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Epidemiology and Nature of Suicide Attempts in Children and Adolescents at the Tertiary Care Pediatric Hospitals; a Multicentre Retrospective Study in Turkey

Ozlem SARAC SANDAL[1], Ebru Atike ONGUN[1], Ayla UZUN CICEK[2], Seda Aybuke SARI[2], Ozlem TEMEL[3], Gokhan CEYLAN[4]

[1]Cumhuriyet University Faculty of Medicine, Pediatric Intensive Care Unit, Sivas, Turkey

[2]Cumhuriyet University Faculty of Medicine, Child and Adolescent Psychiatr, Sivas, Turkey

[3]Konya Training And Research Hospital, Pediatric Intensive Care Unit, Konya, Turkey

[4]Dr. Behcet Uz Pediatric Diseases and Surgery Training and Research Hospital, Pediatric İntensive Care Unit , İzmir, Turkey

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Corresponding Author: Ozlem Sarac Sandal
E mail: drozlemsarac@hotmail.com

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ABSTRACT

Introduction: Suicide and suicide attempts are among the leading causes of morbidity and mortality in the youth population worldwide, with drastically increased rates over the past years.

Objectives: We aimed to investigate the major risk factors, sociodemographic characteristics, and prevalence of psychiatric comorbidities in children that hospitalized in pediatric intensive care units (PICUs) for self-poisoning suicide attempts through drug overdose.

Methods: We performed a descriptive, cross-sectional retrospective study, including all the cases of suicide attempts that hospitalized at pediatric intensive care unit between January 2015 and December 2020.

Results: In the study period, 356 children of self-poisoning suicide occurred, 20 cases were excluded from the study. The mean age of the study population was 14.98 ± 1.53 years. Seventy (20.8%) children were within 10-13 years with the predominance of female gender (female/male sex ratio: 3.35/1). Suicidal attempts were more common in females ($p = 0.001$). Considering the nature of attempt, toxic drug overdose (95.5%) appeared as the most frequent method of suicide, followed by intake of pesticides (4.5%). Antipyretics and antidepressants were the common pharmaceuticals involved in drug toxicity (21%, 19.3%).

Conclusions: The present results showed that the majority of suicide attempts occurred during adolescence, with an increase in pre-adolescence at a considerable rate. Overall, it is important to increase the knowledge of pediatricians about suicide attempts in children and provide psychosocial support for children and their families as a preventive measure after their first attempt.

Keywords: Adolescent, Intensive care unit, Suicide attempts, Intoxication

Introduction

Accidental or intentional use of potentially lethal drugs are one of the preventable causes of mortality and morbidity in adolescents (1). The risk of involuntary ingestion of pharmaceutical/chemical agents increases at home, owing to the children's curiosity about their environment, besides their newly acquired ability to walk in early childhood, that is, when the incidence of poisoning is at its highest peak. On the other hand, substance abuse and self-destruction behaviors (suicide) are prominent during adolescence, which is another peak period for poisoning cases (1,2).

Suicide and suicide attempts are among the leading causes of morbidity and mortality in the youth population worldwide, drastically increased over the past years (3,4). In this regard, a recent study on suicidal ideations found that about 17.2% of high school students had serious thoughts about suicide over the past 12 months (22.1% in females and 11.9% in males) (5). Evidence shows PICU admission after suicide attempt are increasing around the world. Also, previous studies have shown significant gender differences in terms of suicide rates. It seems that suicidal ideations and attempts are more common in females, whereas males commit suicide more frequently than females (5,6).

Suicidal behavior, as a symptom of serious emotional and communicative problems, is associated with self-harm. Also, this behavior may be a consequence of mental, social, cultural, and economic problems (7). Generally, children and adolescents use a wide range of methods to attempt suicide, including firearms, hanging, suffocation and self-poisoning; however, females use less lethal methods than males. The most frequently used method of suicide by adolescents is deliberate drug overdose (4,7).

