or alone	37 (26)	47 (50.5)	6 (26)	5 (25)	1 (14.3)
History of psychopathology	109 (80.7)	36 (39.6)	13 (76.5)	16 (80)	5 (71.4)
History of drug exposure	113 (83.7)	32 (35.2)	13 (76.5)	13 (65)	4 (57.1)
Previous alcohol use	78 (57.8)	32 (35.2)	13 (76.5)	11 (55)	2 (28.6)
Previous tobacco use	77 (57)	19 (20.9)	12 (70.6)	10 (50)	3 (42)
Foreign nationality	15 (10.5)	9 (9.9)	0	1 (5)	2 (28.6)
Parent with mental illness	35 (24.5)	9 (9.7)	7 (30.4)	6 (30)	3 (42.9)
Parent who uses drugs	12 (8.4)	2 (2.2)	3 (13)	0	0
Parent of foreign nationality	31 (21.7)	11 (12.1)	3 (13)	6 (30)	1 (14.3)
Unemployed parent	25 (17.5)	4 (4.4)	5 (21.7)	2 (10)	3 (42.9)
Family structure					
Married or cohabiting parents	48 (33.6)	19 (20.9)	8 (34.7)	6 (30)	1 (14.3)
Separated parents	72 (50.3)	17 (18.7)	8 (47.1)	12 (60)	5 (71.4)
Deceased father or mother	4 (2.8)	2 (2.2)	1 (5.9)	0	0
Institutionalized patient	7 (5.2)	4 (4.4)	4 (23.5)	2 (10)	0
Social services intervention	67 (50)	14 (16.7)	11 (64.7)	5 (25)	1 (14.3)
Symptoms	43 (32)	89 (94.5)	4 (23.5)	10 (50)	2 (28.6)
Neurological impairment	32 (23.7)	72 (79.1)	5 (33)	5 (25)	1 (14.3)
Behavioral changes	43 (31.9)	52 (57.1)	4 (26.7)	4 (20)	1 (14.3)
Headache	4 (3)	7 (7.7)	2 (12.5)	1 (5)	1 (14.3)
Vomiting	11 (8.1)	41 (45.1)	1 (5.9)	1 (5)	1 (14.3)
Palpitations	3 (2.2)	0	1 (5.9)	3 (15)	0
Emergency department management					
Initial stabilization	11 (8.1)	45 (49.5)	2 (11.8)	4 (20)	1 (14.3)
Activated charcoal	13 (9.6)	6 (6.6)	2 (11.8)	6 (30)	2 (28.6)
Intravenous fluid therapy	22 (15.4)	1 (5.9)	2 (11.8)	3 (15)	0
Observation in the emergency department	102 (75.6)	87 (95.6)	12 (70.6)	17 (85)	6 (85.7)
Patient disposition					
Admission to pediatrics	2 (1.5)	0	1 (5.9)	0	0
Admission to psychiatry	60 (45)	9 (9.9)	10 (58.8)	5 (25)	3 (43)
Admission to the PICU	5 (3.5)	3 (3.3)	1 (4.3)	1 (5)	0

IQR: interquartile range; PICU: pediatric intensive care unit.

acute poisoning by these substances. Emergency management of substance-related poisonings requires only observation in most cases. Voluntary poisonings generally involve more complex management and often require joint care with psychiatry because of the high prevalence of psychopathology and suicide attempts.

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