

Retention of Knowledge following training of students in Basic Trauma Life Support

Lim Kean Ghee, FRCS, Lum Siew Kheong, FRCS, Ismail Abdul Sattar Burud, MS(Gen Surg)

Department of Surgery, Clinical School, International Medical University, Negeri Sembilan, Malaysia

SUMMARY

Introduction: In the course of their undergraduate training at the International Medical University, students receive a Basic Trauma Life Support course.

Objective: We wanted to test the long-term retention of knowledge (after 16 months) of third year medical students who had received training in Basic Trauma Life Support

Method: To assess the retention of knowledge one cohort of students who received the training course were tested again 16 months later using the same 30 question One Best Answer quiz.

Results: Seventy-three students who underwent the course sat for the Retention test. The number of students who passed the Retention test was not significantly different from the test taken immediately after the course. The mean scores, 62.5% and 59.5% respectively, were however significantly different.

Conclusion: Our study involves a relatively long interval between the course and retention of knowledge test shows encouraging results.

KEY WORDS:

Medical education, assessment, trauma care

INTRODUCTION

Medical studies are broad because junior doctors are trained for practice in a wide field. There are however, several areas where a special set of knowledge and skills can be identified for specific tasks or peculiar settings. For many of these special medical care needs, focused courses of training and certification have been introduced. One such area of expertise that has been identified is the care of patients presenting with acute trauma.

Professional bodies have developed special courses to train and certify medical care givers in trauma for appropriate levels of specialised care such as the Advanced Trauma Life Support Course (ATLS®). However, it is appropriate to introduce medical students to trauma care in the course of their undergraduate training and at the International Medical University a Basic Trauma Life Support course has been created, based on a more advanced course.

It is delivered to medical students at the university after they have completed two and a half years of pre-clinical studies and six months of clinical training, consisting of postings in general medicine, surgery and family medicine.

Having delivered this training course in Basic Trauma Life Support, the question we would like to ask is, 'How well do students retain the knowledge they acquire?' We can determine that the students have gained some knowledge by administering a test before and after the training course, but is it recognised that memory fades with time. We were therefore interested to investigate the ability to retain knowledge about basic trauma care after a long gap of time.

MATERIALS AND METHODS

At the start of their third year, medical students are taught a one day course of Basic Trauma Life Support (BTLS). They are required to take a single best answer test consisting of 30 questions (Pre-test) before they are given a series of five lectures followed by a rotation of four station of practical demonstration and exercises. At the conclusion of the training for the day they again sit for the same 30 question single best answer test (Post-test). This programme and test has been developed and used uniquely within our institution and has been previously reported.¹

To assess the retention of knowledge, one cohort of students who received the training course in March 2014 were tested again 16 months later (in July 2015) (Retention-test). They were administered the same test, after they had undergone 16 more months of their medical curriculum including postings in surgery, orthopaedics and accident and emergency. There was no compulsion to sit for the Retention test.

Significant difference of the means was tested statistically by one-tailed paired t t-test, and pass rate by X² test.

RESULTS

Although 85 students sat for the test and undertook the course in March 2014 only 73 students sat for the Retention test. The mean score in the Pre-test was 13.74±2.93/30 (45.8% n=73), (Figure 1). The mean score in the Post-test was 18.77±2.44/30 (62.5% n=73). The mode of change in score between the Pre- and Post-test was six (mean=5.0), although one student improved by 12 points and one student actually scored four points less in the Post-test compared to the Pre-

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Corresponding Author: Lim Kean Ghee, Department of Surgery, Clinical School, International Medical University, Jalan Rasah, Seremban 70300, Negeri Sembilan, Malaysia Email: keanghee_lim@imu.edu.my

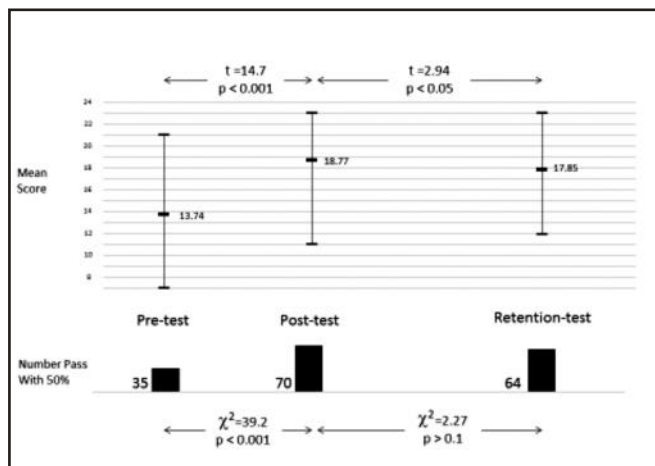


Fig. 1: Mean Scores and Number of Students passing Tests.

test. The mean score in the Retention test was $17.85 \pm 2.90/30$ (59.5% $n=73$) a slight decline from the Post-test score. The mode of change in score between the Post-test and Retention test was -1 (mean=-0.9), and ranged from -8 till 5.

If a mark of 50% were arbitrarily taken as the passing mark, 47.9% passed in the Pre-test, 95.9% passed in the Post-test and 87.7% passed in the Retention test.

The mean test scores were significantly different between the Pre- and Post-test ($t=14.7$ $p < 0.01$) but not between the Post-test and Retention test ($t=2.94$ $p < 0.05$). Significantly more students passed in the Post-test compared to the Pre-test, but there was no significant difference in the number that pass in the Post-test and Retention Test.

DISCUSSION

Achieving set learning outcomes is an important part of medical education today, in order to ensure that medical graduates are able to perform at the level that they are expected to.² However, more than defining these outcomes, we need to assess whether these outcomes are achieved, and retained until put in practice successfully.

Ability to manage patients with trauma involves learning both knowledge and skills as well as judgement. It is difficult to measure the complete set of abilities a medical student needs to manage trauma, and nothing can really substitute the real scenario in an accident and emergency unit with real patients that come with a wide variety of presenting conditions. Nevertheless after teaching students the principles of trauma management, measuring what they have learned is desirable. Testing knowledge is the simplest form, and despite its limitations, is a useful indicator.

Like many investigators, we have used a multiple-choice test,^{3,4,5} while others have used Objective Structured Clinical Examinations(OSCE) as tests.⁶

We have found, reassuringly that even after 16 months there is little decline in the mean test score (62.5% vs 59.5%) of students' knowledge about trauma management. Other studies have also shown that students given a three-day trauma course⁶ and special courses such as for obstetric emergencies⁷ or paediatric problems^{4,5} do retain their skill and knowledge, especially theoretical knowledge, after 3-12 months. We have tested our students for retention of knowledge after a longer period of time. The good scores we recorded may in part be due to the fact they were tested mainly on knowledge instead of practical skills. In addition, over the course of their clinical learning in the 16 months, the matters they learned in the course are encountered in the cases they see when the opportunities arise.

Students have been found to fare less well regarding retaining practical skills and management of clinical scenario problems even over a shorter period of time such as 3-9 months.^{4,7} We recognise the limitation of our study in not assessing that aspect of learning, however trauma presents in a wide range of situations and testing a simple simulated skill may not be valid. Nevertheless, working on a valid assessment of skills a doctor needs, to work effectively in acute trauma care, is desirable. We conclude that a dedicated one day course can impart knowledge on basic trauma care that student can retain.

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