EXPERIENCE WITH THE OBJECTIVE STRUCTURED CLINICAL EXAMINATION AS A TOOL FOR STUDENT'S ASSESSMENT IN THE DEPARTMENT OF SURGERY IN THE COLLEGE OF MEDICINE, ALNAHRAIN UNIVERSITY

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Abstract

Objectives: The objective of this study is to compare the student's performance in the objective structured clinical examination (OSCE) in surgery to the results of multiple choice questions and to the traditional clinical examination and to find out that OSCE is more valid , reliable , practical than the traditional clinical examination and similar to MCQs .

Subjects & Method: All 47 sixth-year medical students of the Medical College, Al-Nahrain University in the academic year 2001-2002 were enrolled in this study. There were 3 data sets from the result of OSCE, MCQs, and the traditional clinical examination. By using paired t-test (p) and the correlation coefficient of Pearson (r) the results were compared with each other.

Results: Analysis of the results of the three examinations revealed high correlation between OSCE and MCQs and a significant difference was noted between OSCE and the traditional clinical examination.

Conclusion: The result of this study support the previously reported finding of the low correlations between OSCE and the traditional clinical examination .The OSCE is similar to MCQs in its validity; reliability and it cover a wide range of knowledge and clinical skills and minimize the effect of both the examiners and the patients on the result of the examination.

Keywords: Objective structured clinical examination OSCE, Multiple-choice questions MCQs, Traditional clinical examination.

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Introduction

Many attempts are made to improve the reliability, validity and practicability of the clinical examinations especially those used to assess medical skills and clinical competence. To avoid many of the disadvantages of the traditional clinical examination, such as the variability of the examiners and the patients, availability of enough professional examiners, variation of the marking and its limited content, the objective structured clinical examination(OSCE) is nowadays used all over the world[1,2] as a reliable and valid method of assessment of medical students because the variables and the complexity of the examinations are more easily controlled, its aims can be more clearly defined and more of the student's knowledge can be tested and it allows very specific feedback, not only to the candidates , but also to those who taught them and to those who set the examination to a much greater extent than conventional clinical examination[3].

There is an extensive body of research documenting the reliability, validity and practicability of the OSCE in assessing fundamental clinical and practical skills in medical practice[4]. The OSCE procedure is known to serve in identifying the areas of weakness in the curriculum and teaching methods or both and thus serves as a mechanism to improve educational effectiveness. A well constructed OSCE is known to provide important information regarding the candidate's performance and quality of medical training[5].

The department of surgery of the College of Medicine has introduced the OSCE to assess the 6th year medical students at the end of their clinical practice in the academic year 2001-2002.

The aim of this study is to compare the student's performance in the OSCE in surgery to the result of multiple choice questions (MCQs) and to the result of tradition clinical examination and to prove that OSCE is more valid , reliable , practical than the traditional clinical examination and similar to MCQs .

Materials & Methods

During the academic year 2001-2002, 47 sixth-year medical students in the department of surgery underwent 12 week training course in

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different surgical specialties, at the end of which they were subjected to an objective structured clinical examination (OSCE), multiple choice questions (MCQs) and traditional clinical examination. The OSCE included 10 stations that were a mixture of clinical aspects. The MCQs included 60 questions; each contained 5 TRUE-FALSE questions related to a specific subject. In the traditional clinical examination the examiner cross-examined the student on the methods, results and interpretation of long case in the surgical ward.

In the OSCE, candidates rotate through a series of stations (Figure 1) spending 5 minutes in each one.

