

A study assessing Objective Structured Clinical Examination (OSCE) as an educational tool to Evaluate performance Skills and Awareness of management of Common Orthopaedic emergencies in Interns

Dileep A. Devasthali¹, Ashish S. Ranade¹, Prashant Bhandari¹

Abstract:

Background- Internship is important regards the hands-on training as they are residents to be. Conventional training methods have been found to be unsatisfactory in this regards. This study reports results of a pilot project where the Objective Structured Clinical Examination (OSCE) was used as a tool to evaluate and educate the interns (MBBS graduates) during their orthopaedic clinical posting of one month, towards management of common orthopaedic emergencies. To the best of our knowledge, this is the first report from India applying OSCE to orthopaedics.

Materials and methods: Interns posted in orthopaedic department took the OSCE at beginning of the posting and after completion of the posting. We used 4 stations with the use of the simulated patient and observers. There was a pre-posting test and after posting test with a session of feed-back at the end of the test.

Results: We found OSCE a useful tool to impart and assess performance skills which one cannot by traditional teaching methods. All interns expressed usefulness of OSCE format and demonstrated improved skills appropriate to emergency management.

Conclusions: This pilot study showed a positive role of OSCE as an educational tool to evaluate performance skills and awareness of management of common orthopaedic emergencies in interns. OSCE could be considered for more comprehensive role in future orthopaedic curriculum.

Key words: OSCE, Orthopaedics, medical education

Introduction

Musculoskeletal system related visits form one the commonest occurrence in general practice and in emergency medicine [1]. Orthopaedics is relatively neglected part the medical school curriculum [2,3]. Musculoskeletal system evaluation is very important for every doctor. Considering the current nature of MBBS examinations, students get only one orthopaedic patient examination in final MBBS exam.

The learning is guided by the assessment method; this reflects the pivotal role of examinations in undergraduate medical education. Multiple choice questions do not measure clinical skills. Traditional clinical examination lack objectivity due to assessment is on different patients by different examiners who mark candidates subjectively. Lack of physical examination

skills in orthopaedic residents have been demonstrated in previous studies [4]. Internship is true hands on training period and should be used to develop focussed skills required in the clinical phase to follow, particularly with respect to common medical emergencies. There is a need for communication skills training in orthopaedics [5].

OSCE can assess objectively focussed clinical skills. In other countries, OSCE has emerged as a part of orthopaedic residency training programme [6,7]. However there is no study describing use of OSCE in Indian Orthopaedic residency curriculum.

We conducted this pilot study, to study the role of OSCE as an educational tool to evaluate performance skills and awareness of management of common orthopaedic emergencies in interns.

Material & Methods

This is an ethical committee approved study. The subjects comprised medical interns who were posted for a month period in orthopaedic department of a medical college hospital in urban setting. The interns took the OSCE twice, once at the beginning of the orthopaedic posting and after the orthopaedic posting.

A series of 4 stations were established in orthopaedic

¹Dept. of Orthopaedics, Smt. Kashibai Navale Medical College & General Hospital, Narhe, Pune 411041 Maharashtra, India.

Address for correspondence:

Dr. Dileep A. Devasthali, MS(Ortho)-
Senior Consultant MS(Orth), Icon Diagnostics, Pimple Saudagar, Pune
Formerly: Professor of orthopaedics at SKN Medical College, Pune.
Email-ddevasthali@yahoo.com

department. The candidates rotated round each station at 5 minutes interval. Station one was on clinical history. Station two was on clinical examination. Station three was on investigations and station four was on clinical application skill. Candidates either answered questions on the material provided or performed a practical task. Assessors were present at these stations where practical skills were performed and noted on the score sheets which were objectively defined marks to be awarded with the check list.

There were not more than 8 interns at a given time. Besides the assessors at the station there were supervisors. We trained the departmental paramedics and used them as simulated patients.

All the interns were marked by same two teachers who participated in their training and were blind to the assessment at the other stations. The marking was 1 or zero.

The stations were as follows:

Station 1

History Taking—

Target Communication Skills

Check List-

- Greeting/Introduction of self
- History of present complaint
- Mechanism of injury/other injuries
- Past medical history/allergies
- Open ended questions used?

Eye contact with the patient during communication

Station 2

(Clinical Skill/Elicit signs)

Check list-

- Introduction/greetings
- Exposure of both limbs
- Eye contact while eliciting tenderness
- Correct elicitation of signs in both the limbs
- Examine normal side first

Station 3

Comprehension/ancillary diagnostic aid

Given test report/x-rays

Specific questions to focus answer

Check List-

- Specific interpretation with 2 differential diagnoses
- Mention of 2 common further investigations

Station 4

Treatment skill/Application

Check list

- Selection of the correct infrastructural material

-Correct application

-Post application instructions

Feedback

The feedback sessions followed the OSCE and we encouraged free communication. Interns were explained about the purpose of examination and what was expected out of them. Faculty made observations with the documentary proof of the assessment papers at hand. Candidates were advised in person regards

1.Level of confidence

2.Correctness of clinical elicitation

3.Importance of verbal /non verbal communication

4.How to empathise was demonstrated

5.Same stations were demonstrated using videos for clarification

Analysis :The total marks were 23 and at each station one or zero mark was given as per check list. The marks obtained by the interns in each form of assessment were compared pre and post rotation test and correlated with the feedback comments. Considering small sample size, we did not apply any statistical tests.

