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A post rotation survey of medical students attitude to radiology

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Summary

The objective of the study is to determine the effect of a three-week radiology rotation on the attitudes and knowledge of medical students about the specialty. It was found that the students believed in the relevance of radiology in the medical school curriculum and its importance to future medical practice. There was acceptable level of awareness of radiation protection. However, the rotation failed to change the misconception of Radiologists enormous workload with resultant bias to the specialty. It is concluded that the rotation had a mixed effect on student's knowledge and perception of radiology. This finding is comparable with other studies done in industrialized countries. Measures aimed at improving the unfavourable attitudes are suggested.

Keywords: Radiology rotation, medical students, attitude, knowledge

Résumé

L'objectif de cette étude était de déterminer l'effet de 3 semaines de radiographie sur les attitudes et les connaissances des étudiants en médecine a propos de la spécialité. Il a été trouvé que ces étudiants croient a la relevance de la radiographie dans le curmeullum des collège de médecine et l'importance dans la pratique médicale. Il y avait un niveau d'attention acceptable de protection aux radiations. Cependant la rotation échouait de changer la mauvaise conception des radiologues sur l'intensité du travail résultant au bias a la spécialité. Il était conelu que la rotation a un effet mixe sur la connaissance des étudiants et la perception de la radiologie. Cette donnée est comparable a d'autre études similaire faite dans les pays industrialisés. Les mesures ayant pour but d'améliorer les attitudes défavorables sont suggerées.

Introduction

The objective of the Radiology department in a medical students rotation traditionally would consist of three main goals [1]: demonstrating the complexity of the profession and how it is able to provide useful consultation, teaching respect for the profession, and recruitment of top quality potential residents into radiology.

However, longitudinal studies have demonstrated that basic attitudes concerning radiology are developed early in the medical school and are only moderately affected by a senior imaging elective [2,3] while extensive multi-institutional surveys have demonstrated no significant differences of attitudinal change regardless of clerkship, organization or structure. [4]

The subject of radiology is taught at the University of Benin Medical School Nigeria in the fifth year of the curriculum. This study therefore set out to assess the impact of the three-week mandatory rotation on the medical students' perception and knowledge of radiology and compare the findings with previous studies elsewhere. The findings will then be used to proffer advice on the future planning/design of the curriculum, as

well as identification of factors that may influence more residents/postgraduate doctors to develop interest in the specialty. In doing this, I took cognizance of other studies that have shown a more favourable and positive perception of radiology in students who have taken a radiology elective [5].

Studies assessing the influence of the radiology posting on medical students perception of the specialty are scarce in Nigeria. This therefore explains the relevance of this study in our setting.

Material and methods

In a 4 year period (1999 – 2002), 324 fifth year medical students of the University of Benin School of Medicine, who have completed the basic science courses, pathology and introductory clinical posting, were on assignment to the Department of Radiology for a mandatory three weeks posting as part of the school's curriculum. The posting consisted of formal lectures, film viewing sessions and observation of procedures. The most important inclusion criterion in this study was satisfactory completion of the three-week rotation, taken as at least seventy-five percent attendance at lectures/demonstrations. The study material consisted of structured questionnaires given on the last day of the rotation.

In the total study population there were four different groups of students. For each group, an explanation of the aims of the study was made and an assurance of confidentiality given.

The responses were analyzed, and assigning the responses as positive or negative formed answers to some questions. In other cases a consensus of responses was worked out. The results were then analyzed using simple descriptive statistics, frequency distribution tables and chi-square to check for level of significance between two variables.

Results

All three hundred and twenty four questionnaires were completed. The mean age of the respondents was 25.3 ± 1.3 years, and the male: female ratio was 5:1

Table 1: Number of students and their impression on the relative usefulness of the various imaging modalities

Suggestions	No. of students
Plain X-ray	120
Ultrasound	96
Computerised tomography	81
Fluoroscopy	6
Magnetic resonance	12
All modalities	45
Total	360

*There is overlap of suggestions as given by the respondents

Majority of the students (76.8%) did not find the formal lectures/demonstrations difficult to understand and almost all respondents (96.3%) believed the duration of the rotation

was not enough for them to have a thorough grasp of the subject. Radiology is believed to be relevant both to medical education and future medical practice by about ninety seven percent (97%) of the students.

A hundred and sixty five students, representing half of the respondents were of the opinion that radiologists have very minimal interactions with their patients and seem far "removed" from clinical practice while a quarter (26.8%) believed the workload for a radiologist, "is light". (See fig. 1)

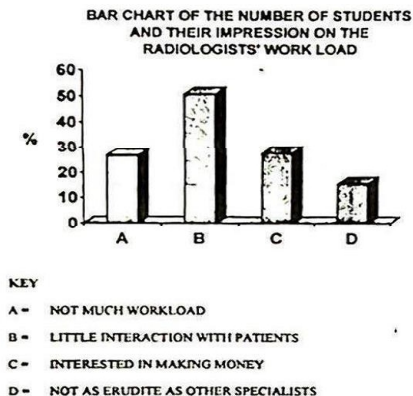


Fig. 1.