Examination of the social aspect of suicidal behavior shows that it is a complex phenomenon, influenced by various risk factors, including female gender, depression, family problems, school success, peer acceptance, economic status, and psychosocial stress (8). Therefore, it is important to determine the etiology of this increasingly common problem and to identify high-risk individuals for planning and developing preventive mental health measures and programs. However, the available information on this subject is limited to adolescents, and little is known about the nature, epidemiology, risk factors, and characteristics of suicide and suicide attempts in prepubescent children (7,8).

It was previously assumed that young children do not have suicidal thoughts, given their poor understanding of the concept of death and cognitive immaturity. However, today, suicidal behavior is an increasingly recognized problem in childhood, and a growing number of studies have reported suicidal thoughts in young children; these children may even engage in suicidal acts and commit suicide successfully. In recent years, the rate of suicide attempts has increased in children, reaching as high as 1–1.5% (9,10). Nevertheless, suicides are likely to be underreported in young children, as these behaviors are often formally recorded as accidents or unintentional injuries/deaths (10).

If suicidal ideations are not identified in early childhood, the risk of suicide attempts can increase with age. Overall, understanding the characteristics, warning signs and methods of suicide allows us to identify children with suicidal tendencies as early as possible (2,11). So, it is important to accurately determine the risk factors and etiology of suicide to identify high-risk individuals and develop preventive strategies for mental health (12).

In this multi-center study, we aimed to investigate the major risk factors, sociodemographic characteristics, and prevalence of psychiatric comorbidities in children, hospitalized in pediatric intensive care units (PICUs) for suicide attempts through drug overdose. The current findings can help fill the knowledge gap in suicidality among adolescents and children.

Materials / Patients and Methods

In this cross-sectional study, we retrospectively evaluated the data of patients under the age of 18 years, who were admitted to the PICUs of Cumhuriyet University Faculty of Medicine Hospital and Konya Training And Research Hospital in Turkey due to suicide attempts by drug overdose between January 1, 2015 and December 31, 2020. The Ethics Committee of the Cumhuriyet University Faculty of Medicine Hospital Hospital approved this study.

Twenty patients with incomplete data were excluded from the study. Intoxications with accidental drug intake, suicide patients who did not receive child psychiatry consultation were also excluded from the study. We recorded the demographic characteristics of the remaining 336 patients, including age, gender, the number of siblings, the cause of suicide attempt, school performance, medication use, time to hospital admission, and adverse effects of suicide attempt over the past month, treatments, Pediatric Risk of Mortality (PRISM-III) score and length of stay at hospital. PRISM-III score is a commonly used risk score at PICU admission, assesing 17 physiologic and laboratory parameters to predict mortality in children (13). Upon the PICU-admission, the patients' vital signs, PRISM-III score, and systemic findings were determined, based on their medical records.

The authors obtained the patient data regarding the physical examinations and adverse effects from the hospital database. If any adverse effects were observed in more than one organ system, they were recorded separately and grouped into serious side effects or clinically mild side effects defined by Patel et al. (see Appendix 1 for adverse effect categories) (14). Treatments were also categorized as those requiring critical support and not requiring critical support. Since the scope of the present study consisted of intensive care interventions during the study period, the investigators did not include data regarding emergency-care procedures.

All patients were referred to pediatric psychiatric consultation for suicidal behavior using Paykel Suicide Scale. The scale consisted of five items evaluating variable manifestations of suicidal behaviors with YES/NO responses (score: 1 and 0; the higher scores indicate greater severity) (Appendix 2) (15). The score defines the patients as low risk for suicide, suicidal act, suicidal ideation and high risk for suicide. In the present study, we defined the patients had suicidal behaviour if they were diagnosed as children at high risk for suicide. The psychiatric evaluations were noted for poor academic performance (at least 20% decline in overall grade compared to previous school year), the cause of suicide and prescribed pharmacotherapies (15,16).

National toxicology counselling 114 – call center was contacted and forensic files was filled-in for all PICU admissions. They also delivered psychiatric evaluation during PICU follow-up.

