Assessment of Knowledge toward Initial Management of Acute Poisoning among Medical Students in Riyadh City KSA, 2017

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ABSTRACT
Background: Acute poisoning is a common situation that occurs due to administrating harmful substances that impact the health with significant costs and increasing the rates of admission to emergency departments.
Objectives: Assessing the knowledge of Saudi medical students toward the initial management of acute poisoning in Riyadh Region, Kingdom of Saudi Arabia (KSA). **Methods:** A cross-sectional study was done based on a questionnaire sheet conducted at Riyadh region in KSA from August to October 2017 among medical students. **Results:** Most of the subjects were at the seventh semester (69.7%), followed by 23.7% in the fifth academic semester and 13.7% at the sixth academic year. About 69.7% and 65.3% had previous exposure to first aid training and training in emergency setting. Most of the subjects had good knowledge about the definition of poisoning, early stages of acute poisoning, importance of maintaining airway, respiration and circulation as well as initial management using gastric lavage, char coal and antidotes. The level of knowledge was good among 77.3% of students but was insufficient among 22.7% of subjects. There were a significant association between higher educational semesters, training about first aid as well as training in emergency departments. **Conclusion:** The level of knowledge about initial management of acute poisoning was adequate among most of the students and was associated with training programs and experience in emergency departments. This study presented the importance of educational and training programs from the first year of the college to increase the knowledge and practice to save more lives.
Keywords: Knowledge, Acute Poisoning, Medical Students, Riyadh City, KSA, 2017.

INTRODUCTION

Acute poisoning is a common situation that occurs due to administration of harmful substances that impact the health with significant costs[1]. It is the reason for high rates of admission to emergency departments all over the world[2] which resulted in in higher morbidity and mortality rates among over one million persons annually [3]. The majority of incidence rates were found among populations from developing countries due to the accidental use of toxic materials [4, 5]. However, there is no distinct number about the real prevalence of poisoning because of the lack of true and exact reports on the occurrence of the poisoning cases [5].There are major types of acute poisoning including drug overdoses, chemicals and pesticides [6].

Thus, proper management and admission of first aid are lifesaving during these conditions before the medical care of health professionals [7].The medical students who are being taught at the hospitals should learn how to handle emergencies in the clinical departments until the health professionals are available thus, the adequate knowledge have to be early acquired by the medical students about initial management of emergent cases and the first aid[8, 9]. Many studies showed an inadequate level of knowledge and practice among medical students thus, even junior doctors may be incapable of performing the first aid skills for those attending emergency department[10, 11]. In KSA, there is a lack of studies assessing the KAP of medical students toward handling the emergency acute poisoning hence the present study aimed at assessing the knowledge of Saudi medical students toward the initial management of acute poisoning.

METHODS

Study design: A cross-sectional study was done based on a questionnaire sheet conducted at Riyadh region in KSA from August to October 2017.

Study population and sample size: a random sample of medical students was chosen using multi-stratified random sampling technique in which 300 students were included from 3 different medical universities. The inclusion criteria were Saudi medical students from different semesters who were exposed to clinical settings during these semesters.

Study tools

A self-administrated questionnaire was used after conducting a systemic search using Scopus, Pubmed, Google Scholar and other available search engines for preparing a valid and reliable questionnaire. The questionnaire was collected, then reviewed by 3 supervisors to be validated. The questionnaire consists of 2 parts that deals with the demographics of included students, knowledge level toward acute poisoning.

Ethical approval

The study protocol and the questionnaire were approved by the supervisors before conducting the study. Also, all the included students provided an informed approval to participate in the study. *The study was done after approval of ethical board of King Abdulaziz university.*

Statistical analysis: the results were analyzed using the Statistical Package for Social Sciences (SPSS)

for windows version 22. P value< 0.05 is considered significant.

RESULTS

Demographics of the studied subjects

The characteristics of the students are presented in Table. 1. Most of the subjects were at the seventh semester (69.7%), followed by 23.7% in the fifth academic semester and 13.7% at the sixth academic year. About 69.7% and 65.3% had previous exposure to first aid training and training in emergency setting.

Table (1): Characteristics of included medical students (300)

Academic semester	Fifth	**70**	**23.7%**
	Sixth	41	13.7%
	Seventh	189	63%
Previous exposure to first aid training	**Yes**	209	69.7%
	No	91	30.3%
Previous training in the emergency setting	**Yes**	196	65.3%
		104	34.7%

Assessment of knowledge of the student toward acute poisoning

The students' awareness about acute poisoning are presented in Table. 2.

Most of the subjects possess good knowledge about the definition of poisoning, the importance of assessing the dose, time and type of poison as well as the importance of treating the patients and the poison as well.

Also, the knowledge about the early stages of acute poisoning including dry mouth, abdominal pain and salivation while the other stages came later.

As for initial management, the majority of the students showed adequate knowledge about the importance of maintaining airway, respiration and circulation.

Also, the knowledge was adequate among most of students regarding the atropine, specific antidotes and the importance of vomiting and gastric lavage for management of poisoning.

