ORIGINAL ARTICLE

OSCE - a teaching tool

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ABSTRACT

Aim: To evaluate OSCE's educational value and assessed learning during the OSCE.
Material & methods: Four-station OSCE, including different case scenarios, was administered to seventy one postgraduate residents between January 2008 to October 2010. Faculty assessed residents' general communication, assessment, management, and global skills using Likert scale. Residents completed a pre-OSCE survey of experience, interest and competence in the subject under study, and a post-OSCE survey evaluating its educational value. Learning during the OSCE was also assessed by measuring performance improvement from the first to the final OSCE station.
Results: Data analysis was done using SPSS version 17. Perceived educational value of the OSCE was high (9.2), and feedback improved subsequent performance. Residents performed better in general communication (mean score across stations=7.8) than assessment (7.0) or management (6.5). Across first to the last station the mean score in general communication increased from 6.7 to 8.3, in assessment from 6.1 to 7.7, management from 5.4 to 7.3 and during global skill rating from 6.1 to 8.1.
Conclusion: Although residents perform well in general communication skills, but lack adequate skills for assessing and managing complicated and sensitive issues such as prenatal diagnosis and thromboprophylaxis. They may not have accurate perceptions of their abilities regarding these issues. There is a positive effect of immediate feedback on learning competencies. We recommend that future educational interventions should target specific assessment and management skills.
Keywords: Objective structured clinical examination, prenatal diagnosis, thromboembolism

INTRODUCTION

The main purpose of any prenatal screening or diagnostic test is, first, the identification of fetuses at risk of serious structural, genetic, metabolic or hematologic abnormalities before the application of a confirmatory diagnostic test. The difference between screening and diagnostic tests is that the former are designed to have high sensitivity but may also have a high false positive rate. However, screening tests are safe and applicable either universally or to low risk patients. In contrast, diagnostic tests are highly accurate on which management and clinical decisions can be made but may involve invasive procedures thus being applicable only to high risk women as they carry a risk of fetal loss[1].

The ability to diagnose a range of conditions during the antenatal period, which in the past could only be detectable after birth has allowed parents to make much more informed choices about the pregnancy than was hitherto possible[2].

However, hand in hand with the advance in prenatal diagnosis, come problems that are not so easily resolved. In addition to quality assurance and maintenance of standards, ethical dilemmas also surround issues in prenatal diagnosis. Similarly the management of thromboembolism in pregnancy involves use of drugs that although are essential but have side effects which at times could be life threatening in themselves. These highly sensitive clinical situations not only test an obstetrician's clinical acumen but also require expertise in interviewing and counseling skills.

Training of obstetric/gynecology residents in issues regarding prenatal diagnosis and thrombo-embolism in pregnancy is limited and not offered systematically. Although the efficacy of screening, treating and counseling for prenatal diagnosis and thrombo-embolism in pregnancy has been established, consistent training of residents is lacking. Training regarding knowledge, assessment and management including specific interviewing and counseling skills has been recommended, however, optimal methods to teach these competencies are as yet unknown.

An OSCE is a timed, multi station examination in which learners perform tasks such as interviews, physical exams, and counseling in realistic settings[3]. Learner's performance is evaluated with specific checklists or global rating scales, completed by faculty members and/or standardized patients[4].

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When immediate feedback on performance is provided, OSCEs – a feasible tool[5], can be formative in developing skills and enhancing knowledge. Objective structured clinical exams administered before and after educational programs have demonstrated improvements in medical students' assessment and management skills in different subjects[6].

Our main objective was to evaluate performance on a 4-station OSCE designed to assess and teach competencies in counseling skills from the perspective of prenatal diagnosis and thrombo-embolism during pregnancy to gynecology and obstetric postgraduate residents. We sought to assess learning during the OSCE with immediate feedback and to evaluate the OSCE's educational value as perceived by the residents.

METHODS

Faculty members wrote 4 case scenarios about different prenatal diagnosis and thrombo- embolism during pregnancy issues based on clinical experience, existing literature, and samples from a case resource book and scenarios were validated using role play.

Administration of the OSCE: The residents rotated through all 4 stations. They had 2 minutes before each encounter to read background information and a list of specific tasks. During each encounter residents had 10 minutes to build rapport and assess and manage the case, while a faculty member observed and completed a rating form. At the end of each encounter, faculty provided 5 minutes of direct feedback and delivered teaching points.

Performance Assessment

Rating forms: Faculty completed a 14 item form including 12 specific items in 3 domains (5 general communication, 4 assessment and 3 management items), and 2 global items (general organization and overall performance) (table 1). Items evaluating general communication and the 2 global skills were uniform across stations, while items evaluating assessment and management skills were unique to each station. Each item was rated according to Likert's scale where 10=excellent, 8=good, 6=adequate, 4=inadequate and 2=poor.

Scores: Faculty ratings resulted in both sub scores for each of the 3 domains (namely general communication skills, assessment and management) and station total scores. Global skill rating was carried out by the residents together with the faculty members. We used data from the specific items to calculate mean sub scores for each domain in each station and also to calculate an aggregate mean sub score for each domain across stations.

Pre-OSCE survey: In a pre-OSCE survey candidate's past experience in the subject under study was sought. Resident's self rated interest and competence in the subject were assessed using Likert's scale, ranging from 2= poor to 10=excellent.