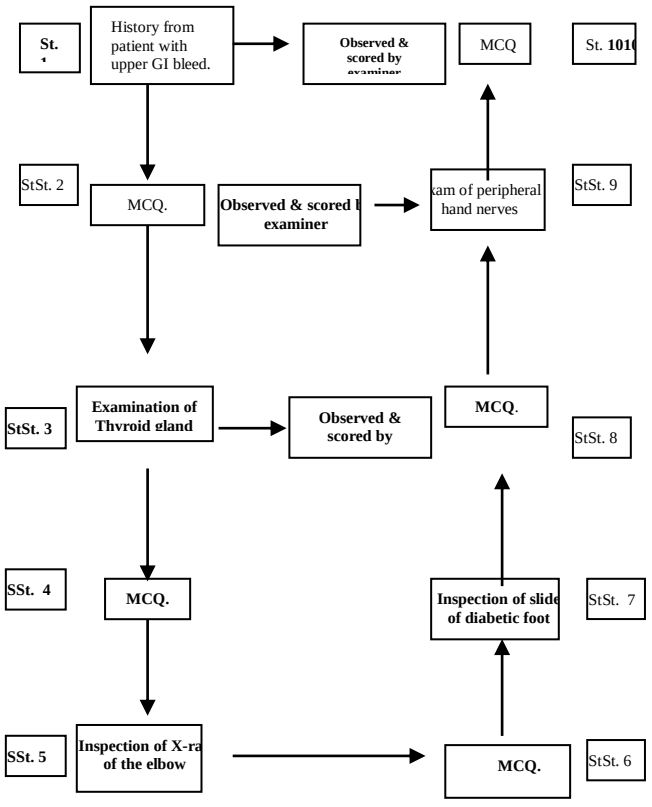

Figure 1: Complete OSCE using 10 stations

The stations are of two types; in the odd number station at which the student start, he is asked to carry out a clinical task such as history-taking or physical examination and observed by one examiner and scored as he carry out the task on a checklist (Figures 2 & 3).

Station ( )

Student's Name: -
Please tick one box for each line of students history

Question	Mention good	Mention fair	Not mention
1-Name of the patient.			
2-Age.			
3-No. of bleeding attack & amount.			
4-Duration of bleeding.			
5-Red or coffee ground color bleeding.			
6-Hx. Of syncope.			
7-Abd. Pain disappears with bleeding.			
8-Vomiting without blood followed by bleeding & pain.			
9-Passing dark colored blood per rectum.			
10-Any change in app. Or weight.			
11-Hx. Indigestion or heartburn.			
12-Did he have any attack previously.			
13-Any past Hx. Of peptic ulceration.			
14-Any Hx. Of drug intake aspirin, steroid.			
15-Hx. Of alcoholism, amount, duration.			
16-Hx. Of smoking.			
17-Hx. Of previous surgery.			
18-Any related medical disease.			

Figure 2: Example of examination check list for station at which student was asked to take a proper history from patient complaining of attacks of coffee-ground vomiting.

Station No. ( )

Student's Name: -
Instruction to the examiner: -
1. Introduction to the patient. 2. Please place one tick in one of the boxes for each line of the section of the student's examination.

Procedure	Attempted satisfactorily	Attempt but not satisfactorily	Not attempted
Exposure			
Instruction to the patient to lower the chin			
Lifting the arms up			
Turn the neck to either side			
Palpation, did he put the thumb in the nap of the neck			
Ask the patient to swallow			
Bend the neck to both sides			
Testing for shifting of the trachea			
Palpating carotid pulsation			
Palpating the supraclavicular lymph nodes			
Did he complete the palpation of the thyroid from front			
Percussion of chest wall			
Auscultation of lobe of thyroid			
Make a rapport with the patient			

Figure 3: Example of examiner's checklist for station at which student was asked to conduct examination of neck for thyroid enlargement.

The checklist is prepared and agreed by the examination committee before the exam[6]. In other stations the student may interpret clinical materials like a slide of patient with specific pathology or X-rays write notes or answer questions. In order to ensure that all candidates are tested on the same clinical material (patients), trained volunteers role-play as so-called standardized patients (SPs)[7], particularly for history-taking and for physical examination stations. Then the student moves to the next even number station where he answers open-end or multiple choice questions on his finding at the previous station, as he cannot go back to check on omissions, questions have a minimal cueing effect. At the end of examination, the examiners checklist and the students question answer are marked according to previously agreed scored.