SPSS version 22 was used for statistical analysis. The conformity of the variables to the normal distribution will be examined by visual (histogram and probability charts) and analytical methods (Kolmogorov-Smirnov/Shapiro-Wilk tests). Descriptive statistics (mean, standard deviation, minimum, and maximum) were measured to describe the data. Also, the groups were compared, using Chi-square and Fisher's exact tests for categorical variables and Mann-Whitney U test for non-parametric variables while Student's t-test was used for parametric statistics. The level of significance was set at $p<0.05$ (95% confidence interval).

Results

We performed an observational cross-sectional retrospective study on a group of 350 patients with self poisoning, for whom intensive care unit follow-up is recommended by the National Poisoning Information Center. Suicide cases were 12% of all pediatric poisoning cases and 45% percentage of them were followed in the intensive care unit during this 5-year period.

The mean age of the patients was 14.98±1.53 years (range: 10–18 years) and female-to-male ratio was 3.35:1 (77% versus 23%). The youngest age occurred as 12 years in boys and 10 years in girls. The suicidal behavior was predominant between 13 to 17 years (79.2%) in both genders. However, 20.8% of the population (70 children) belonged to preadolescents' era (10 to 13 years).

Regarding the seasonal distribution, suicide attempts were common during spring season (n=115, 34.2%). Considering the children's demographic characteristics, the number of siblings at home was 2.41±1.49. The socio-cultural aspect of the families revealed that, these children were more likely to have parents with lower educational status (mostly high school graduates). Moreover, 77.7% of the children demonstrated decreased school success compared to previous year (Table 1).

Based on hospital data, the time elapse between drug exposure to PICU admission was 5.34±2.14 hours and 55.3% (n=186) of the attempts were hospitalized within the first three hours of drug exposure. The nature of attempt was drug ingestion leading to toxic overdose in 95.5%, followed by pesticide intake in 4.5% of the children. The drugs consumed by the patients were respectively, antipyretics/analgesics (21.4%), antidepressants (19.3%), antipsychotics (11.3%), anti-epileptics (9.2%), non-steroidal anti-inflammatory drugs (8.0%), flu drugs (7.7%) and anti-emetics (7.7%).Thirty eight (46.3%) of all the patients used such substances for suicidal purpose.

A total of 165 adverse effects were recorded at the time of hospital admission. Of them, 68.66% of categorized as serious adverse effects (110/165). The major organs affected was the central nervous system followed by cardiovascular system. Most common physical findings are somnolence and confusion (% 14.3), unconsciousness (% 6) and tachycardia (4.2%) (Table 2).

Seizures requiring anti-epileptic medications were reported in eleven and hemodynamic imbalance necessitating inotrope infusions in seven children. Twenty patients received invasive mechanical ventilation due to impaired airway patency. Hemodialysis or hemoperfusion was administered to five children in order to remove toxic substances and/or correct impaired renal functions (Table 3). The most common pathologies related suicide attempts were impulsive suicide attempts (48%), major depressive disorder (16%), generalized anxiety disorder (8%), conduct disorder (3%), and obsessive-compulsive disorder (1%). On the other hand, no mental disorders were observed in 24% of the children. Psychiatric follow-up was performed for 8% of patients. According to the psychiatric evaluations, 6% of patients had repeated suicidal ideations and tendencies, 66% regretted their suicide attempt, 7% had no regrets, and 21% avoided answering the questions. Also, the results showed no history of suicide in the patients' relatives.

The recurrence rate was 7.1% and girls were prone to repetitive attempts (females: 16.2%, males 6.5%; p=0.038). They were also more likely to deliver psychiatric follow-ups prior to suicide attempts (females: 35.9%, males: 23.4% ; p=0.040). Moreover, the underlying conditions related to suicidal attempts were family-related (38%), opposite – sex communication problems (24%), school-related issues (11%), environmental problems (8%), and domestic violence (3%). Nevertheless, the cause of suicide attempts could not be identified in 16% of the cases.

