

Impact of Primary Trauma Care Workshop On The Cognitive Domain of Final Year Medical Students

Muhammad Attique Sadiq,^{1*} Khalil Ur Rehman,¹ Nosheen Tariq,¹ Eitezaz Ahmed Bashir¹

ABSTRACT

- Objective** To assess improvement in cognitive domain of final year medical students after primary trauma care workshop.
- Study design** Cross-sectional mixed method approach. Pre-test and post-test survey based on a questionnaire.
- Place & Duration of study** A Primary Trauma Care (PTC) workshop, which spanned over two days, was conducted for final year medical students at Foundation University Medical College (FUMC) Islamabad on 3rd and 4th October 2016.
- Methodology** The participating members of the PTC workshop were given lectures. They were given hands-on practice sessions. Discussion based on case scenarios about the management of trauma patients was carried out. The knowledge of the students about primary trauma care was assessed by thirty identical best answer questions before and after the workshop. The difference of score of each student was recorded. SPSS version 16 was used to analyze the data and significant differences in pre and post-workshop scores were calculated.
- Results** One hundred final year MBBS students participated in workshop. Twenty-three (23) participants were excluded from study for not submitting either pre- or post-workshop answer sheet. Mean best score before and after workshop was 16 and 21 respectively. 84.2 % students showed significant improvement in their knowledge about trauma management.
- Conclusions** The course based on PTC principles aided medical students to gain the knowledge and understanding needed to perform the sequential primary and secondary survey correctly. Primary trauma care workshop proved to be a very effective way of improving knowledge of large number of medical students about trauma care with limited resources.
- Key words** PTC, Trauma, Impact, Cognitive domain.

INTRODUCTION:

Trauma-induced injury is an issue that is poorly addressed particularly in developing countries.^{1,2} Globally, trauma is the second most common cause of death in the income-generating age group. Trauma affects all parts of a society. Injuries related to trauma

are a leading cause of disability and mortality, still its impact and cost on the individual and society is underestimated.³ With improvements in medical care due to vigorous research and experimentations, the survival rate after injury has drastically increased and an ageing population increasingly demands optimal service provision.⁴

¹ Department of Surgery Foundation University Medical College, Islamabad & Fauji Foundation Hospital, Rawalpindi

Correspondence:

Dr. Muhammad Attique Sadiq^{1*}
 Department of Surgery
 Foundation University Medical College, Islamabad
 Fauji Foundation Hospital, Rawalpindi
 Email: dratiqsadiq@yahoo.com

Trauma management in developing countries is a completely different scenario. The reasons being multi factorial include geographical factors, relative lack of resources, funding, manpower and education.⁵ The American College of Surgeons developed the Advanced Trauma Life Support (ATLS) system. The ATLS protocol is now in practice in most western countries for treating severely injured trauma

patients.⁶ The set-up cost make it impractical in many third world countries.⁷ In reality, trauma management is drastically different in many developing countries. The trimodal distribution described by the American College of Surgeons does not work in most parts of the developing world. The primary trauma care (PTC) program is designed and consists of a team of anesthetists, surgeons, and accident and emergency physicians. The first primary trauma care session was conducted in Fiji and the South Pacific in 1997 as a pilot study.⁸

PTC is a two-day course directed at doctors and other healthcare workers practicing in rural areas. The primary trauma care program is a course designed for training surgeons and other medical practitioners in the systematic review and management of severely injured trauma victims. The last decade saw many individuals being involved in training, empowering and supporting doctors and nurses in a large number of countries. The best aspect of the PTC program is that it concentrates on the usage of minimal resources to maximal effect. For raising standards of care and providing optimal trauma management knowledge, education and hard work is required.

The PTC workshop is held annually for final year medical students at Foundation University Medical College, Islamabad at the end of the session. The participants are given lectures, hands-on practices, and case-based scenarios about the management of trauma patients. An extensive literature search reveals that only a handful of studies about PTC have been conducted.^{9,10} Hardly any study has been undertaken to assess the impact of PTC workshop on the cognitive domain of the participating individuals. A qualitative study was carried out to explore the impact of the PTC workshop on participant's knowledge of trauma management during two days of workshop.