There were 3 data sets considered, collected from the result of OSCE, MCQs result and traditional clinical examination. Data entry and analysis were carried out using Microsoft Excel (XP) for windows. Z-test was used to detect significant difference between 2 proportions. Paired t-test (p) was used to detect significant difference between the mean score in OSCE and that in MCQs and traditional clinical examination. Coefficient Correlation of Pearson (r) was used to detect significant correlation between the results.

A detailed analysis of the student's performance at each station was carried out. The discriminatory power of each part of the examination was determined and the marks in one part correlated with marks in another part and with the examination as a whole.

Results

The 6th year student's mean scores for OSCE was 67.8% which was approximately equal to the mean scores of MCQs (67.4%) while that of traditional clinical examination was 72%.

When the marks of the OSCE were compared with that of traditional long case clinical examination a significant difference was noted (Correlation Coefficient of Pearson; r = 0.037), which mean that the two exams did not correlate with each other. But when the OSCE result was compared with that of MCQs no significant difference was recorded and both exams looks highly correlated (Correlation Coefficient of Pearson; r = 0.68) (Figure 4).

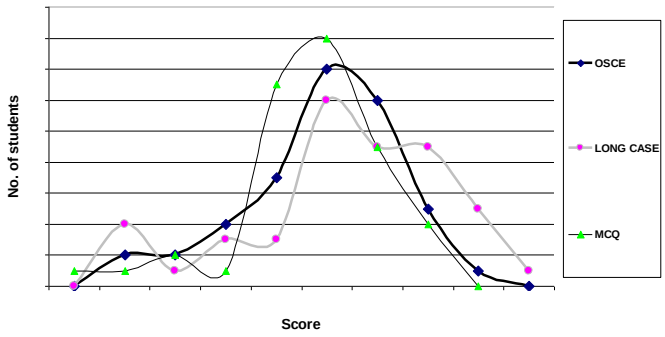

Figure 4: Relation between OSCE, MCQs and traditional clinical examination scores

The discriminatory power at each station of the OSCE was determined and the marks in each station correlate to the whole OSCE exam. These finding prove that both OSCE and MCQs results are equal and they are efficient, reliable, and objective and provide diagnostic information about both the students and the course.

During a survey done, most of the examiners and students were satisfied from OSCE as a reasonable and objective assessment tool in surgery and recommending it for the coming years

The use of a checklist by the examiner and the use of multiple choice questions in the OSCE results in more objective examination.

Discussion

In the clinical examination there are three variables, the student, the patient and the examiner[8]. From the result of our study, in the OSCE two variables, the patient and the examiner are more controlled and a more objective assessment of the student's clinical competence is made comparing to the tradition clinical examination. Moreover it is possible to control its complexity and to define more clearly what skills, attitudes, problem-solving abilities, and factual knowledge are to be assessed. Because the examination is more objective than the traditional clinical examination it is more easily repeatable and standards from year to year. The OSCE samples a wider range of the candidate's knowledge, skills and can include aspects seldom covered in the traditional clinical examination[9,10] for example , history-taking in a simulated emergency admission. The marking strategy for OSCE is decided by the examination committee in advance. Finally, the OSCE can provide feedback to both the staff and the students to a much greater extent than the

conventional examination this is useful in directing further studies for the students and in designing teaching programs for the staff.

The OSCE can be used both as a part of a final assessment and as a part of a more continuous assessment[11,12] as, at the end of each 12 week period during the academic year of the undergraduates course.

It was seen from our results that both the OSCE and the MCQs are equal in their evaluation of the student's knowledge and this confirms previously published relationship between types of assessments[12].

The main disadvantage is the increased preparation required. As with many educational advances the benefits are achieved in part by more effort. This effort, however, takes place before the examination, and on the day of the examination the examiner's time is used more efficiently .Another possible disadvantage of this approach may be the feeling that the student's knowledge and skills are being put into compartments and that he is being discouraged from looking at the patient as a whole. We believe that this can be obviated by testing the student's competence using communication skills and viva approach or assessing it with a tutor during his work on the wards.

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