In this study, the duration of PICU admission was 1.98±0.99 days, and the total length of stay at hospital was 4.98±0.99 days. 5.9% (n: 20) of patient needed intubation-ventilator support, 1.5% (n: 5) needed hemodiafiltration and 2.1% (n: 7) needed inotropic support. Also, the mean PRISM score was 3.67±2.99, and all patients were discharged from the hospital alive.

Table 1. General Demographic Characteristics

Variable	n = 336 (%)
Gender	
Female	259 (77.1%)
Male	77 (22.9%)
Age	14.98 ± 1.53 years
Age Group	
10-13 years	70 (20.8%)
13-18 years	266 (79.2%)
Weight (kg)	47.44 ± 21.69
Maternal sociocultural status	
University	105 (31.3%)
High school	149 (44.4%)
Middle school	61 (18.2%)
Uneducated	21 (6.3%)
Season	
Spring	115 (34.2%)
Summer	79 (23.5%)
Autumn	61 (18.2%)
Winter	81 (24.1%)
PRISM-III score	3.67 ± 2.99 (mean:3)
Time elapse between exposure to PICU admission (hours)	5.34 ± 2.14
Number of Siblings	2.41 ± 1.49
Maternal age(years)	38.56 ± 5.64
Paternal age	43.62 ± 6.23
Decline in school success	261 (77.7%)
Paternal sociocultural status	
University	129 (38.4%)
High school	142 (42.3%)
Middle school	65 (19.4%)
Uneducated	-
Length of PICU stay(days)	1.98 ± 0.99
Duration of hospitalization (days)	4.98 ± 0.99

Discussion

Suicidal behavior is one of the leading causes of mortality among adolescents in developed countries. This behavior is recognized as a serious public health concern and a major social problem worldwide (1,2). In recent years, suicidal ideations and attempts have been increasing in the youth population (2–4). Therefore, identifying the high-risk age groups is important for developing protective measures. In a study by Osanaa et al., 73% of suicidal attempts were reported in the adolescent age group (14–18 years), while in a study by Yalaki et al., the most common age range of suicide was 14–16 years, with an estimated prevalence of 82.6% in girls (3,12). In the present study, the majority of subjects attempting suicide were in the age range of 13–18 years. Besides the suicide rate was estimated at 20% in the age group of 10–13 years which was considerably high in this age group and which is in line with previous studies, indicating a reduction in the age of suicide (17–20). While the most common age range of

Table 2. Signs and symptoms of intoxication

Organ system	Medications	Side effects (SE)		Serious	Mild
Central nervous system (%)	– Antiepileptics – Antidepressants – Antipsychotics	Somnolence – Confusion	48 (14.3%)	+	
	– Antipsychotics – Antidepressants (TCAD)[π]	Unconsciousness	20 (6.0%)	+	
	– Antihistaminics	Delirium	12 (3.6%)	+	
	– Antiemetics (metoclopramide)	Dystonia	7 (3.1%)	+	
	– Antidepressants (TCAD)[π] – Stimulants (methyl phenydate)	Seizure	11 (3.3%)		+
	– Insecticide (organophosphate)	Myozis	8 (2.4%)		+
	– Antihistaminics	Mydriasis	9 (2.7%)		+
Respiratory system (%)	– NSAID (Aspirin) – Cardiovascular drugs (b-blockers)	Tachypnea	3 (0.9%)		+
Cardiovascular system (%)	– Thyroid hormones – Flu medications (containing pseudoephedrine) – Stimulants (methyl phenydate)	Tachycardia	14 (4.2%)		+
	– Organophosphates – Cardiovascular drugs (b-blockers)	Bradycardia	4 (1.2%)	+	
	– Antihistaminics – Cardiovascular drugs (b-blockers)	Hypotension	7 (2.1%)	+	
Gastrointestinal system (%)	– Antidepressants (SSRI)[µ]	Nausea and vomiting	4 (1.2%)		+
Urinary system (%)	– Organophosphate – Antiepileptic (valproic acid)	Impaired renal function tests	6 (1.8%)		+
	– Oral antidiabetics (metformin)	Oliguria	2 (0.6%)	+	
Hematopoietic system (%)	– Colchicine, – Antiepileptics (carbamazepine)	Pancytopenia	4 (1.2%)	+	
Metabolic (%)	– NSAID (Aspirin) – Antiepileptics (carbamazepine) – Cardiovascular drugs (calcium channel blocker)	Metabolic acidosis	6 (1.8%)	+	