Table (2): Awareness regarding poisoning and initial management

Poison is the substances that produce damage or dysfunction in the body	300 (100%)	0 (0%)
Considering the dose and time of ingestion is important in managing the poisoning cases in ED	216 (72%)	84 (28%)
It is important to treat the poison not the patient.	138 (46%)	162 (54%)
The most common cause of poisoning is pesticides in developing countries	157 (52.3%)	143 (47.7%)
Dry mouth, abdominal pain and salivation(T)	300(100%)	0 (0%)
Nausea, vomiting, hallucinations and convulsions(F)	257 (85.7%)	43 (14.3%)
Coughing, cyanosis, hyperventilation and salivation(F)	219 (73%)	81 (27%)
Tachycardia, hypotension, diarrhea and breathlessness(F)	233 (77.7%)	67 (22.3%)
Initial management of poisoning:		
Maintaining adequate airway, respiration and circulation are the priority during severe acute poisoning.(T)	300 (100%)	0 (0%)
Atropine should be administered in any circumstance during organophosphate poisoning (T)	217 (72.3%)	83 (27.7%)
Most of the poisoning types have their specific antidote.(F)	290 (96.7%)	10 (3.3%)
Gastrointestinal (GI) decontamination is based on the type, time and severity of poison ingestion of poison(s) ingested.(T)	278 (92.7%)	22 (7.3%)
Vomiting is an alert, conscious patient who has ingested a substantial amount of a toxic substance within 60minutes of presentation.(T)	182 (60.7%)	118 (39.3%)
Activated charcoal is used for absorption of many poisons from the gastro-intestinal tract.(T)	197 (65.7%)	103 (34.3%)
Gastric lavage is indicated for all cases of poisoning except for ingested kerosene or corrosive substances.(T)	218 (72.7%)	82 (27.3%)
The gastric lavage effectiveness would increase as the time between ingestion and treatment increases.(F)	199 (66.3%)	101 (33.7%)
The aspirated lavage fluid should be approximate to the Volume of the given fluid.(T)	176 (58.7%)	124(41.3%)
Assessing and monitoring the neurological functions are important during the admission	277 (92.3%)	23 (7.7%)

Level of knowledge among students

The level of knowledge was good among 77.3% of students but was insufficient among 22.7% of subjects (Table 3).

Table (3): Respondents' awareness toward acute poisoning

Knowledge level	Frequency	Percent (%)
Good	232	77.3
Poor	68	22.7
Total	300	100.0

Association between students' knowledge and demographics

The association between students' awareness and characteristics showed that there were a significant association between higher educational semesters, training about first aid as well as training in emergency departments (Table 4).

Table. 4: Association between knowledge of acute poisoning and demographic variables

	Good (n=232)		Poor (n=68)		P-value
The academic semester	**No.**	**%**	**No.**	**%**	
Fifth	29	12.5%	41	60.3%	0.001
Sixth	36	15.5%	5	7.3%	
Seventh	167	72%	22	32.4%	
Previous exposure to first aid training					
Yes	199	85.8%	10	14.7%	0.001
No	33	14.2%	58	85.3%	
Previous training in the emergency setting					
Yes	174	75%	22	32.4%	0.001
No	58	25%	46	67.6%	

DISCUSSION

Poisoning is a very common health condition results in higher rates of admission to emergency departments. The first aid and initial management is important especially during the time of admission to save the lives of the patients in due time. The success of management depend on the knowledge of the health care provider about the correct first-aid is lifesaving practices [10, 12, 13].

The results indicated that most of the students had good knowledge regarding the acute poisoning definition, symptom and signs of early stages as well as the initial management procedures. This was in the same respect with another study conducted among students from different universities in Istanbul in which the medical students had adequate awareness regarding the symptoms, types and first aid management procedures for acute poisoning [14].

Also, the level of knowledge was associated with those in the seventh and sixth semester as well as those having first aid courses and trained at emergency departments as the proper knowledge

would result in proper practice and saving more lives. Thus, adding first aid courses and management procedures of acute poisoning are important for medicine students from the first day at college. Also, practicing at emergency departments is important for the first year students to achieve more experience and would save more lives.

This study has some limitations as the present study evaluated only the knowledge of the students and not the practice pattern of the students. Also, the results can't be generalized as other students in different universities may have acquired less and/or inadequate knowledge as well as haven't attended first aid courses or emergency treatments through advanced clinical departments in specialized university hospitals .

Apart from the limitations, this study had some strength points including no previous studies have been conducted in KSA before to assess the knowledge of medical students about the initial management of acute poisoning. Also, the awareness in the present study showed association

with training as well as higher educational semesters which give a hint on the need of more training programs for improving the knowledge and practice pattern.

CONCLUSION

The level of knowledge about initial management of acute poisoning was adequate among most of the students and was associated with training programs and experience in emergency departments. This study presented the importance of educational and training programs from the first year of the college to increase the knowledge and practice to save more lives. Other studies must be conducted in different parts in KSA to draw the attention about the knowledge, attitude and practice of the students toward acute poisoning and health hazards.

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