Original Article

Comparison of the Effectiveness of Two Lecture Methods in an OB/GYN Clerkship

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Abstract:

Background: A structured, consistent, didactic lecture system is extremely important in a third-year medical clerkship. Yet, its development for the obstetrics/gynecology (OB/GYN) program is challenging for many reasons. Development of a system that is less dependent on a given lecturer's availability yet still provides complete coverage of the Association of Professors of Gynecology and Obstetrics (APGO) topics for third-year students is desirable.

Objective: The present study was designed to compare the effectiveness on third-year OB/GYN medical students of live lectures versus lectures previously recorded to a compact disc. Outcome measures were a midterm internal examination and the National Board of Medical Examiners (NBME) examination scores at the end of the clerkship.

Experimental Design: Third-year medical students were assigned by lottery either to the Medical College of Georgia (MCG) campus in Augusta, Georgia, or one its several community-based sites (CBSs) throughout the state of Georgia. All third-year clerkship lectures given by different instructors were videotaped and saved to a compact disc to be played at all CBSs. The students at CBSs were required to observe the lectures in the same order as the live lectures were delivered to students at the MCG campus in Augusta.

Results: Student performance on the midterm internal exam and on the NBME examination was compared between the MCG campus and CBSs. Results are shown as raw score mean (SD). Midterm results showed: MCG was 65.6 (8.7) and CBS was 70.4 (17.0). NBME results showed: MCG was 81.1 (6.3) and CBS was 82.2 (7.6).

Conclusion: Using examination scores as the outcome, our preliminary data suggest there may be no significant difference in performance on the shelf exam between students receiving a live lecture versus students observing the same lecture electronically.

Keywords: Medical school clerkship, obstetrics and gynecology clerkship, medical student lectures, didactic lectures.

Introduction

A decrease in clinical revenue due to the growth in managed and integrated delivery systems, increased competition for research dollars, and changes in federal subsidies for academic institutions are negatively impacting medical education.[1,2] Changes in medicine, medical education, and technology have influenced both graduate and undergraduate medical education.[3] A structured, consistent, didactic lecture system is extreme-

ly important in a third-year medical clerkship. In such a system, independent of exposure to patients, all students can be assured that the 64 topics listed in the *Association of Professors of Gynecology and Obstetrics (APGO) Medical Student Educational Objectives,* 8th edition are addressed.[4]

Yet, development of a structured lecture series for third-year medical students in their obstetrics/gynecology clerkship is challenging for many reasons. In addition to standard, protected, and scheduled time for the medical students, instructors must also prepare adequate lecture material and deliver it consistently for every rotation of the clerkship throughout the year. Various faculty members, residents, or fellows generally deliver these lectures. Due to the nature of the specialty, attending physicians, fellows, and residents are often faced with unexpected, urgent clinical responsibilities that prevent consistent attendance.

The development of a system that is less dependent on a given lecture's availability yet still provides adequate and complete coverage of APGO topics for third-year students is desirable. The clerkship curriculum in obstetrics/gynecology for junior medical students consists of six weeks of clinical rotation with structured, didactic lectures to cover all clinical topics.

Muller et al[5] first suggested in 1984 the concept of using computer-assisted education in the field of medical education. Subsequently, it was suggested that the computer's ability to combine images, videoclips, text, and feedback make it an ideal teaching tool for the medical educator.[6]

Medical College of Georgia is a large academic institution with approximately 180 medical students in each class. In order to provide adequate patient exposure to the junior medical students, MCG, in association with the area health education centers, developed additional community-based sites (CBSs) throughout Georgia. These sites use private physicians who are MCG alumni, interested in student education, or trained and educated at other institutions but have demonstrated a keen interest in student education.

The purpose of this study was to compare the written performance of all students assigned to a CBS and who were given copies of videotaped lectures versus those who were assigned to the main campus of an academic institution and were given live lectures by attending physicians, fellows, or residents in training.

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Background

Clerkship structure

Third-year medical students were assigned by lottery either to the MCG campus in Augusta or one of its CBSs in Valdosta, Eastman, Dalton, Waynesboro, or Demorest, Georgia. The students spent six weeks at their assigned locations.

All third-year clerkship lectures given by different instructors were videotaped using a digitized video camera and saved to a compact disc. A paper copy of the Microsoft PowerPoint presentation also was included.

