

Teaching Geriatric Medicine to Orthopedic Surgery Residents: Utilizing the Chief Resident
Immersion Training Experience

John A. Karbassi, MD, Gary P. Blanchard, MD

University of Massachusetts Medical School, Worcester, MA 01655

John A. Karbassi, MD, is a Chief Resident in the Department of Orthopedics at the University of Massachusetts Medical School. Gary P. Blanchard, MD, is an Assistant Professor in the Department of Medicine at the University of Massachusetts Medical School.

Corresponding author: John A. Karbassi, MD
University of Massachusetts Medical School
Department of Orthopedics and Rehabilitation
Worcester, MA 01655
Phone: 757-621-6104 Fax: 508-443-7273
Email: johnkarbassi@gmail.com

Abstract:

Introduction:

Orthopedic resident education has been forced to become more efficient as work hour restrictions have been in effect. Although orthopedic physician educators are focusing primarily on musculoskeletal medicine, it is important to produce well-rounded surgeons who are comfortable taking care of geriatric patients in the acute setting.

Methods:

Based on the educational materials that were presented at a chief resident immersion training program (CRIT), a one hour lecture was formulated by the orthopedic chief resident and was entitled "Geriatrics 101". This presentation included several major topics addressed at CRIT: functional status, capacity, pre-operative assessment, pain medication/opiate use, polypharmacy/pharmacology in the elderly, delirium, and discharge planning. A 15-question pre-test and post-test was written based directly on the content of this presentation and was administered before and after the lecture was complete.

Results:

The pre-test scores clearly showed there was a lack of comfort with respect to some basic topics in geriatrics. However, there was a universal increase in the post-test scores. The score average went from 47.1% (\pm 10%) correct to 79% (\pm 13%) correct. Every resident improved significantly. The difference between the mean scores of the two tests was statistically significant ($p < 0.001$).

Conclusion:

Training orthopedic chief residents in geriatric medicine and then having them disseminate the information in an abbreviated, concise manner can be of great benefit to junior resident education. Integrating basic geriatric medicine into surgical subspecialties will offer a more well-rounded educational experience and will improve patient care.

Introduction

Orthopedic surgery residency is an intense five year training program that covers non-operative and operative treatment of conditions ranging from cervical spine problems to finger tip injuries. With the advent of the 80 hour work week regulations and the internship hour restrictions, didactic time is highly valued. Physician educators are faced with the challenge of determining which topics require more attention than others during formal didactic sessions. For obvious reasons, musculoskeletal education takes precedence over other areas of medical education during orthopedic training. However, it is important to not overlook other key areas that are required for quality patient care. One such area is geriatric medicine. Few surgeons receive specific training in geriatric principles and strategies during residency (1). Conversely, other specialties are given only minimal musculoskeletal medicine education, leading to relative curricular vacuums in all specialties (2). The aging demography of the United States necessitates a more universal focus on geriatric medicine in all non-pediatric specialties. Geriatric medicine needs to become a vital educational component of surgical curricula.

Chief residents play a critical role in the education of junior residents during residency. This education occurs on the wards, in the operating room, and during formal lectures and didactic presentations. However, there is often little formal education regarding non-surgical topics. Specifically, most orthopedic residents lack formal training in geriatric medicine (3). A two day chief resident immersion training (CRIT) has been developed by previous authors to help foster collaboration between chief residents from different specialties (3). Not only does CRIT training enhance leadership skills, but it imparts valuable information regarding the care of elderly patients. The program relies upon the “train the trainer” model utilized in many other educational programs (9, 10). This type of program has been shown to successfully increase chief resident geriatric knowledge base as well as confidence as teachers (3). These results have also been seen in the setting of substance abuse education CRIT training (4). Furthermore, there is ample clinical evidence that when teams of physicians from different specialties work together in a multidisciplinary manner, decreased morbidity and shorter hospital stays are seen (5).

One of the most important parts of the CRIT experience is the development of an Action Plan. An Action Plan is an educational project that the residents develop and implement during their chief year, incorporating the geriatric medicine and educational principles taught during the course. It was just such an Action Plan which served as the impetus for this study.

