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Retrospective evaluation of poisoning cases who presented to the Pediatric Emergency Unit

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Summary

Aim: Childhood poisoning is a frequently seen health problem in our country. This study aimed to determine epidemiological and clinical features of childhood poisoning in our region and guide for the necessary measures.

Material and Method: In this study, epidemiological features of 233 cases who presented to the Pediatrics Emergency Unit of Kahramanmaraş Sütçü İmam University Medical Faculty between the years 2003 and 2009 were evaluated with Statistical Package for the Social Sciences (SPSS) 16.0 (IBM Company Chicago, Illinois) statistics program retrospectively.

Results: The ratio of poisoning cases to all pediatric emergency admissions was 1.14%. 60.5% of these cases were male and 39.5% were female. Male/female ratio was 1.5/1. The highest rate of poisoning was observed in the 7 months–4 years of age group (73.8%). Exposure to poisoning agents occurred mostly by the gastrointestinal route (91%) and most of the agents were ingested accidentally (97%). The most common factor leading to intoxication was (54.9%) non-pharmacological agents. These included caustic-corrosive substances (25.3%), insecticides and pesticides (7.3%), carbon monoxide (CO) (6%), hydrocarbons (5.2%), rat poison (2.6%), fungi (2.6%), and herbal products (2.6%) in order of frequency. Pharmacological agents that cause intoxication were the second most common (41.2%) factor. These included antidepressants (15.5%), iron-containing medications (3%), antipsychotics (2.6%), anticholinergics (1.7%), paracetamol (1.7%), cardiovascular system drugs (1.7%), and gastrointestinal drugs (1.7%) in order of frequency.

Conclusions: In our region, the most common poisoning agents were drugs and then caustic-corrosive substances. *(Turk Arch Ped 2011; 46: 226-32)*

Key words: Childhood, etiology, Kahramanmaraş, poisoning.

Introduction

High rate of poisonings and high mortality rate related to poisoning in developing countries including Turkey have made childhood poisoning an important problem which should be solved (1-6).

Although poisonings can be observed in all age groups, they are more frequent and have a more fatal course in the childhood. In a study performed in 1977 based on 38 health institutions from all regions of Turkey, 5077 pediatric poisoning cases were evaluated and the rate of poisoning cases among total emergency cases was found to be 0.9% (2).

Pediatric accidents with a gradually increasing number and significance are becoming prominent among mortality factors in the childhood, since technology is advancing rapidly, conscious nutrition and preventive medicine efforts are becoming widespread and infectious diseases are being treated. In our country, childhood poisoning is the fourth leading type of accident after traffic accidents, falls and burns (3). In studies performed in our country, the mortality rate related to poisonings was observed to range between 0% and 5.5% (4,5).

The factors leading to poisoning may vary between countries, regions and years in the same region. Similarly, poisoning agents vary according to age, gender, education level of the family, traditions of the region and season. Therefore, each country should determine its own poisoning profile and take the necessary precautions according to the risks and threats confronted (6).

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In this study, it was aimed to determine the epidemiological and clinical features of childhood poisonings in our region and guide for necessary precautions.

Material and Method

The files of the patients who presented to Kahramanmaraş Sütçü İmam University Medical Faculty Pediatric Emergency Outpatient Clinic between September 2003 and August 2009 with acute poisoning were examined retrospectively. Cases of food poisoning and animal/insect bite were not included.

The subjects were divided into four age groups as 7 months-4 years, 5-8 years, 9-12 years and 13-17 years. However, a privilege was exercised while evaluating the age distribution of all subjects to examine the first 6 years in more detail, since intensity was present in the first five years; the age groups were classified as 1, 2, 3, 4, 5,6 , 7-11 and 12-17 years.

In terms of presentation date, the number of the subjects were recorded and examined according to seasons, months, poisoning and presentation time in periods of 2 hours. In terms of referring residence center, classification was made according to provincial centers, districts and neighbour provinces.