Students assigned to the main MCG campus were given live lectures Monday through Thursday. All students at CBSs observed the lectures during protected time and in the same order as they were delivered at the MCG campus. Students at the CBSs had the option of emailing their questions to the attending who presented the particular lecture and sending a copy to the clerkship director. The attending was required to respond to the students within 24 hours. At the end of the fifth week of the six-week clerkship, all students were given a multiple choice examination comprising board-type multiple choice questions compiled by all contributing lecturers. All students also were required to take a shelf examination administered by NBME at the end of the six-week clerkship. Raw score comparisons were made between the two groups. An oral examination was not administered at the end of the clerkship.

Results

Table 1 shows the mean score of student performance on midterm and NBME examinations. Comparison was made between students completing their six-week rotation at the MCG campus versus those who completed their OB/GYN rotation at a

Table 1. The mean score of student performance on midterm and NBME examinations.

Site	N	Midterm Mean (SD)	NBME Mean (SD)
MCG	19	65.6 (8.7)	81.1 (6.3)
CBS	26	70.4 (17.0)	82.2 (7.6)
p-value		0.21	0.40

Table 2. Results obtained between groups rotating on different dates.

Group	N	Midterm Mean (SD)	NBME Mean (SD)
2	12	71.8 (12.8)	80.5 (6.3)
3	19	65.0 (14.9)	80.4 (6.5)
4	14	63.6 (9.1)	84.5 (7.6)
p-value		0.26	0.15

CBS.

There were no significant differences for midterm or NBME grades between the students whose rotation was at MCG and those at CBSs. The variance of the midterm grades for CBS students was larger than that of the students assigned to the campus.

Table 2 shows the results obtained between groups rotating on different dates; the ascending number of groups indicates that these students had slightly more clinical experience than the previous group. There was no significant difference on their performance either on midterm or NBME examinations.

Statistical Analysis

The data were analyzed using a two-way ANOVA where the factors were Group (2, 3, 4) and Site (MCG, CBS).

Discussion

The use of CBSs to educate medical students is now well recognized in various subspecialties such as pediatrics,[7] surgery,[8] internal medicine,[9] as well as obstetrics/gynecology.[10] Apart from providing adequate patient care, the Liaison Committee on Medical Education (LCME) also requires that the educational opportunities should be similar at all sites. The faculty at academic institutions is generally provided with protected time for student education, such as lectures and small group discussion. Such an opportunity, however, is not usually available at sites where the practice is limited to one or two clinicians. We provided videotaped lectures on a CD to our students who were assigned to CBSs throughout Georgia. We found no difference in the students' performance on the internal exam given half way through the clerkship as well on the NBME administered at the end of the clerkship. Student satisfaction of their overall experience at the end of six-week rotation as well as their interest in OB/GYN as their choice of subspecialty before and after the clinical rotation also was compared. There was a significant increase in both student satisfaction and their desire to choose OB/GYN as their field of interest. One could argue that the students spending time at CBSs had more opportunity to interact with their preceptors.

The current study is based on a small number of students who had their clinical rotation at CBSs. Traditionally, it is been a challenge to recruit community-based educational sites for students, especially in OB/GYN, due to the nature of the service. The number of students sent to these sites was based upon the size of the practice as well as the preceptors' recommendations. The data was collected over six-months, and the experience of these students was quite overwhelming as compared to the students who stayed at an academic institution. However, the results of this study clearly indicate that live lectures can be substituted by videotaped lectures without affecting students' performance on the NBME examination. Also, although this is the first report for an OB/GYN clerkship, similar findings have been observed by pediatrics as well as internal medicine clerkships. Furthermore, because both students and instructors enjoyed the teaching process of obstetrics/gynecology in a general practice, it can be a suitable alternative to hospital-based clinical teaching for undergraduate medical students.

Conclusion

Third-year medical students trained at CBSs in a private practice setting who did not have access to live lectures by faculty at an academic institution performed at least as well and possibly better on

written examinations, whether administered internally based on the material covered during the lecture, or at the national level when administered by the NBME. The results of these studies, therefore, suggest that live lectures can be substituted by recorded lectures without the loss of student ability to perform and demonstrate fund of knowledge.

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