[π]**TCAD:** Tricyclic antidepressants, [µ]**SSRI:** seratonin reuptake inhibitor group antidepressant drugs.

Table 3. Treatment modalities

Treatment modalities	n=336	Administered in PICU	Administered in pediatric ward
N – acetyl cysteine	57 (9.6%)		+
Recurrent activated charcoal administration	27 (4.6%)		+
Urine alkalization	19 (3.2%)		+
Forced diuresis	7 (1.2%)	+	
Sedation	5 (0.8%)	+	
Inotropic support (adrenaline infusion)	7 (2.1%)	+	
Atropine administration	4 (1.2%)	+	
Antiepileptic therapy (benzodiazepine)	11 (3.3%)		+
Physostigmine administration	3 (0.9%)	+	
Pralidoxime administration	2 (0.6%)	+	
Desferroxamine administration	3 (0.9%)		+
Intubation-ventilator support	20 (5.9%)	+	
Hemodialysis/hemoperfusion	5 (1.5%)	+	

puberty is 10–11 years in female adolescents and 11–12 years in male adolescents; according to previous studies, recently, the age of puberty has decreased to eight years in girls and to nine years in boys. The physical and mental impacts of this precocious puberty are intense and severe for adolescents (21,22) and may be related to identity conflicts that suicide age is getting smaller.

Although suicidal ideations and attempts are more common in girls, the prevalence of complete suicide is higher in boys; it should be noted that gender differences are not similar in different countries (7,10,22). The higher prevalence of suicidal attempts in girls may be attributed to the earlier development of sexuality in girls than boys, besides earlier hormonal changes in girls during adolescence. Despite the general positive effect of precocious puberty on mental health in boys; lower self-esteem and higher rates of depression, anxiety disorders, and eating disorders have been reported in girls (22,23).

Regarding the seasonal distribution, it was found that suicidal attempts vary by month. In this regard, Plemmons et al. showed that suicidal attempts increased during summer. According to the other study, suicidal attempts in children are the highest in May (24). Similarly, in the present study, spring was the most common season for suicide through drug overdose. It was thought that the rate of suicidal behavior increases in months end of school term, depending on the child's bad school performance and as a result of parent-child communication problems.

Regarding the time until hospitalization, it was found in the present study, the mean time until hospitalization was 5.34±2.14 hours like the other literature (20,25).

Adolescents use different methods for suicide, such as drug overdose, jumping from heights, hanging, drowning, and firearms. Drug overdose has been reported as the most frequently used method (26,27). In our study, 95.5% of children made suicidal attempts with drug overdose, followed by pesticide intake (4.5%). Analgesics, anti-inflammatory drugs, antidepressants, and antibiotics are among the most commonly used drugs for suicidal attempts. In line with previous studies, we found that antipyretics/analgesics (21.4%) and antidepressants (19.3%) were the most commonly used drugs by patients, who showed suicidal behaviors and used multiple drugs (26–28).