Poisoning agents were classified in three groups as pharmacological agents, non-pharmacological agents and poisonings with unknown agent. Pharmacological agents were classified in 22 subgroups and non-pharmacological agents were classified in 11 subgroups. When poisoning agents were examined according to age groups and seasons, pharmacological agents were considered as one group and non-pharmacological agents were classified according to the different agents.

The mode of poisoning was classified in three groups including accidents, suicide and iatrogenic poisonings. The route of delivery of the toxic substance was classified as oral, respiratory, cutaneous and eye contact.

In addition, the subjects were evaluated in terms of the time between poisoning and presentation to the hospital, signs and symptoms caused by poisoning, prior presentation to another healthcare institution and prior treatment administered before presentation to our hospital, treatment and follow up time in our pediatric emergency department, discharge, hospitalization and referral after pediatric emergency department, treatment methods administered in hospitalized patients, follow up times in the hospital and outcomes of the treatment. The data were evaluated using Statistical Package for the Social Sciences (SPSS) 16.0 (IBM Company Chicago, Illinois) statistics program.

Results

It was determined that 233 (1.14%) of 20278 patients presented to our Pediatric Emergency Outpatient clinic between September 2003 and August 2009 were diagnosed as acute poisoning. Gender distribution of the subjects with an age between 7 months and 17 years (mean 4.3±3.5 years) was as follows: 141 males (60.5%) and 92 females (39.5%). Poisoning was observed with higher rates of 61.6%, 69.0% and 54.5% in males in the 7 months- 4 years, 5-8 years and 9-12 years groups, respectively and with a rate of 70% in females in the 13-17 years age group.

Poisonings were observed most commonly in the 7 month- 4 year age group (73.8%) and most commonly in children of two years of age in this group (26.6%) (Figure 1).

The sites from which the subjects were referred: 167 cases (71.7%) from the provincial centers, the remaining 64 cases (27.5%) from counties and two cases (0.8%) from the surrounding provinces.

The routes of exposure to poisoning agents in order of frequency were as follows: gastrointestinal route in 212 cases (91%), respiratory route (6%) in 14 cases, gastrointestinal route, respiratory route and cutaneous route together in three cases (1.3%), cutaneous route in two cases (0.9%), intramuscular injection in one case (0.4%) and unknown route in one case (0.4%).

226 of the poisoning cases (97%) were accidental, 5 were suicide attempts (2.1%) and 2 were iatrogenic (0.9%). Five poisoning cases which were suicide attempts were in the 13-17 age group and all were female.

When the distribution of the poisonings by season was examined, it was found that 84 cases (36.1%) occurred in the summer, 76 cases (32.56%) occurred in the spring, 40 cases (17.2%9) occurred in the autumn and 33 cases (14.2%) occurred in the winter. When the distribution by months was examined, most cases occurred in July (15%) and in August, March and April in order of frequency.

Poisonings most commonly occurred between 16:00 and 18:00 hours and between 08:00- and 10:00 hours, between 12:00-14:00 hours and 14:00 and 16:00 hours in order of frequency.

The time between poisoning and presentation to the hospital ranged between 15 minutes and 72 hours (3.98±2.0 hours). It was found that half of the patients (50.2%) were presented to our hospital in the first hour of poisoning, 71% of the patients were presented in the first four hours and 88.8% presented in the first 8 hours.

Most presentations to our emergency outpatient clinic occured between the hours of 18:00 and 22:00.