Results

Total of 16 interns participated in this study. Ten interns posted in the department were posted for the OSCE, 6 interns joined voluntarily to have an exposure as they face similar pattern of tests abroad (PLAB, USMLE CS). The 3 interns were allowed to attend after 3 months of training though they had not attended any pre-test as we wanted to see long term impact of our training.

The test scores are as shown in Table 1, Table 2 and Chart 1 and 2. Though the numbers were small, looking at the tables and the graph the outcome appeared favourable.

Growth in the number of interns who wanted to attempt the test in spite of not being posted in the department suggested a positive impact it created on the target population

Feedback from the interns who took this test suggested change in perception and the attitude to get the application skills and enhanced confidence to interact with the patients and the need to open oneself to identify deficiencies that need to be rectified before getting in to residency or practise.

Performance in presence of the examiners was perceived stressful in practical skills station. They never were exposed to this scenario and enjoyed feedback sessions as the assessment was instantly supported with the corrections.

The examiners had their own difficulties with the objective focussed marking as their subjective opinions had to be reined. Individual items in check list derived some debate. They thought the marking did not reflect the overall performance of the candidate. The

Student	Stn 1	Stn 2	Stn 3	Stn 4	Total Pre-Test	Total Post Test	Stn 1	Stn 2	Stn 3	Stn 4
A	5/8	3/5	4/4	4/6	16/23	16/23	5/7	3/7	3/3	5/6
B	3/8	0/5	2/4	1/6	6/23	10/23	2/7	1/7	2/3	5/6
C	3/8	3/5	4/4	1/6	11/23	16/23	5/7	5/7	2/3	4/6
D	4/8	1/5	4/4	0/6	9/23	10/23	4/7	2/7	2/3	2/6
E	5/8	0/5	2/4	0/6	7/23	8/23	3/7	2/7	2/3	1/6
F Volunteer	3/8	0/5	3/4	1/6	7/23	Did not take				
G Volunteer	3/8	1/5	4/4	2/6	10/23	Did not take				

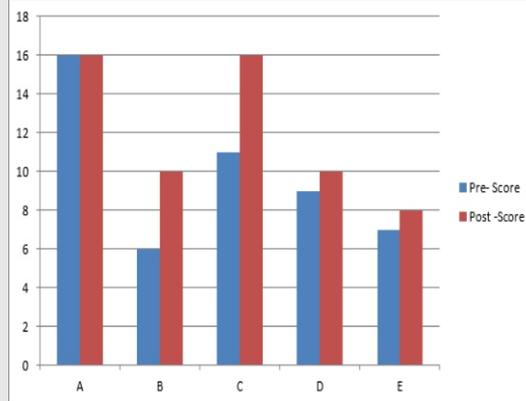


Table -1: Showing values for Batch 1 and Graph 1 showing comparative pre and post assessment values

Student	Stn1	Stn2	Stn3	Stn4	Total Pre - Test	Total pos-Test	Stn1	Stn2	Stn3	Stn4
H	0/5	2/4	5/8	0/6	7	8	3/7	2/7	2/3	1/6
I	1/5	4/4	4/8	0/6	9	10	4/7	2/7	2/3	2/6
J	3/5	4/4	3/8	1/6	11	16	5/7	5/7	2/3	4/6
K	0/5	2/4	3/8	1/6	6	11	3/7	1/7	2/3	5/6
L	3/5	4/4	5/8	4/6	16	16	5/7	3/7	3/3	5/6
M					Did not take	11	4/7	2/7	2/3	3/6
N (Volunteer)	0/5	3/4	3/8	1/6	7					
O (Volunteer)						14	3/7	6/7	2/3	3/6
P(Volunteer)						11	4/7	2/7	2/3	3/6

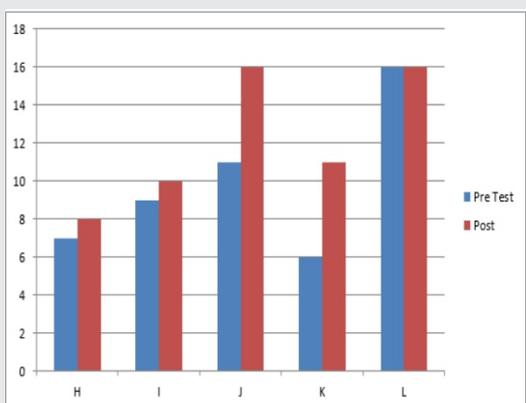


Table -2: Showing values for Batch 2 and Graph 2 showing comparative pre and post assessment values

examination though was considered fair and objective by the both.

Simulated patient training was a huge task but we could encourage the department paramedics to get trained and participate enthusiastically.

