

First Aid Knowledge of Basrah Nursing College Students in Poisoning Cases

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Abstract

Introduction: Poisoning is an important public health problem, which constitutes an important part of emergency medicine services. It requires a thoughtful approach with frank answers to first-aid applications which are done accurately and on time. A&E nurses are frequently the first health care workers to come in contacted with poisoning cases. Knowledge of the proper first aid and treatment of these patients are very vital.

Objectives: The main aim of the study was to evaluate the knowledge regarding poisoning cases based on first-aid applications among nursing college students in Basrah.

Methodology: A cross-sectional study was conducted among 67 fourth year students of college of nursing after agreement of college of nursing, University of Basrah to carry out the study was obtained. The students were administered a questionnaire on their first aid knowledge regarding poisoning cases through an online google form.

Results: Depending on the 14 general knowledge questions, a score (range from 0 to 14) was calculated for each participant. The mean score (out of 14) for the 67 participating students was 6.9 with SD of 2 and a range of 2 to 11. The response to the 10 items on the initial management of acute poisoning, a score (range 0-7) was calculated for each student. The mean score for all students was 3.5 (SD 1.7), range 0 to 7.

Conclusions: The present study revealed that nursing students in Basrah University were lacking the necessary basic knowledge related to first aid in poisoning cases. We suggest that adding first-aid courses to program at universities can raise the students' knowledge on both poisoning and initial management of acute cases.

Keywords: First Aid; Poisoning; College Students

Introduction

Poisoning is a medical condition that occurs as a result of contact of the human body to a toxic substance(s). Contact can include respiration, circulation ingestion, or skin contact. Poisoning is defined by various indicators that arise in the digestive, respiratory and nervous systems and adhere to the factors causing it [1]. WHO reports that poisoning one of the most public causes of increased morbidity and mortality rate in the world [2]. Poisoning can be mainly classified into: a) Unintentional

b) Suicidal c) Homicidal [3]. Unintentional poisoning can be defined as an act by which a persons, accidentally expose their bodies to poison without wanting to cause harm to themselves [4]. There are many kinds of poisoning e.g. corrosives which include drainage fluids, multi-purpose detergents and batteries. Hydrocarbons are one types of poisoning and they include gasoline, kerosene, certain oils, lighter fluid and thinners [5]. Drugs, plants and lead poisoning are other types of poisoning [6]. The snake-bite and scorpion stings were two of the most common causes of injury, in

developing countries. The venom of these scorpions is neurotoxins, and their sting will result in death by asphyxiation. Scorpion is very hardy animal that are resistant to hunger and thirst [7]. The factors that aid in poisoning differ according to geographical area, seasons, developmental, age group, and sociocultural level [8]. Poisoning is a common cause of presentation to emergency units in the United Kingdom and elucidate up to 10% of emergency admissions. However, the mortality from acute poisoning is less than 1% and the vast majority of patients will make a rapid and complete recovery [9]. In 2007, the overall number of poisoning deaths in the United States was 40,059, out of which 29,846 deaths (74%) were due to unintentional poisoning, and 3,770 (9%) were of uncertain intent [10]. In developing countries, especially in Asia, 44% of all deaths among 10-50 year women were due to poisoning and majority following suicidal ingestion of pesticides [11]. Many studies showed an insufficient level of knowledge and practice among medical students then; even young physicians may be inexperienced in performing the first aid skills for those attending emergency unit [12,13]. A research in Karachi highlighted that improved knowledge of dog bite management is necessary among health specialists, to avoid deaths due to rabies [14]. One study is conducted in London to assess the knowledge for definite antidotes (e.g. naloxone and flumazenil) used for the treatment of certain drug-induced toxicities. Doctor's knowledge was assessed 68.3% for opioid toxicity and 81% for benzodiazepines toxicity [15]. Emergency nurses are frequently the first health care workers to come in contact with poisoning cases. Knowledge of the appropriate initial evaluation and management of these cases are very crucial. Emergency nurses should be prepared with specialized knowledge and skills to enable them to deal with poisoning cases and to evaluate the patient's support system and family construction professionally [16]. Therefore, special studies should be accomplished to discover nursing students' knowledge regarding poisoning in order to determine the gaps and work required to overcome those gaps. The main aim of the study was to evaluate the knowledge regarding poisoning cases based on first-aid applications among nursing college students in Basrah, who will be part of the health care providers in the future.