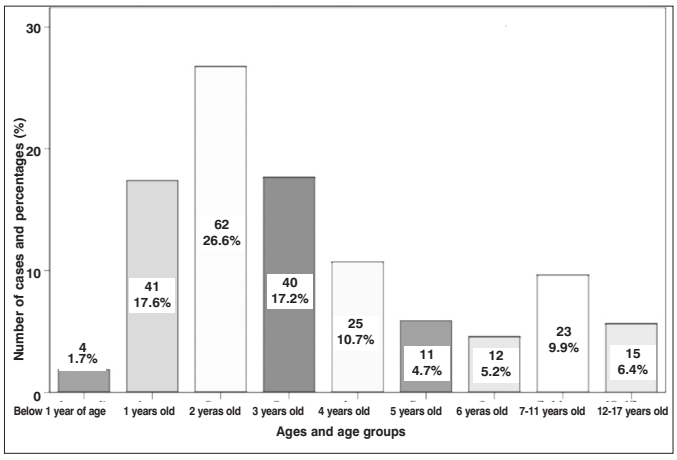

Figure 1: Distribution of posioning cases by age groups

Table 1. Distribution of poisoning cases by age groups and gender

	Gender					
Age groups	**Female Number (n) %Percentage ***		**Male Number (n) %Percentage ***		**Total Number (n) %Percentage ****	
7months–4 years	66	38.4%	106	61.6%	172	73.8%
5–8 years	9	31.0%	20	69.0%	29	12.4%
9–12 years	10	45.5%	12	54.5%	22	9.4%
13–17 years	7	70.0%	3	30.0%	10	4.3%
Total	**92**	**39.5%**	**141**	**60.5%**	**233**	**100%**

*: Female/male ratio in cases in the same age group,

**: Percentages of distribution of total poisoning cases by age group.

Poisoning was caused by pharmacological agents in 96 of the cases (41.2%) and non-pharmacological agents in 128 cases (54.9%). In 9 cases (3.9%), the agent of poisoning could not be determined. In 11 cases (4.7%), two or more agents were found to be taken. When the agents causing poisonig were examined, the most common factor was found to be non-pharmacological agents (54.9%). The most common non-pharmacological agent causing poisoning was found to be caustic-corrosive substances (25.3%). Insecticides and pesticides (7.3%) were in the second order (Table 1).

Drug groups which caused poisoning in order of frequency were as follows: antidepressants (15.5%), drugs containing iron (3%), antipsychotic drugs (2.6%), anticholinergics (1.7%), paracetamol (1.7%), cardiovascular system drugs (1.7%) and gastrointestinal system drugs (1.7%) (Table 1).

Drugs were the most common poisoning agents in seasons excluding summer. Poisoning by pesticides (organophosphate and other insecticides –pesticides) occured more commonly in the summer (15%) and caustic /corrosive and irritant cleaning products again occurred more commonly in the summer (44%). Carbonmonoxide poisoning occurred mostly in the winter and spring. Hydrocarbon poisonings occurred mostly in the spring and autumn. Fungus poisonings occured mostly in the autumn.

In all age groups, the most common agent of poisoning was drugs. The second most common agent of poisoning was caustic/ corrosive and irritant cleaning substances in the age groups of 7 months-4 years, 5-8 years, 123-17 years, respectively and carbonmonoxide (CO) poisoning in the 9-12 year old age group.

All poisonings were acute poisonings and signs and symptoms at presentation in order of frequency were as follows: nausea-vomiting (14.1%), somnolance (13.3%), hyperemia in the mouth and oropharynx (9%) and unconsciousness (8.5%). Burns in the oropharynx (6.8%), tachycardia (5.1%) and agitation-restlessness (4.7%) were the most common symptoms. 107 of the patients (45.9%) were asymptomatic at presentation.

122 of the poisonings (52.3%) were presented to another healthcare institution before our pediatric emergency outpatient clinic and gastric lavage was performed and activated carchoal was administered in 62 of them (26.6%). In 7 patients gastric lavage was performed (3.0%). Atropine plus pyridoxine were administered in one patient, dexamethasone plus an antihistaminic (pheniramine maleate) were administered in one patient and dexamethasone plus an antiemetic (metaclopropamide) were administered in one patient.

Only symptomatic treatment was given to 182 of 233 patients (78.1%) who presented to our pediatric emergency outpatient clinic. Gastric lavage was performed and activated carchoal was given in 32 patients (13.7%). Activated carchoal was given in three patients (1.2%), gastric lavage was performed in one patient (0.4) and oxygen treatment was given in 15 patients (6.4%).