METHODOLOGY:

Based on the two day PTC workshop, a cross-sectional study was conducted. The workshop was organized for final year medical students at Foundation University Medical College (FUMC) Islamabad on October 3-4, 2016. All hundred students were included in the study. The basic knowledge of the students about primary trauma care was assessed by thirty best answer questions served at the start of workshop. On the first day participants were given lectures on the management of trauma patients. The topics discussed were primary survey, management of airway, breathing, circulation, disability, exposure, chest trauma, abdominal trauma, head, neck and spinal injuries,

limb trauma, trauma in children, trauma in pregnancy and management of burns.

On the second day hands-on training regarding various skills was provided. Four skill stations including management of airway, breathing, circulation, and management of head, neck, spine and limb trauma were made. Later in the day, case scenarios about the initial management of trauma based on primary and secondary survey of the patients, were discussed and then students exposed to various trauma scenarios.

The study assessed improvements in student's cognition and understanding about trauma care by an identical, thirty best answer questions at the end of the workshop. The difference of score of all the students was recorded. The data was analyzed by SPSS version 17.0. Significant difference in pre- and post-workshop scores was calculated by Student t test. A p value of <.05 was considered significant.

RESULTS:

The study included a total number of 100 participants. Five students did not submit pre-PTC workshop paper and eighteen did not submit post-PTC workshop paper, and were excluded. A total 77 students were finally included. Students were asked 30 best choice questions before and after the course. The range of score secured by the students was 07-22 and 16-25 in pre-PTC workshop and post-PTC workshop, respectively. The highest score in pre-PTC and post-PTC workshop was 22 and 25 respectively. The number of students securing highest score in pre-PTC workshop was 01(1.29%) whereas two students (2.59%) secured highest marks in post-PTC workshop. Mean score in pre-PTC workshop was 16.00+2.99 whereas mean, post-PTC workshop score was 21.0+1.87 (Table-I).

There were 19 (24.68%) students who secured less than 14 marks in pre-PTC workshop. The biggest group of students (n=33) secured 15-17 marks. The highest range of score was 18-23 secured by 25 (32.47%) students who in pre-PTC workshop assessment as shown in table-I.

After attending the PTC workshop, there were 04 (5.19%) students who secured 15 -17 and 65 (84.42%) students who secured 18-23. Similarly, there were 08 (10.39%) students who secured 24-30 as shown in table-II.

Paired sample t-test was used to compare pre-post attended PTC workshop score which was statistically significant (p-value <0.000) which showed that conducting the workshop improved the knowledge

| | Score | n (%) |
|---------------|---------|------------|
| Pre-workshop | 1 - 14 | 19 (24.68) |
| | 15 - 17 | 33 (42.86) |
| | 18 - 23 | 25 (32.47) |
| Post-workshop | 15 - 17 | 04 (5.19) |
| | 18 - 23 | 65 (84.42) |
| | 24 - 30 | 08 (10.39) |

| | Paired Differences | | | | t | Df | Sig. (2-tailed) | |
|---|--------------------|----------------|-----------------|---|--------------|---------------|-----------------|-------------|
| | Mean | Std. Deviation | Std. Error Mean | 95% Confidence Interval of the Difference | | | | |
| | | | | Lower | | | | Upper |
| Pre-workshop score - Post-workshop score | 5.104 | 3.119 | 0.355 | 5.812 | 4.396 | 14.361 | 76 | .000 |

about primary trauma care among final year medical student table-II.

DISCUSSION:

In the developed world, trauma is the second most common cause of mortality particularly in the adult population. All age-groups of our society are prone to trauma. Both the developed as well as the developing regions of the world face natural and man-made calamities at an alarming rate. Road traffic accidents (RTA), civil unrest, acts of violence and domestic injury not only consume large amounts of resources, but also utilize a lot of time and efforts of doctors and nursing staff who treat and improve survival of patients.¹¹

The management of trauma patients with multiple injuries is a skill which requires vast knowledge and extraordinary skills.¹² Most industrialized communities such as North America, Western Europe and some major centers in Africa and Asia have adopted the ATLS (Advanced Trauma Life Support) system for treating trauma victims.