Methods

The study is a descriptive cross-sectional, performed through three months extending from the second of January 2022 to the

first of April 2022. Agreement of College of nursing/University of Basrah to accomplish the study was gained before beginning the study. Participants in the study were fourth year College of nursing students. The students were administered a questionnaire on their first aid knowledge regarding poisoning cases through an online google form. The total number of fourth year nursing students was 131. Our sample was 67 students who were answered the questionnaire. A special questionnaire form was used to obtain data. Components of the questionnaire were selected by the supervisor from a published study [17]. The questionnaire included: general socio-demographic information about the participant including age, gender, marital status, place of residence. The questionnaire also included items related to the first aid knowledge in poisoning cases.

General knowledge on poisoning

The general knowledge on poisoning was assessed using the 14 items prepared as multiple choice and included 3 options: True, False, Unsure. The student gained one point for every right answer, and the total score on the general knowledge equaled the total points that students scored on the 14 questions.

Initial management of acute poisoning

Answers to 10 items on initial management of acute poisoning were analyzed. Again the students were asked to answer every question as (true) or (false), or respond with (unsure). One point was assigned for every right response and the total of points the students scored was stated as the student's final score on initial management of acute poisoning. The data were analyzed using statistical package for social sciences (SPSS) version 19. Descriptive statistics were presented as frequencies and quantitative data were presented by means and standard deviation, while qualitative data were presented by frequency distribution.

Results

(Table 1) presents characteristics of the participating students. The study included 67 respondents, 43 (64.2%) were females and 24 (35.8%) were males. The age of the study population was ranging between 21-35 years. The majority of students were between 21-25 years old (73.1%), only 7.5% were between 31 to 35 years old. About three quarters of the students (77.6%) were single, while (22.4%) were married. More than half of the students (55.2%) were rural, the remaining (44.8%) were urban.

Variable	No.	%
Age (years)		
21-25	50	73.1
26-30	11	16.4
31-35	6	7.5
Gender		
Female	43	64.2
Male	24	35.8
Marital status		
Single	52	77.6
Married	15	22.4
Place of residence		
Urban	37	55.2
Rural	30	44.8

Table 1: Characteristic of the study population.

General knowledge on poisoning

The general knowledge of students on poisoning was assessed using the 14 items. The question for which students showed the lowest knowledge level was the commonest cause of poisoning in developing countries, only 31(46.3%) of the students correctly answered it. Another question that was poorly answered was the gastrointestinal signs and symptoms of acute poisoning, most students could not distinguish signs affecting digestive system and those affecting other body systems. Also 43(54.2%) of students were not aware that poisoning can be classified as non-accidental and 50(74.6%) thought that there was a euthanasia poisoning. Regarding general knowledge, a score (range from zero to 14) was considered for each student. The mean score (out of 14) was 6.9 with SD of 2 and a range of 2 to 11 for all students.

General knowledge on poisoning	Response	
	Correct (%)	Incorrect (%)
Poison is any substance capable of producing damage or dysfunction in the body by its chemical activity (T)	56 (83.6%)	11(16.4%)
Dose ingested and time of ingestion are not very necessary consideration when managing an adult poisoned patients (F)	47(70.1%)	20(30.8%)
As an emergency nurse it is always important to treat the poison not the patient (F)	34(50.7%)	33(49.3%)
The commonest cause of poisoning in developing countries is pesticide poisoning (T)	31(46.3%)	36(53.7%)
Women are more likely to take poison in the general population to commit suicide than men (T)	40(59.7%)	27(40.3%)
Causes of poisoning among casualties attending any AED, according to motive and nature of use, can be classified as:		
Deliberate poisoning (T)	50(74.6%)	17(25.3%)
Homicidal poisoning (T)	38(56.7%)	29(43.3%)
Accidental (T)	42(62.7%)	25(37.3%)
Non accidental poisoning (T)	24(35.8%)	43(54.2%)
Euthanasia poisoning(F)	17(25.4%)	50(74.6%)
Alimentary signs and symptoms of acute poisoning during early stages include:		
Dry mouth, abdominal pain and salivation (T)	50(74.6%)	17(25.4%)
Nausea, vomiting, hallucination and convulsions (F)	10(14.9%)	57(85.1%)
Coughing, cyanosis, hyperventilation and salivation (F)	15(22.4%)	52(77.6%)
Tachycardia, hypotension, diarrhea and breathlessness (F)	11(16.4%)	56(83.6%)

Table 2: Students' responses to items on general knowledge on poisoning.