After intervention in the emergency unit, 138 patients (59.2%) were hospitalized in the pediatric service or Pediatric Intensive Care Unit and 45 patients (19.3%) were hospitalized in the Pediatric Surgery Clinic. A total of 183 patients (78.5%) were hospitalized. 37 patients (15.9%) were discharged by reccomending ambulatory outpatient follow-up. 11 patients (4.7%) were referred to other centers because of reasons including lack of available beds. Two patients (0.9%) were found to have left the hospital.

45 (19.3) of 59 patients (25.3%) who ingested caustic/ corrosive substance were symptomatic and hospitalized in the Pediatric Surgery Clinic for follow-up. 41 of them (17.5%), had hyperemia in the mouth and oropharynx and 20 of them (8.5%) had ulceration and burn scar additionally. Esophagoscopy was performed in 6 patients. Hyperemia and edema were found in one patient (0.4%), corrosive esophagitis was found in one patient (0.4%), severe burn with fibrin was found in two patients (0.8%) and esophagus was found to be natural in the other two patients (0.8%).

When the hospitalization times of the patients who were hospitalized in the clinic were evaluated, the shortest hospitalization period was found to be 8 hours and the longest hospitalization period was found to be 10 days (Mean 43.8±29 hours).

44 of the subjects (31.6%) who were hospitalized in the Pediatric Service or Pediatric Intensive Care Unit were followed up only with general supportive treatment, forced diuresis was performed in 89 subjects (63.3%), forced diuresis plus alkalization were performed in four subjects

Table 2. Active agents causing poisoning

Group of active agents causing poisoning	Female	Male	Total	Percentage
Poisonings with pharmacological agents	***41***	***55***	***96***	***41.2%***
Amitriptyline (Tricyclic antidepressants)	15	15	30	12.9%
Other antidepressants (SSRI group)	2	3	5	2.1%
Drugs containing iron	3	4	7	3.0%
Antipsychotics	2	4	6	2.6%
Anticholinergics	1	3	4	1.7%
Paracetamol	3	1	4	1.7%
Cardiovascular system drugs	2	2	4	1.7%
Gastrointestinal system drugs	2	2	4	1.7%
Dopaminergic drugs	1	2	3	1.3%
Hypnotic. sedative and anxiolytic drugs	1	1	2	0.9%
Antiseptics/ local anesthetics	0	2	2	0.9%
Vitamins. minerals. electrolytes	0	2	2	0.9%
Hormones (Thyroid)	0	2	2	0.9%
Antiepileptics	2	0	2	0.9%
Antibiotics	0	2	2	0.9%
Ibuprofen	0	1	1	0.4%
Nonsteroid antiinflammatory drugs	1	0	1	0.4%
Antiemetics	0	1	1	0.4%
Bronchodilatators	0	1	1	0.4%
Myorelaxant drugs	0	1	1	0.4%
Oral antidiabetics	1	0	1	0.4%
Multiple drug ingestion	5	6	11	4.7%
Poisonings with non-pharmacological agents	***47***	***81***	***128***	***54.9%***
Caustic/corrosive substances	21	38	59	25.3%
Carbonmonoxide (CO)	8	6	14	6%
Hydrocarbons	1	11	12	5.2%
Pesticides (Organophosphate group)	2	7	9	3.9%
Insecticides/pesticides excluding organophosphates	3	5	8	3.4%
Rat poison	3	3	6	2.6%
Herbal products (Acacia seed..etc.)	3	3	6	2.6%
Fungi	3	3	6	2.6%
Irritant cleaning substances	3	2	5	2.1%
Alcohols	0	1	1	0.4%
Tobacco product (Nicotiana rustica)	0	1	1	0.4%
Glue	0	1	1	0.4%
Cases with unknown agent	***4***	***5***	***9***	***3.9%***
Total	***92***	***141***	***233***	***100%***