Learning evaluation: We evaluated learning by analyzing the effect of feedback on performance in subsequent stations. We determined whether mean station total scores and mean sub scores in all domains improved from each resident's first station to their last station. In addition, we asked residents to evaluate the OSCE's overall educational value again according to Likert's scale.

Statistical analysis: Data was analyzed using SPSS version 17. The mean scores with standard deviations were calculated for each item across stations. To evaluate whether station performance changed from first to the last station, we calculated the change in scores.

RESULTS

Evaluation of performance was done on a 4-station OSCE designed to assess and teach competencies in counseling skills from the perspective of complicated and sensitive obstetric & gynecological issues such as prenatal diagnosis & thromboembolism to 71 gynecology and obstetrics residents between January 2008 to October 2010 following an initial pilot study.

Residents' performance in different domains (Table 2): In each of the 4 stations residents performed better in general communication with a mean score of 7.8 (SD=1.29), next highest in assessment (mean7.0±SD1.95) and lowest in management (6.5±2.06). The mean score in global skill domain was 7.2±1.41

Residents' experience, interest and competence: All the 71 residents completed the pre-OSCE survey. On a 5 point rating scale 62 candidates (87.3%) described their experience in the issues under study to be inadequate or just adequate. The mean rating in resident's self proclaimed interest and competence in the subject under study was 7.8 (±1.41) and 5.4 (±1.34), respectively.

The OSCE learning experience: Perceived educational value of the OSCE was high (9.2±1.5), and feedback improved subsequent performance. The mean summary score improved from first (6.1) to the last (7.9) station. Across first to the last station the mean score in general communication increased from 6.7±1.37 to 8.3±0.96, in assessment from 6.1±2.23 to 7.7±1.51, management from 5.4±2.53 to 7.3±1.37 and during global skill rating from 6.1±1.32 to 8.1±1.11.

Table 1: Content of faculty rating form

Items used in all stations	Items unique to each station
general communication skills	*Assessment of problem*
Exhibits empathic approach	Risk assessment
Does not use medical jargon	Identifies use of appropriate investigations
Allows patient to express self	Explains risks involved in investigations
Maintains eye contact	Assesses response if results undesirable
Explains concept of risk	*Management problem*
Global rating	Explains accuracy & reliability of results
General organization	Explains consequences, if results undesirable
Overall performance	Considers multidisciplinary approach/ referral

Table 2: Resident's performance in different domains

Station	I	II	III	IV
Communication	6.7(±1.37)	7.9(±1.37)	8.2(±1.45)	8.3(±.96)
Assessment	6.1(±2.23)	7.2(±2.02)	6.9(±2.02)	7.7(±1.51)
Management	5.4(±2.53)	6.7(±2.21)	6.4(±2.13)	7.3(±1.37)
Global skills	6.1(±1.32)	6.9(±1.32)	7.6(±1.89)	8.1(±1.11)

DISCUSSION

Our results demonstrate that an OSCE can teach competencies for dealing highly sensitive clinical situations by providing performance based assessment and immediate feedback as shown in similar studies conducted for geriatrics medicine teaching. This study offers unique insights into residents' ability to interact with patients regarding issues related to prenatal diagnosis and thrombo-embolism during pregnancy. It also reveals new information about trainees' interest and perceived competence in prenatal diagnosis assessment and management. As OSCEs can test specific skills[8], our results show that assessment and management in the above mentioned clinical situations are equally difficult but significantly more challenging than general communication skills. Thus we recommend that future educational interventions should target specific assessment and management skills.

Previous studies have shown that self-ratings do not correlate well with objective measures of performance and that high performers in particular tend to underestimate themselves when compared with expert raters[9]. Despite these limitations, self assessment may encourage self reflection and stimulate future learning. A prenatal diagnosis and thrombo-embolism OSCE may therefore help students identify their strengths and weaknesses. Instant feedback is highly useful in forming trainee skills and has been shown to influence performance on subsequent stations with similar content[10].

Objective structured clinical exams with immediate feedback delivered at each station have been very well received by medical trainees[7]. Our residents also placed high educational value to this strategy in line with other studies[11]. Immediate feedback has the additional advantage of diminishing assessor fatigue and enhancing faculty teaching skills, while preserving reliability[12]. In this OSCE, feedback resulted in improved resident performance in subsequent stations, an important measure of skills acquisition and learning. As a formative assessment, our OSCE achieved its goal of teaching competencies in the under study obstetric gynecology issues.

A limitation of our OSCE is the limited number of stations used for evaluation. This restricts our ability to draw conclusions from performance differences. We also did not control for residents' past personal experiences, which may influence both motivation and integration of structured training. Finally, in our assessment of the impact of feedback on performance improvement during the OSCE, we did not control for experience by including a control group not receiving feedback.

CONCLUSION

our 4-station OSCE provides a moderately reliable summative measure of our residents' skills in prenatal diagnosis and thrombo- embolism during pregnancy and a great deal of information about resident performance in distinct skill areas. While residents perform well in general communication skills, they generally lack adequate skills for assessing and managing issues regarding prenatal diagnosis and thrombo- embolism during pregnancy. Our results also demonstrate the positive effect of feedback on learning these competencies.

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