PTC is a 2-day program that is designed to equip doctors and nurses working in the rural setups with adequate skills to treat severely injured patients utilizing whatever resources are available to them.¹² The aim of the PTC course was to provide proper orientation to medical students about initial assessment and subsequent management of injured patients.

The results were very encouraging and revealed

that two days of PTC workshop significantly improved the knowledge of participants about trauma and how to manage it. Primary trauma care courses although a good beginning cannot replace ATLS which remains the gold standard for primary trauma training.¹³ With some improvements in its content, increase in interactive sessions and selection of participants with enough clinical exposure, the primary trauma care course can emerge as a useful and cost-effective modality especially when facilities of ATLS are not available. Furthermore, research and scientific evidence of the impact of injury together with practitioner knowledge of local context may aid in clarifying future priorities for action.¹²

The workshop’s success can be gauged by the fact that all participants rated it as highly informative and useful. The study markedly improved the knowledge of all participating students. A study from Iran reported significant improvements in knowledge and understanding after the PTC workshop.¹¹

This much needed knowledge gained through experience, evidence-based research and training has a great impact on the functional capabilities of the participants. Knowledge develops the medical practitioner’s capacity to utilize evidence relating to standards of trauma care.

LIMITATION:

Only the cognitive domain was assessed but practical skills were not analyzed which was a limiting factor.

CONCLUSIONS:

Primary trauma care workshop proved to be an effective way of improving knowledge of a large number of medical students about trauma care with limited resources.

REFERENCES:

1. Dean T Jamison, Joel G Breman, Anthony R Measham, George Alleyne, Mariam Claeson, David B Evans, Prabhat Jha, Anne Mills, and Philip Musgrove. *Disease Control Priorities in Developing Countries*, 2nd edition, Washington (DC): The International Bank for Reconstruction and Development / The World Bank; New York: Oxford University Press; 2006.
2. Lopez AD, Mathers CD, Ezzati M, Jamison DT, Murray CJL. *Global burden of disease and risk factors*. The World Bank and Oxford University Press. 2006.
3. Lyons RA, Kendrick D, Towner EM, Christie N, Macey S, Coupland C, et al. Measuring the population burden of injuries-implications for global and national Estimates: a multi-centre prospective UK longitudinal study. *PLoS Med*. 2011;8:e1001140.
4. Southern D, Sen A. Training for trauma. *Anaesthesia*. 2007; 62:865-7.
5. Wilkinson D, McDougall R. Primary trauma care. *Anaesthesia*. 2007;62S:61-4.
6. Soreide K. Three decades (1978-2008) of Advanced Trauma Life Support (ATLS) practice revised and evidence revisited. *Scand J Trauma Resusc Emerg Med*. 2008;16:19.
7. Primary Trauma Care Foundation. 2011 [Internet] Available from URL <http://www.primarytraumacare.org>.
8. Ali J, Dunn J, Eason M, Drumm J. Comparing the standardized live trauma patient and the mechanical simulator models in the ATLS initial assessment station. *J Surg Res*. 2010;162:7-10.
9. Amiri H, Vahdati SS. Two-Day Primary Trauma Care Workshop - Is it Beneficial? *Turk J Emerg Med*. 2009;9:8-11.

10. Zwi AB, Forjuoh S, Murugusampillay S, Odero W, Watts C. Injuries in developing countries: policy response needed now. *Trans R Soc Trop Med Hyg*. 1996;90:593-5
11. Amiri H, Gholipour C, Mokhtarpour M, Shams Vahdati S, Hashemi Aghdam Y, Bakhshayeshi M. Two-day primary trauma care workshop: early and late evaluation of knowledge and practice. *Eur J Emerg Med*. 2013;20:130-212.
12. Jawaid M, Memon AA, Masood Z, Alam SN. Effectiveness of the Primary Trauma Care Course: Is the outcome satisfactory? *Pak J Med Sci*. 2013;29:1265-8.
13. Douglas RJ. Further recommendations for trauma training of Indian medical officers and medical students. *World J Emerg Med*. 2011;2:85-7.

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Muhammad Attique Sadiq: Manuscript writing, literature review.

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Nosheen Tariq: Result analysis.

Eitezaz Ahmed Bashir: Data analysis and final approval.

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