Analgesics and anti-inflammatory drugs are easily available in almost every household, which explains why it is the most commonly used drug group. The high consumption rate of antidepressants for suicide attempts reflects the presence of psychiatric disorders and the high prevalence of drug use in patients or their family members. On the other hand, most drugs affecting the central nervous system are sold without prescriptions by pharmacies. Therefore, similar to antibiotics, prescription requirements for these drugs can reduce the prevalence of uncontrolled use. Since antidepressants are among commonly used drugs during adolescence (17,28), and a large number of these drugs are prescribed for psychiatric reasons, it is very important to get prescriptions under control. Suicidal attempts are more common in adolescents than other age groups, especially if the parents are oppressive, insensitive, or unsupportive. Overall, adolescence is a transition period when many physical and psychological changes occur. Since the adolescents' independence and responsibilities increase during this period, they may experience major conflicts and problems. The ability of adolescents to cope with these problems is closely related to their social environment in which they live, as well as the family's attitude toward their problem (22,29). According to the literature, familial problems are the most influential factors in suicidal behavior (4,30-32). Similarly, our retrospective analysis of the patients' records revealed that the most common causes of suicidal behavior were familial causes (38%), opposite-sex communication problems (24%), and school problems (11%). For this reason, it is very important to develop effective prevention strategies.

However, no information was obtained about the cause of this behavior in 16% of cases. In this regard, Pfeffer et al. reported suicide attempts in the first-degree relatives of the majority of suicidal cases (29). Contrary to this study, we found no suicide history in our suicidal patients.

In line with the literature, the most common pathologies associated with suicidal attempts in our study were impulsive suicidal attempts (48%), major depressive disorder (16%), generalized anxiety disorder (8%), conduct disorder (3%), and obsessive-compulsive disorder (1%). On the other hand, no mental disorders were reported in 24% of cases, and 8% of patients had mental health follow-ups. Overall, suicidal attempts can have adverse effects on the individual. Therefore, psychoeducation for the treatment of children with psychiatric problems, support therapy, and family and school cooperation are essential. Also, pharmaceutical treatments need to be applied for serious cases that do not respond to supportive therapies (26,33).

It has been shown that 25% of adolescents and preadolescent children repeat their suicide attempts, which may result in higher mortality rates (34,35). In a study conducted by Liu et al. on adults, it was found that 9.7% of patients had repeated a suicide attempt six months after the first attempt (36). In the present study, it was repeated suicide attempt for 7.1% of patients, whereas in 92.3% of cases, it was their first attempt at the time of admission to hospital. The analysis of patients with recurrent suicide attempts in our study showed that, in agreement with previous studies, the majority of patients did not respond to drug treatments and did not go to a clinic for outpatient follow-up. (33,34). Therefore, a close psychiatric follow-up in collaboration with the family physician is necessary, as these children are prone to a high risk of recurrent suicide attempts. In many developed countries, recent studies on school students have focused on preventing suicidal thoughts and attempts in adolescents and preadolescent children (35-38). We believe that performing similar studies in Turkey, with family and school collaboration, can contribute to the reduction of suicidal ideations and ultimately reduce suicidal attempts.

This study has some limitations, given its retrospective design. First, the results were collected from the hospital computerized registration system, and the patients' physical examination results and vital signs were not determined, based on the researchers' observations; therefore, some adverse effects and physical examination findings might have been undocumented.

Conclusion

The increasing prevalence of suicide attempts in children has caused major public health concerns in Turkey and around the world. It is a condition with high mortality and morbidity and still constitutes an important part of intensive care hospitalizations in adolescents.

The present results showed that the majority of suicide attempts occurred during adolescence, with an increase in pre-adolescence at a considerable rate. Also, our findings have shown that suicide attempts are more common in girls than boys. In this perspective, we think that communication problems and wrong attitudes of family members may trigger this behavior, and factors such as psychiatric disorders and low school success increase the risk of suicide. Therefore, for the prevention of suicide attempts and development of treatment approaches, children should be evaluated along with their families and environmental setting; also,

families need to be educated about their approach toward their children's problems. It seems that suicide attempts and ideations, which can lead to future suicide attempts, are also common in prepubertal children. Due to the fact that suicide age is decreasing gradually to the preadolescent period, multidimensional measures should be planned for psychological support programs in schools as in adolescence.

