

## The effect of cardiovascular training courses for clinical toxicology residents and other specialists in toxicology ward

Zahra Ataee (MD)<sup>1</sup>, Bita Dadpour(MD)<sup>2</sup>, Maliheh Ziaee(MD)<sup>3</sup>, Majid Jalalyazdi(MD)<sup>4\*</sup>

<sup>1</sup>School of Medicine, Mashhad University of Medical Sciences, Mashhad, Iran.

<sup>2</sup>Toxicology Research Center, Faculty of Medicine, Mashhad University of Medical Sciences, Mashhad, Iran.

<sup>3</sup>Determinants of Health Research Center, Gonabad University of Medical Sciences, Gonabad, Iran.

<sup>4</sup>Cardiologist, Faculty of Medicine, Mashhad University of Medical Sciences, Mashhad, Iran.

ARTICLE INFO	ABSTRACT
<p><i>Article type:</i> Research Paper</p> <hr/> <p><i>Article History:</i> Received: 11-Dec-2019 Accepted: 22-Dec-2019</p> <hr/> <p><i>Key words:</i> Fellowship, Heart training, Likert, Toxicology.</p>	<p><b>Introduction:</b> Nowadays, patients referring to emergency department due to poisoning and its complications, make up most of the patients in emergency wards. One of the major complications of these poisonings is heart problems. With this in mind, we decided on training courses to repeat the topics and cardiovascular emergencies for toxicology assistants and other toxicology specialists.</p> <p><b>Materials and Methods:</b> For this study invited of clinical toxicology residents and toxicologists and forensic specialists and other specialists in toxicology ward to attend ECG training classes and cardiac emergencies. Ten people attended classes. Pre-test training with eight items was taken before the start of training. It was explained that individuals should score from 1 (very poor) to 5 (very strong) based on Likert. And after the end of the course, the post- test was done with the same condition.</p> <p><b>Results:</b> According to the results obtained from the table and questions, we came to the conclusion that the training courses have improved results in all items and courses are required at least once a year.</p> <p><b>Conclusion:</b> It seems that cardiovascular training is repeated annually for toxicology assistants and other toxicology specialists can be helpful in remembering previous material and better treating patients in toxicology emergency.</p>
<p>► <b>Please cite this paper as:</b> Ataee Z, Dadpour B, Ziaee M, Jalalyazdi M. The effect of cardiovascular training courses for clinical toxicology residents and other specialists in toxicology ward. Journal of Patient Safety and Quality Improvement. 2019; 7(4):177-179. Doi: 10.22038/psj.2019.44961.1258</p>	

### Introduction

Since 1977 two basic questions have been raised about the training of physicians: (1)

1. Does this education affect the outcome of medical treatment and improvement of patients? 2. What is the reason for the positive impact of this training?

Cardiovascular issues and complaints nowadays in toxic emergency patients and clinical toxicology ward is abundant. And consequently need to seek cardiac advice for

these patients, in terms of time and cost, it creates many problems for the physician and the patient. On the other hand, due to the prevalence of cardiac events in old age and increased incidence at an early age and due to different cardiac manifestations in emergency patients and toxicology ward, and ECG changes in these patients, the importance of remembering and updating information and training, we already felt in the cardiovascular domain.

\*Correspondence Author: Cardiologist, Faculty of Medicine, Mashhad University of Medical Sciences, Mashhad, Iran.  
Email: jalalyazdim@mums.ac.ir

© 2019 mums.ac.ir All rights reserved.

This is an Open Access article distributed under the terms of the Creative Commons Attribution License (<http://creativecommons.org/licenses/by/3.0>), which permits unrestricted use, distribution, and reproduction in any medium, provided the original work is properly cited.

Due to these cases and numerous cardiac complaints in hospitalized patients, we decided on tape and laboratory changes in these patients that courses for clinical toxicology residents and toxicologists and forensic specialists and other specialists in toxicology ward, to educate and in fact repeat material on ECG changes and cardiac emergencies in poisoning.

**Materials and Methods**

This study was performed in the clinical toxicology department of Imam Reza hospital of Mashhad in three months in 1397, held twelve one-hour training classes in collaboration with Imam Reza hospital cardiologists for clinical toxicology residents and toxicologists and forensic specialists and other specialists in toxicology ward. Ten people participated in these courses.

Topics that emphasized education included: ECG changes in poisoning-cardiac enzyme changes in patients referred to toxicology emergency-cardiac side effects of overdose drugs-examine the normal ECG and compare it with those that are common in toxicology emergency-symptoms of sodium, potassium and calcium channels block -causes of prolongation of QT, QRS, PR, ST segments. Pre-test curses with eight items were taken before the start of training and it was explained that people should be scored based on the Likert scale from 1(very poor) to 5(very strong). and after completing the

course post-test was done with the same condition. Data obtained from participant information in the curse of training, after initial review was imported to SPSS, 23. And analyzed. first, using descriptive statistics, data description and then data analyzed.to compare checked items in the group of participants, was considered, in two stages (before and after training) if the distribution of data is normal we used Paired test and if the distribution of data was not normal we used wil kakson test.in the test a significance level of 0.05 was considered.