Table 3. Distribution of poisoning agents by age groups

Groups of poisoning agents	Age groups								Total	
	7month–4 years		5–8 years		9–12 years		13–17 years			
	Sayı	Oran %	Sayı	Oran %	Sayı	Oran %	Sayı	Oran %	Sayı	Oran %
Pharmacological agents	73	42.4	10	34.5	9	40.9	4	40.0	96	41.2
Caustic/corrosive irritant substances	51	29.7	6	20.7	4	18.2	3	30.0	64	27.5
Pesticides	14	8.1	3	10.3	0	0.0	0	0.0	17	7.3
Carbonmonoxide (CO)	7	4.1	2	6.9	5	22.7	0	0.0	14	6.0
Hydrocarbons	9	5.2	3	10.3	0	0.0	0	0.0	12	5.2
Fungus	2	1.2	0	0.0	3	13.6	1	10.0	6	2.6
Herbal products	2	1.2	2	6.9	0	0.0	2	20.0	6	2.6
Unknown agent	6	3.5	3	10.3	1	4.5	0	0.0	10	4.3
Rat poison	6	3.5	0	0.0	0	0.0	0	0.0	6	2.6
Other	2	1.2	0	0.0	0	0.0	0	0.0	2	0.9
Total	172	100.0	29	100.0	22	100.0	10	100.0	233	100.0

(3.3%), gastric lavage and activated charcoal were performed in 14 subjects (10.1%) and only activated charcoal was administered in three subjects (2.2%).

When the treatments administered to a total of of 233 patients hospitalized in our pediatric emergency department and aferwards in the service were evaluated generally, it was found that only monitoring was performed and general supportive treatment was administered in 48.5%, gastric lavage was performed and activated charcoal was administered in 11.6%, forced diuresis was performed in 11.2%, specific antidote was administered in 3.0%, multiple-dose activated charcoal was administered and forced diuresis was performed in 2.6%, alkalization and forced diuresis were performed in 1.7%, only activated charcoal was administered in 2.6% and advanced life support including mechanical ventilator was performed in 2.6%.

Intubation was performed and mechanical ventilatory support was administered in three patients (1.2%) because of development of loss of consciousness and respiratory and circulatory failure. Two of these patients were poisoned with a pesticide and one was poisoned with selective serotonin "re-uptake" inibitor. This patient who had severe selective serotonin reuptake inhibitor poisoning died on the second day of hospitalization because of ventricular fibrilation and hypotension (0.4%).

Table 4. Signs and symptoms observed at presentation in poisoning cases

Signs and symptoms	Number*	Percent
No sign and symptom	***107***	***45.9%***
Nausea-vomiting	33	14.1%
Confusion/ somnolance	31	13.3%
Hyperemia in the mouth and oropharynx	21	9.0%
Loss of consciousness/ unconsciousness	20	8.5%
Ulceration and burn scar in the mouth and oropharynx	16	6.8%
Tachycardia	12	5.1%
Agitation/ restlessness	11	4.7%
Tachypneic respiration	8	3.4%
Hypersalivation/ increased secretion inside the mouth	7	3.0%
Abdominal pain/ abdominal tenderness	7	3.0%
Convulsion	7	3.0%
Dispnea/ respiratory distress	5	2.1%
Cutaneous hyperemia	4	1.7%
Miyosis (narrowing of the pupillae)	4	1.7%
Mydriasis (dilatation of the pupillae)	3	1.2%
Wheezing	2	0.9%
Respiratory failure	2	0.9%
Hypertension	2	0.9%
Hypotension	2	0.9%
Dry mouth	2	0.9%
Spasticity	2	0.9%
Neck stiffness	2	0.9%
Headache	2	0.9%
Ulcerated burn in the esophagus (Grade II-III)	1	0.4%
Coma	1	0.4%
Choreoathetoic movements	1	0.4%
Positive Babinsky	1	0.4%
Different odour in the mouth/ breath	1	0.4%
Increase in perspiration in the skin	1	0.4%
Hyperthermia	1	0.4%
Hypothermia	1	0.4%
Hepatomegaly	1	0.4%
Decrease in eye tracking	1	0.4%
Nistagmus	1	0.4%
Cyanosis	1	0.4%
Tremor	1	0.4%
Total	326	100%

* Since multiple symptoms can be observed in the same patient, the total number of signs and symptoms appears to be higher than the number of cases.