Overall, as seen in our study, intensive care follow-up, treatment strategies and close monitoring of these patients are very important, and early diagnosis and intervention of complications that may arise are possible in intensive care units.

So it is important to increase the knowledge of pediatricians about suicide attempts in children and provide psychosocial support for children and their families as a preventive measure after their first attempt.

AUTHOR CONTRIBUTIONS:

Concept: ÖSS; **Design:** ÖSS, EAO, ÖT; **Supervision:** ÖSS; **Fundings:** DI; **Data Collection and/or Processing:** GS; **Analysis and/or Interpretation**: EAO; **Literature Search:** ÖSS,GC,SAS,AU; **Writing Manuscript**: ÖSS; **Critical Review:** GC.

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Appendix-1

Organ System	Clinically Significant Intoxication	Non-Clinically Significant Intoxication
Cardiac	Asystole Arrest Bradycardia Conduction Disturbance Dysrhythmia Hypertension Hypotension	Chest Pain Electrocardiogram Changes Tachycardia
Respiratory	Bronchospasms Cyanosis Dyspnea Pulmonary Edema Arrest Depression	Cough/Choke Hyperventilation/Tachypnea Pneumonitis
Neurologic	Blurred Vision Coma Confusion Cerebrovascular Accident Deafness Dizziness/Vertigo Dystonia Hypothermia Intracranial Bleed Muscle Weakness Muscle rigidity Paralysis Papilledema Pupils Nonreactive Seizure (Multiple/Discrete) Status Epilepticus Slurred Speech Syncope Visual Defect	Agitated/Irritable Ataxia Corneal Abrasion Drowsiness/Lethargy Hallucinations/Delusions Headache Fever/Hyperthermia Myosis Mydriasis Numbness Nystagmus Peripheral Neuropathy Photophobia Pruritus Seizure (Single) Tinnitus Tremor
FEN/GI[a]	Electrolyte Abnormality Esophageal Injury Esophageal Stricture Gastric Burns Hematemesis Hypoglycemia Melena Oral Burns Oropharyngeal Edema	Abdominal Pain Anorexia Blood Per Rectum Constipation Dehydration Diarrhea Dysphagia Excess Secretions Fecal Incontinence Hyperglycemia Ileus Melena Nausea Oral Irritation Throat Irritation
Renal	Acidosis Alkalosis Anion Gap Increased Hematuria Hemo/myoglobinuria Oliguria/Anuria Osmolal Gap Increased Oxalate Crystals (Urine) Polyuria Renal Failure Urinary Incontinence Urinary Retention	Creatinine Increase Rhabdomyolysis Elevated Creatine Phosphokinase Urine Color Change
Hepatic	Bleeding AST or ALT[b] > 1,000 Disseminated Intravascular Coagulopathy Prothrombin Time Prolonged	AST or ALT[b] 100-1000 Bilirubin Increased Other Coagulopathy Other Liver Function Test Abnormality
Miscellaneous	2nd/3rd Degree Burns Cytopenia Diaphoresis Erythema/Flushed Fasciculation Hemolysis Lacrimation Necrosis Pallor	Bullae Superficial Burns Cellulitis Conjunctivitis Dermal Irritation/Pain Ecchymosis Edema Fetal Death Hives/Welts Multiple Chemical Sensitivities Ocular Irritation/Pain Other Pain (Not Dermal, GI, Ocular) Rash Unspecified Radiographic Findings Adverse Drug Reaction to Treatment Puncture/Wound/Sting

Appendix-2

PAYKEL SUICIDE SCALE		
Please mark with a cross the box that you think best fits what you have felt or experienced in the last year		
1. Have you felt that life is not worth living?	**Yes**	**No**
2. Have you wished you were dead? For example going to sleep and wish you would not get up.	**Yes**	**No**
3. Have you thought about taking your life even if you weren't really going to?	**Yes**	**No**
4. Have you reached where you considered actually taking your own life or you made plans about how you would do it?	**Yes**	**No**
5. Have you tried to take your own life?	**Yes**	**No**