**Results**

To investigate the impact of the above courses on teaching and learning, the results were compiled in a table:

**Table1:** demographic characteristics in study participants

category	Mean (standard deviation)Number (percent)
age	45±4.85
sex	
female	5 (50)
male	5 (50)
specialty	
Forensic medicine	1(10)
Forensic medicine – toxicology fellowship	3 (30)
Clinical pharmacology	1(10)
Internal medicine-toxicology fellowship	1(10)
Pediatrician-toxicology fellowship	1(10)
toxicologist	2(20)

**Table2:** mean differences score between pretest and post test questions

	Pre & post test(P value )
Do you feel the need for heart training?	0.001
How important is the conduct of cardiovascular training?	0.1
Will the above cardiovascular training, help you in the current treatment of the patients?	0.22
Did the training courses help you remember the content?	<0.001
Did the training courses help you diagnose ECG in toxicology emergency?	0.001
Did the training courses help you to manage patient’s heart problems?	<0.001
Did the training courses help you to reduce the need for heart consultation in toxicology emergency and toxicology ward?	<0.001
Total score	<0.001
	Pre & post test (P value )
Do you feel the need for heart training?	0.001
How important is the conduct of cardiovascular training?	0.1
Will the above cardiovascular training, help you in the current treatment of the patients?	0.22
Did the training courses help you remember the content?	<0.001
Did the training courses help you diagnose ECG in toxicology emergency?	0.001
Did the training courses help you to manage patient's heart problems?	<0.001
Did the training courses help you to reduce the need for heart consultation in toxicology emergency and toxicology ward?	<0.001
Total score	<0.001

Another question that arises is that: How many times a year does this courses need to be held?

According to the results obtained from the table and questions, we came to the conclusion that the training courses have improved results in all items and courses are required at least once a year.

## Discussion

There has been much research to improve the level of treatment and improve the health of patients, on the impact of training courses for physician.

In the study of Boissy et al in 2016 they concluded that physicians training improves the treatment of inpatients and outpatients. Another review by Stein in 2005 revealed the improvement in the quality of treatment followed the training of physicians (2,3).

In the study of Murugesan et al in 2008 they concluded that educational programs are very important in improving physicians knowledge of following and treating patients (4). In a systematic review by Bloom in 2005 concluded that outcome of treating patients in cases where continuing education is provided to physicians, will be better (6).

Management and treatment of referred patients to toxicology emergency and toxicology ward, like other patients, need to be enhanced (7).

To reach this goal, advanced and continuing educations in order to remember and repeat previous content and teaching new methods of management and treatment of patients, its necessary (8).

Ongoing training is needed to improve the competence and ability of physicians (7).

According to request of clinical toxicology residents and toxicologists and forensic specialists and other specialists in toxicology ward to hold cardiovascular training courses and focusing the following goals, we decided to make classes. These goals included:

Recall previous material in the field of cardiology. Raise the level of learning in cardio topics. Improve management of patient's heart problems in toxicology emergency and toxicology ward. Improve treatment of patient's heart problems in toxicology emergency and toxicology ward. Reduce the need for heart consultation for

patients in toxicology emergency and toxicology ward.

## Conclusion

According to the results obtained from pre-test and post-test, cardiovascular training should be held annually because according to the results, these courses are needed for promotion and retention of content and better management and treatment of patients in the emergency and poisoning ward and reducing the need for heart consultation for patients admitted to poisoning service. The need for further training courses for clinical toxicology residents in future studies will be explored.

## References

1. Cervero RM, Gaines JK .The impact of CME on physician performance and patient health outcomes: an updated synthesis of systematic reviews. *J Contin Educ Health Prof.* 2015 spring; 35(2):131-8. doi: 10.1002/chp.21290.
2. Adrienne Boissy, Amy K. Windover, Dan Bokar, Matthew Karafa, Katie Neuendorf, Richard M. Frankel, James Merlino, Michael B. Rothberg. Communication Skills Training for Physicians Improves Patient Satisfaction. *J Gen Intern Med.* 2016. 31(7):755–61.
3. Stein T, Frankel RM, Krupat E. Enhancing clinician communication skills in a large healthcare organization: a longitudinal case study. *Patient Educ Couns.* 2005; 58(1):4–12.
4. Murugesan N, Shobana R, Snehalatha C, AnilKapur A, Ramachandran. Immediate impact of a diabetes training programed for primary care physicians-an endeavor for national capacity building for diabetes management in India. *Diabetes research and clinical practice* 83(2009) 140–4.
5. Bloom BS. Effects of continuing medical educational on improving physician clinical care and patient health: A review of systematic reviews. *Int J Technol Assess Health Care.* 2005 summer; 21(3):380-5.
6. Davis D. Does CME work? An analysis of effects of educational activities on physician performance or health care outcomes. *Int J Psychiatry Med.* 1998; 28(1):21-39.
7. Lorrene A. Buckley, Gary P. Carlson, Vanessa A. Fitsanakis , Sue M. Ford, May Beth Genter, Dori R. Germolec, Teresa L. Leavens ,Lois D. Lehman-McKeeman ,Stephen H. Safe, Courtney E. W. Sulentic , and Betty J. The Toxicology Education Summit: Building the Future of Toxicology, Through Education. *Toxicological Sciences.*2012: 127(2), 331–338.
8. Ulrich BT, Lavandero R ,Hart KA ,Woods D, Leggett J, Taylor D. Critical Care Nurses' Work Environments: A Baseline Status Report. *Crit Care Nurse* .2006; 26 (5): 46-57.