Discussion

1.14% of the patients who presented to our pediatric emergency outpatient clinic had acute poisoning. In studies performed in different foreign countries, rates of poisonings among presentations to the emergency department were reported to be 0.52% in Nigeria, 0.3-0.4% in Spain, 0.23-3.3% in India, 3% in South Cyprus and 4,7% in Bangladesh (7-10). In our country, these rates were reported to be 0.36% in Ankara, 1.2% in Denzili, 1.1% in Şanlıurfa, 1.8% in Eskişehir, 1.16% in İstanbul and 6.2% in Kayseri (2,4,11-15). The ratio of the number of poisoning cases to all emergency cases was found to be 0.9% (15). The reason that this rate is lower in our country is not the low number of poisonings, but may be the fact that other patients are being cared for in emergency departments in addition to actual urgent cases.

In our study, 72.1% of the subjects were in the age group of 1-4 years. According to 2007 data in USA 51.23% of 2482041 cases of poisoning were reported to be younger than 5 years of age (16). In a study including the period between 1997 and 2000 in India Kashmir region (17), 48.9% of poisoning cases were reported to be in the age group of 1-5 years and in a study performed in Greece (18) 93% were reported to be younger than 5 years of age. In almost all

Table 5. Treatment methods administered in our cases of acute poisoning

Treatment administered	Number*	Percent (%)
General supportive treatment and follow-up	113	48.5%
"Forced diuresis"	85	36.5%
Administration of activated charcoal	83	35.6%
Gastric lavage	80	34.4%
Oxygen treatment	15	6.4%
Administration of antidote	7	3.0%
Multiple-dose activated charcoal	6	2.6%
Alkalization	4	1.7%
Mechanical ventilation	3	1.3%
Antidote (Total)	7	3.0%
N-acetylcysteine	3	1.3%
Pralidoxime and atropine	3	1.3%
Atropine	1	0.4%
Total	396	100%

* Since multiple treatment methods were administered in many of the cases, the total number of treatment methods appears to be higher than the total number of cases.

studies, poisonings are reported to occur mostly between 1 and 5 years of age. The reason that poisonings occur more frequently below the age of 5 is the fact that the consciousness level in this age group is low (2,19). This finding in our study is similar to the findings of other studies performed in Turkey and in other countries (2,5,11,15-19).

In our study, the lowest frequency of poisoning (4.3%) was found in the 13-17 years age group. In many studies, a second increase has been observed in the 12-17 year-old group in the frequency of poisoning. Kırel et al. (13) reported that 29,1% of poisoning cases were in the 15-18 year-old group. Öntürk et al. (14) reported that 24.1% of poisoning cases were in the 12-17 year-old group. Aygün et al. (20) reported that 21.4% of posioning cases were in the 12-16 year-old group. It is noted that suicide cases and poisoning cases in the 13-17 year-old age group are observed with a lower rate in Kahramanmaraş compared to the general rate of Turkey. The reason for this may be the fact that people in our region have a modest socioculturel life and have strong family relations.

In our study, 60.5% of the poisoning cases were boys. Similar result were found in other studies performed in other cities in our country (12,14,15,20-22). This may be due to the fact that boys spend more time independent of their parents at home and outside home.

In our study, poisonings were observed more frequently in girls only in the 13-17 year-old group. Poisonings in the girls in this age group are usually related to drug ingestion as a suicide attempt and related to the fact that girls are more emotional, feel more pressure and experience psychological conflicts more frequently during adolescence. Similar results were found in other studies performed in our country (2,14,23).

We observed that most poisonings occured between the hours of 12:00 and 18:00 and most presentations to the hospital occured between the hours of 18:00 and 22:00. Özdemir et al. (6) also reported similar findings. During the time period between 12:00 and 18:00 the frequency of poisoning increases because of factors including absence of the father at home at this time period, the mother's excitement about preparing supper and hunger and thirst of children after a day long activity. Thus, the father is waited and the first intervention is done at the nearest public hospital. Afterwards presentations to our hospital occur between the hours of 18:00 and 22:00.