In this study, a one hour lecture presentation was developed by a chief resident based on the curriculum of the CRIT program that was attended by the chief resident previously. The goal of the presentation was to distill the most important content from the geriatric curriculum in order to provide junior orthopedic residents with valuable, clinically relevant information. There is other evidence in the literature that this type of focused intervention can result in enhanced resident knowledge and improved clinical practice (6),(7). The fundamental principle of this project is that surgical residents can learn the value of good geriatric care with only a modest addition to their already busy residency training curriculum (8). Ultimately, application of these

principles will reinforce cross-specialty education and will promote its adoption and dissemination (8).

Methods

After attending the CRIT training program at the University of Massachusetts Medical School, an Action Plan was devised by an orthopedic chief resident. The concept of “training the trainer” was heavily relied upon during the CRIT program. The Action Plan entailed devising a condensed one hour version of the CRIT geriatrics curriculum that would be clinically useful for junior orthopedic residents. The hypothesis was that orthopedic residency curriculum has very little geriatric medicine and that orthopedic residents are potentially deficient in this area.

Based on the educational materials that were distributed at the CRIT training, a PowerPoint presentation was formulated by the orthopedic chief resident which was entitled “Geriatrics 101”. This presentation included the major topics addressed at CRIT: functional status, capacity, pre-operative assessment, pain medication/opiate use, polypharmacy/pharmacology in the elderly, delirium, and discharge planning. A 15-question pre-test and post-test was written based directly on the content of this presentation and was administered before and after the lecture was complete. All of this was completed during a pre-designated didactic block time. Residents ranged from PGY-1 to PGY-5. The pre-test and post-test scores were tabulated by the chief resident.

Results

The pre-test and post-test results are presented in Table 1 and Table 2. These charts represent the raw scores, the mean scores, standard deviations, and student t-test. All statistical analyses were done using Microsoft Excel statistical software.

The score average went from 47.1% (\pm 10%) correct to 79% (\pm 13%) correct. Every resident improved significantly. The difference between the mean scores of the two tests was statistically significant ($p < 0.001$).

Discussion

The pre-test scores clearly showed there was a lack of comfort with respect to some basic topics in geriatrics. This was expected given the surgical emphasis that orthopedic graduate medical education has and needs. However, the universal increase in the post-test scores was impressive.

The data presented in this study demonstrates the importance of chief residents as leaders and teachers. A very dense and detailed geriatrics course would be difficult to administer to an already busy group of orthopedic residents. However, training the chief residents and then having them disseminate the information in an abbreviated, concise manner can be of great benefit to junior resident education. Furthermore, the significant improvements that were seen after just one session suggest that even more gains can be made with more extensive curriculum changes.

Cross-specialty cooperation is also highlighted in this study. There is increasing overlap in clinical responsibilities in the hospital setting. Residents from every department need to have a basic understanding of each other's specialties in order to facilitate quality patient care. If this type of teaching model works for teaching basic geriatrics to orthopedists, perhaps basic orthopedics can be taught to geriatricians in a similar fashion.

Another issue which this study touches on is the lack of geriatric-specific training that other specialties have. Almost every medical specialty (excluding pediatrics) takes care of the elderly. Integrating basic geriatric medicine into these specialties will offer a more well-rounded educational experience and will improve patient care.

There are some clear limitations to this study. The sample size was too small to make any conclusions about which residents fared better or worse. Other limitations of the study include the lack of a validated outcome measure. The outcome tool used here was a pre and post test that was based on the curriculum of CRIT, but it was constructed by the chief resident. This can be viewed as a source of bias. Another limitation is that there is no subjective data from the orthopedic residents. It would have been beneficial to have survey data regarding the perceived educational value of the lecture from the junior residents.

Future directions of this type of work include expanding such a "Geriatrics 101" curriculum to larger groups of orthopedic residents and to residents in other surgical specialties. In this era of increased time demands given the 80 hour work week restrictions, it is important to make didactic learning as efficient and meaningful as possible. The concept of chief immersion training has been proven to be a successful model in the past in several different venues. Perhaps this model can extend to junior residents as the chief residents disseminate to valuable training that they receive at these CRIT programs.

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Table 1. Pre-Test and Post-Test Scores

PGY Level	Pre-Test Score (out of 15)	Post-Test Score (out of 15)
1	7	15
2	6	10
2	9	13
3	10	14
3	5	8
3	6	10
3	6	13
4	6	13
4	7	14
4	8	11
4	5	12
5	8	10
5	9	11
5	7	11
Mean	7.07	11.79
Std Dev	1.54	1.97

Table 2. Resident Test Performance.