Plain radiography (37.0%), ultrasound (29.6%) and computerized tomography (25.0%) were rated as the most useful of the imaging modalities. A very large number of the respondents (92.0%) believed that the rotation increased their awareness/knowledge of radiation protection measures. (Fig.3). This belief, however contrasts with the fact that only two thirds (225 or 69.4%) of the respondents have their concern over "safety" in the radiology department allayed at the end of the rotation.

PIE CHART SHOWING NUMBER OF STUDENTS WILLING TO SPECIALISE IN RADIOLOGY AFTER GRADUATION

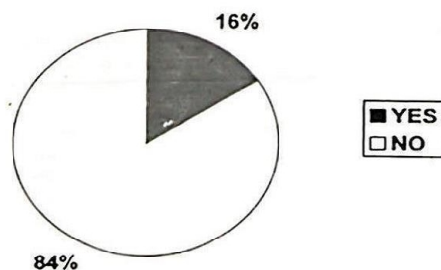


Fig. 2:

The provision of modern functional equipment, teaching aids and involvement of students in film review sessions (159 respondents or 49.1%), increase in the duration of postings (84 respondents or 25.9%), and more exposure to practical procedures rank high among the suggestions offered for improved teaching of the subject of Radiology. (Table 2).

Table 2: Suggestions for improved teaching of radiology

Suggestions	No. of Students
More functional equipment/audiovisuals	159
Lengthen duration of postings	84
Expose students to practical demonstrator/procedures	57
Early introduction in curriculum	51
Students learn to interpret radiographs	15
More lectures	11
Total	377

*There is overlap of suggestions as given by the respondents

In spite of the appreciation of the relevance of radiology to future medical practice, only fifty-one students (15.7%) were prepared to specialize in radiology after graduation. (Fig. 2). This has no significant association with their negative perception of both radiologists' workload and radiologists/patients interaction. ($X^2=0.226$, $p < 0.25$; $d f=1$).

PIE CHART SHOWING THE PERCENTAGE OF STUDENTS WITH KNOWLEDGE OF RADIOLOGIC PROTECTION

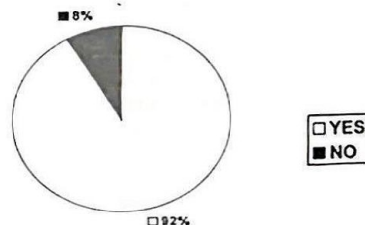


Fig. 3:

Discussion

Phenomenal advances in radiology in the last two decades have not been matched by improvements in radiology education [6]. Also worthy of note is that there remains no formal radiologic education in most medical schools in the United States and the United Kingdom [7], even when the benefits of the introduction of radiology to the core course in the undergraduate curriculum have been demonstrated [8,9], with calls to improve the teaching of radiology [10]. It is therefore important to generate ideas that will, among others, improve the teaching of radiology in our medical schools.

The respondents desire for the retention of radiology in the medical school curriculum demonstrates their appreciation of the role radiology plays in medical education, a view that is also shared by American senior medical students who would even encourage their junior colleagues to take the radiology elective [11]. In another American study, non-radiologic clinicians believed in making radiologic education mandatory for all students [12]. Additionally, the students in this study would want more time allocated for the radiology rotation.

I found a very poor understanding among our students, of the role of radiologists in clinical practice as evidenced by their rating of radiologists as not "having much to do", or having little interaction with their patients. It is my belief that this

poor understanding is reinforced by the non-availability of modern equipment in most of our radiology departments in Nigeria, a situation that does not allow for optimal practice. Together these have resulted over the years in our clinical colleagues poor use of radiologic consultations. They therefore end up looking out for 'reports' and signatures, and continuously have difficulty in selecting appropriate radiologic investigations. [6]

The rating of Plain radiography over Computerized Tomography and Ultrasound as Imaging techniques is a sad reflection of the level of Radiological practice in some institutions in Nigeria, where there is little or no input of these aforementioned, relatively new cross-sectional imaging modalities. This lack of modern gadgets, in the author's opinion might also be responsible for the low number of students willing to specialize in radiology.

One important suggestion made by the students, aimed at improving the teaching and understanding of radiology is their regular involvement in film reviewing sessions and practical procedures. Their belief in the interactive nature of these methods agrees with the finding of Locksmith and others [13] in a European study. The students seem to prefer skills at interpretation of radiographs to development of good radiologic workups.

The concern for safety in the department cannot be ignored. A way of addressing this is to increase the number of lectures on radiation protection. When students feel safe within the radiology department, they can be convinced to become future practitioners in the specialty.

Conclusion

One can conclude that the students appreciate the role of radiology in medical education and practice. However, teachers of the subject need to do more to identify those measures that will positively change their negative attitudes, in order to produce doctors who will be more knowledgeable in the relevance and role of radiologic consultations. This also appears to be one way of wooing future practitioners into the fold.

These measures will include provision of modern equipments and audiovisuals for teaching purposes, involvement of students in film review sessions and lectures on appropriate radiologic workup of patients. Steps should be taken to allay the fears of the students over safety. The small number of students who perceive radiology, as 'non-contributory' should also not be ignored. Radiologists should play more roles in the design of medical school curriculum.

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