In our study, 97% of poisonings were accidental. However, in girls in the adolescence period most poisonings were caused by suicide attempts. Similar findings were obtained in other studies performed in our country (14,22-24,25). The reason that suicide attempts are observed more frequently in girls may be the fact that girls are more emotional.

In our study, the most common poisoning agent was drugs in all age groups (41.2%) and antidepressants were in the first order among drugs (14.0%). Previous studies have also reported that pediatric poisonings were mostly caused by drug ingestion and the frequency of other causes varied according to the charactersitics of the region (15,20,22,24,26-29). In two seperate studies performed in Trabzon by Uçar et al. (23) in 1993 and Kalyoncu et al. (30) in 1996, antidepressants were found to be in the first order among pharmacological poisoning agents. In studies performed in recent years, it has been noted that the frequency of poisonings with antidepressants has increased.

Caustic/corrosive substances were found to be the second most common agent (25,3%) after pharmacological agents. In foreign studies, in industrialized populations, personal care products, cosmetics, cleaning substances, garden material and drugs are in the first order. On the other hand, in developing countries and in countries where the economy depends on agriculture, especially insecticides and pesticides containing organic phosphor and food and plant poisonings are in the first order (31-35). In the study performed by Deniz et al. (36) in 2009 in Kırıkkale, corrosive substances were reported to be in the second order as a poisoning agent. The reason for this may be the fact that cleaning products are marketed unsealed and without brand names usually filled in water or beverage bottles and left in bathrooms and kitchens unsealed. Use of safety caps for caustic/corrosive substances can prevent pediatric poisonings with these substances.

The most commonly observed symptoms in our subjects included nausea-vomiting, confusion, hyperemia in the oral mucosa, loss of conscioussness, tachycardia, restlessness and tachypnea. Similar results were found in previous studies (4,20,23,25,27-29).

Hospitalization times of our patients ranged between 8 hours and 10 days (Mean: 44 hours). Mean hospitalization time was found to be 12 hours in the study performed by Aji et al. (15), 3.2 days in the study performed by Andıran et al. (26) and 1.6 days in the study performed b y Tunç et al.(27). Our mean hospitalization times were found to be similar to the average values in our country.

In our study, the mortality rate in cases of poisoning was found to be 0.4%. In a study performed in collaboration with poisoning control centers, the mortality rate in cases of poisoning was found to be 0.036% in USA (37). In developing countries, high mortality rates have been reported ranging between 1.8% and 11.6% (7,10,33,34). The mortality rate in cases of poisoning in our country was reported to be 5.5% in Erzurum by Ertekin et al. (5) and 2.2% by Orbak et al. (22), 2.05% in Sivas by Ergür et al. (28), 2% in Elazığ by Aygün et al. (20), 1.2% in Samsun by Totan et al. (29) and 0.6% in Eskişehir by Öntürk et al. (14). Kondolat et al. (4) reported no mortality in the study they performed in Kayseri in 491 subjects between the years of 2006 and 2007. In Eskişehir, Kırel et al. (13) reported the mortality rate in cases of poisoning in the study they performed in 1988 to be 2.8%. In the same hospital, Öntürk et al. (14) reported the mortality rate to be 0.6% in the study they performed between January 1999 and December 2001. Similarly, Hıncal et al. (24) reported the mortality rate in cases of poisoning presented to Hacettepe University, Ankara between 1975 and 1984 to be 4.9%. In the study performed in the

same hospital between 1995 and 2000, a rather low mortality rate of 0.4% was reported (30). In studies performed in our country in recent years, the mortality rates have been reported to have gradually decreased. The reason for this may be the advances in transportation, diagnosis and treatment.

A person who is responsible for the care of a child has to provide the physical safety of that child, protect the child from possible harms, provide his/her basic needs, education and medical care (38). Therefore, the responsibility of the person or other people in charge of the child's care should be kept in mind in childhood poisonings and forensic report should be given and legal process should be started.

Consequently, drugs were the most common poisoning agent in our study and caustic/corrosive substances were in the second order. Safety caps and education can decrease acute childhood poisonings.

Conflict of interest: None declared.

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