Initial management of acute poisoning practices among nursing students

The areas in which students displayed the least knowledge were in: organophosphate poisoning management, gastric lavage indication in kerosene or corrosive substances ingestion, activated charcoal’s effect in reducing absorption of many kinds of poisons from the digestive system to the human body, the efficacy of gastric lavage with time between ingestion and treatment and thinking that nearly all poisoning encountered in A& E have their specific

antidote, they were correctly answered by 6(9%), 9(13.4%), 12(17.9%), 13(19.4%), 15(22.4%) of the students respectively. Good percentage of the students (70.1%) correctly identified that the urgency in resuscitating severe acute poisoning is preserving adequate airway, breathing and circulation. Regarding the answers to the 10 questions on the initial management of acute poisoning, a score (range from 0 to 7) was obtained for each student and the mean score here was 3.5 (SD 1.7), range 0 to 7.

Initial management of acute poisoning	Response	
	Correct (%)	Incorrect (%)
In severe acute poisoning, maintaining adequate airway, respiration and circulation is always a priority (T)	47(70.1%)	20(29.8%)
In case of organophosphate poisoning atropine should not be administered in any circumstances (F)	6(9%)	61(91%)
Nearly all poisoning encountered in A& E have their specific antidote (F)	15(22.4%)	52(81.6%)
The decision to perform Gastro Intestinal (GI) decontamination should be based upon the specific poison(s) ingested, time from ingestion to presentation, and the presenting and predicted severity of poisoning (T)	46(68.7%)	21(31.4%)
Emesis is to be considered in an alert, conscious patient who has ingested a substantial amount of a toxic substance within 60 minutes of presentation (T)	36(53.7%)	31(46.3%)
Activated charcoal can increase absorption of a wide range of poisons from the gastro-intestinal tract to the entire human system (F)	12(17.9%)	55(82%)
Gastric lavage is indicated in patients who have ingested kerosene or corrosive substances within an hour of presentation (F)	9(13.4%)	58(86.5%)
The efficacy of gastric lavage increases as the time between ingestion and treatment increases (F)	13(19.4%)	54(80.6%)
The volume of lavage fluid returned should approximate to the amount of fluid given (T)	32(47.8%)	35(52.2%)
Patients presenting following ingestion of controlled released substances may benefit from decontamination even after a longer delay (e.g. more than 2-4 hours) (T)	21(31.3%)	46(68.6%)

Table 3: Students’ responses to items on initial management of acute poisoning practices.

Discussion

Poisoning is an important public health problem, which constitutes an important portion of emergency service applications. It needs a thoughtful approach with honest answers to first-aid services are done accurately and on time. At the current time, the success of the management can be increased by improving awareness and protection measures regarding poisoning issues. In the poisoning cases, appropriate first-aid is lifesaving, and it is application which should be provided by all persons regardless of

their studies [18]. In our research, it was observed that (83.6%), (70.1%), (74.6%) of the students answered correctly the questions about: definition of poison, recognition of deliberate poisoning as one cause of poisoning among casualties attending any AED , consideration of dose ingested and time of ingestion when managing patients respectively and this is consistent with the result of study conducted in Kenya [17]. Good percentage of our students (70.1%) rightly identified that the priority in managing severe acute poisoning is maintaining adequate airway, respiration and

circulation but it was lower than the results obtained from Kenya and Saudi Arabia studies [17,19]. According to the present study findings students had poor knowledge about poisoning, this was indicated by their low scores (Table 2 and 3). This is in line with the result of a study conducted in Egypt [20], but lower than the score obtained from Kenya, Saudi Arabia and Istanbul studies [17,19,21]. This poor knowledge noticed among nursing students in Basrah might be attributed to lack of first aid courses and management procedures of acute poisoning in their curriculum and shortening of their training at emergency departments because of COVID-19 pandemic. The study has certain limitations, as it assessed only the knowledge of the nursing students and not the practice form of them. Also, the results can't be generalized to other students in different universities in Iraq. Apart from the limitations, the study had strength point that no previous studies have been showed in Basrah before to evaluate the first aid knowledge of nursing students in poisoning cases.

Conclusion

Based on the results of the present study, it was concluded that nursing students in Basrah University were lacking the necessary basic knowledge related to first aid in poisoning cases. We suggest that adding first-aid courses to program at universities can raise the students' knowledge on both poisoning and initial management of acute cases. Further studies must be accomplished in different parts in Iraq to highlight about knowledge of first aid in poisoning cases.

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