INCIDENCE AND PREDICTORS OF IN-HOSPITAL MORTALITY AMONG ACUTELY POISONED PATIENTS ADMITTED TO ALEXANDRIA MAIN UNIVERSITY HOSPITAL

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Introduction

Poisons are substances that have the potential to cause harm or death when they enter the body through various routes, such as inhalation, ingestion, injection, or skin absorption. They encompass a wide range of chemicals, including toxic substances, medications in excessive doses, illicit drugs, household chemicals, environmental pollutants, and venomous animal or plant toxins.

It's important to note that the effects of a poison can be influenced by various factors, including the route of exposure. For instance, inhalation of toxic fumes or gases can lead to respiratory distress or damage, while ingestion may affect the gastrointestinal system. There may be absorbed into the bloodstream, affecting multiple organs and systems. Injection of a poison directly into the bloodstream can have rapid and profound systemic effects.

Mortality rates due to poisonings can vary significantly globally and within different countries. Analysing the mortality rates associated with poisonings provides insight into the public health impact of these incidents and highlights the need for preventive measures and appropriate management strategies.

Aim of the work

The primary aim of the present study was to determine the incidence of mortality in patients presenting with acute poisoning to The Alexandria Poison Center (APC).

The secondary aim was to evaluate the predictors of mortality among those patients.

Patients and Methods

This prospective observational study was conducted on 540 patients with acute poisoning presenting to APC, AMUH during the period of six months from 1st of May till the end of October 2023. All patients were > 18 years. Patients who are less than 18 years, Patients with food poisoning, Patients who left against medical advice or discharged against medical advice, Patients who don't give consent for participating in the current study, Patients with trauma, burns associated with poisoning were excluded from the study.Informed consent was taken from patients or their first-degree relatives.All selected patients were interviewed to obtain demographic data, past medical history, history of psychiatric diseases, history of previous suicide attempt, type of the agent, route of poisoning, intent of poisoning, time from exposure to a toxic agent to arrival at APC. All the patients were examined as regard: airway, breathing, circulation, disability, exposure. Some investigations (radiological &laboratory) were done.

The number of the patients who were improved and those who died were calculated to estimate the mortality rate. Also, patients' symptoms, vital signs and initial laboratory values were analysed inrelation to severity of poisoning. In addition, the length of either ICU or ward admission, the need for intubation, Mechanical ventilation and its duration and vasopressor usage were collected to evaluate the significance of the severity of the illness. All the data collected were fed to the computer in a data collection Excel sheet and the statistical analysis was performed for all enrolled patients with poisoning. The data analysis was done using IBM SPSS software package version 25.0 (Armonk, NY: IBM Corp).

Results

Table 1: Comparison between survivors and non-survivors according to sociodemographic data

	Outcome						Test of significant (P)
	Survivors (n = 489)		Non-survivors (n = 51)		Total (n = 540)		
	No.	%	No.	%	No.	%	
Age (Years)							
Mean ± SD	30.52±12.29		39.47±13.69		31.37± 12.691		(U= 7141, P<.001*)
Median (Min. – Max.)	27 (18 – 86)		40 (22 – 66)		28 (18 –86)		
Sex							
Male	249	50.9	31	60.8	280	51.9	(χ2=1.800, P=0.180)
Female	240	49.1	20	39.2	260	48.1	
Occupation (n = 518)							
Student	136	28.8	3	6.7	139	26.8	(^{MC}P=<0.001*)
Farmer	121	25.6	16	35.6	137	26.4	
Housewife	69	14.6	3	6.7	72	13.9	
Laborer	51	10.8	14	31.1	65	12.5	
Graduated	57	12.1	0	0.0	57	11.0	
Employed	24	5.1	0	0.0	24	4.6	
Retired	9	1.9	6	13.3	15	2.9	
Driver	6	1.3	0	0.0	6	1.2	
Unemployed	0	0.0	3	6.7	3	0.6	
Place							
Rural	235	48.0	42	82.4	277	51.3	(χ2=21.872, P=<0.001*)
Urban	254	52.0	9	17.6	263	48.7	

Table 2: Comparison between survivors and non-survivors based on the types of toxins involved and the history of toxicity and whether the case involved poisoning or drug intake

	Outcome						Test of significant (p)
	Survivors (n = 489)		Non-survivors (n = 51)		Total (n = 540)		
	No.	%	No.	%	No.	%	
Route of poisoning							
Oral ingestion	387	79.1	45	88.2	432	80.0	(χ^2=35.321, p=0.004*)
Inhalation	57	11.7	3	5.9	60	11.1	
Bite	27	5.5	0	0.0	27	5.0	
Inhalation & Dermal	6	1.2	0	0.0	6	1.1	
Injection	3	0.6	0	0.0	3	0.6	
Ingestion & Inhalation	3	0.6	0	0.0	3	0.6	
Dermal	3	0.6	0	0.0	3	0.6	
Ocular	3	0.6	0	0.0	3	0.6	
Unknown	0	0.0	3	5.9	3	0.6	
Time from ingestion till admission (hours) (No=531)							
Mean ± SD	6.34 ± 7.47		6.25 ± 5.01		6.331± 7.2814		(U= 10885.5, p=.48)
Median (Min. – Max.)	5 (0.5 – 72)		5 (1 – 20)		(0.5 – 72.0)		
Intent of poisoning							
Intentional	246	50.3	33	64.7	279	51.7	(χ2=21.233, p<0.001*)
Unintentional	174	35.6	3	5.9	177	32.8	
Unknown	69	14.1	15	29.4	84	15.6	
Poison versus Drug							
Poison	263	53.8	33	64.7	296	54.8	(χ2=23.924, p<0.001*)
Drug	190	38.9	6	11.8	196	36.3	
Unknown	36	7.4	12	23.5	48	8.9	

Conclusion

This study showed a predominance of male patients, with a significant proportion of cases involving intentional poisoning. Furthermore, our investigation into peri-hospital management strategies demonstrated significant differences in site of hospital admission, and the need for advanced life support measures between survivors and non-survivors. These findings focus on the importance of timely intervention and appropriate clinical decision-making in optimizing outcomes for poisoned patients.