OSCE format required greater effort in organization and increased involvement in staff effort but it was generally viewed as worthwhile.

Discussion

Results of our pilot project using OSCE in interns to evaluate performance skills and awareness of management of common orthopaedic emergencies show encouraging results. To best of our knowledge this is the first study to use OSCE in orthopaedics in India. This was a pilot project but promises possibility of its use on broader scale.

Deficiency in the application skills regards musculoskeletal system in the pre internship period and the inadequacy of training during undergraduate course is well appreciated [2,3]. There is a need to mend this to improve performance skills of this cadre.

OSCE has been used widely for assessing medical

students and has been shown to be reliable and valid compared to traditional type of clinical assessment [6,8,9]. Traditional type of training and assessment has number of disadvantages. It is time consuming subjective and not uniform. This is particularly true for emergency management of injuries. It is not a performance assessment (skills versus cognition). In emergency scenario what one needs is application after a quick time constrained assessment which is replicated in the OSCE format.

Previous studies point towards inadequacy of the part of fresh graduates to examine and provide basic health care in the early period of residency [2, 3, 4].

Internship is first application based exposure to fresh graduates. The available examination system is ill equipped to assess or stimulate the fresh graduates to overcome the performance deficit noted in their early residency.

Use of OSCE is seen in training involved in branches of medicine that involves quick application skills like basic and advanced life support, acute trauma management [8,9].

Format of OSCE allows examiners to control the content and the complexity of the examination thus moving away from a large volume of the factual knowledge to assessment of day to day required practical skills. The role of simulated patients' needs to be enlarged to suit the requirement regards history taking and physical examination.

OSCE has become essential part of advanced life support course. It gives objective measure of clinical skills we try to teach and result from this examination correlates with teachers perception of the ability of the student. OSCE emphasises learning practical skills than accumulating factual information in large volumes and memorizing it [9]. Our results as gathered from the charts and the feed-back from the interns suggested better confidence level in the interns regards their ability to handle orthopaedic emergencies in casualty compared to those interns who had not taken the OSCE.

There are several limitations to our study. Our sample size is very small hence data may not be representative of the population at large. Some interns took the test after 3 month compared to 1 month after orthopaedic posting, this may skew the results. In this study, because of small sample size validity and reliability of OSCE cannot be assessed.

In summary, the OSCE in this small study yielded encouraging outcome and could be suggested for a more comprehensive use in the future curriculum.

References

1) *A pilot study assessing knowledge of clinical signs and physical examination skills in incoming medical residents.* Ramani S, Ring BN, Lowe R, Hunter D. *J Grad Med Educ.* 2010 Jun; 2(2):232-5

2) *Undergraduate orthopaedic education: Is it adequate?* Menon J, Patro DK. *Indian J Orthop.* 2009 Jan; 43(1): 82-6.

3) *Pre-intership Nigerian medical graduates lack basic musculoskeletal competency.* Nottidge TE, Ekrikpo U, Ifesanya AO, Nnabuko RE, Dim EM, Udoinyang CI. *Int Orthop.* 2012 Apr; 36(4):853-6

4) *Assessment of musculoskeletal physical examination skills and attitudes of orthopaedic residents.* Beran MC, Awan H, Rowley D, Samora JB, Griesser MJ, Bishop JY. *J Bone Joint Surg Am.* 2012 Mar 21; 94(6): e36

5) *Communication skills training in orthopaedics.* Lundine K, Buckley R, Hutchinson C, Lockyer J. *J Bone Joint Surg Am.* 2008 Jun; 90(6):1393-400

6) *Implementing of an objective structured clinical exam (OSCE) into orthopaedic surgery residency training.* Griesser MJ, Beran MC, Flanagan DC, Quackenbush M, Van Hoff C, Bishop JY. *J Surg Educ.* 2012 Mar-Apr; 69(2): 180-9.

7) *Objective Structured Clinical Examinations: a guide to development and implementation in orthopaedic residency.* Phillips D, Zuckerman JD, Strauss EJ, Egol KA. *J Am Acad Orthop Surg.* 2013 Oct; 21(10):592-600.

8) *Assessment of an objective structured clinical examination (OSCE) for undergraduate students in accident and emergency medicine.* Johnson G, Reynard K. *J Accid Emerg Med.* 1994 Dec; 11(4):223-6.

9) *Teaching effectiveness of the advanced trauma life support program as demonstrated by an objective structured clinical examination for practicing physicians.* Ali J, Cohen R, Adam R, Gana TJ, Pierre I, Bedaysie H, Ali E, et al. *World J Surg.* 1996 Oct; 20(8):1121-5.

Conflict of Interest: Nil
Source of Support: Nil

How to cite the article:

Devasthali DA, Ranade AS, Bhandari P. A study assessing Objective Structured Clinical Examination (OSCE) as an educational tool to Evaluate performance Skills and Awareness of management of Common Orthopaedic emergencies in Interns. *Journal of Trauma & Orthopaedic Surgery.* April-June 2015; 10(2):7-10