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ORIGINAL ARTICLE

Digital Rectal Examination for Prostate and Rectal Tumour: Knowledge and Experience of Final Year Medical Students

Toucher rectal pour les tumeurs de la prostate et du rectum: Connaissance et expérience des étudiants en dernière année en médecine

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ABSTRACT

BACKGROUND: **It is most pertinent that medical students are taught the necessary skills for digital rectal examination (DRE) before they become doctors.**

OBJECTIVE: **The study is to assess the knowledge and experience of final year medical students regarding DRE for prostate and rectal tumours.**

METHODS: **Well-structured questionnaire were administered to each of the final year medical students of Ladoke Akintola University of Technology a week to their final examinations.**

RESULTS: **Response was received from 127 (60%) of the students, 124 (97.6%) agreed that they have been taught DRE. Most of the students, 102 (80.3%), have done one to five DRE, three (2.4%) and have never performed DRE while none of the students have done more than ten DRE. Only in 49 (38.6%) of cases were the findings of the students on DRE always confirmed by a doctor. Nine students (7.1%) have never felt a clinical BPH and none had felt it more than five times. Sixty-six (52.0%) have never felt a malignant prostate and none of the students have felt it up to three times. Most of the students, 106 (83.5%), have never felt a rectal tumour on DRE Only five (3.9%) felt very confident of their ability to give an opinion based on their findings on DRE while 105 (82.7%) felt reasonably confident**

CONCLUSIONS: **The students have been taught DRE and a good number of them have performed it. Few of the DRE done by the students were cross-checked by a doctor. Most of the students have problems differentiating BPH from cancer of the prostate and many of them were not very confident of their findings on DRE. WAJM 2009; 28(5): 318–322.**

Keywords: **Digital rectal examination, medical students, prostate, rectal tumour.**

RÉSUMÉ

CONTEXTE: *Il est plus pertinent que les étudiants en médecine apprennent les compétences nécessaires à l'examen par toucher rectal (DRE) avant de devenir médecins.*

OBJECTIF: *L'étude est d'évaluer les connaissances et l'expérience des étudiants de dernière année de médecine en ce qui concerne DRE de la prostate et les tumeurs du rectum.*

MÉTHODES: *questionnaire bien structuré ont été administrés à chacun de la dernière année des étudiants en médecine de Ladoke Akintola Université de technologie par semaine à leurs examens finaux.*

RÉSULTATS: *La réponse a été reçue à partir de 127 (60%) des étudiants, 124 (97,6%) ont accepté que leur ont été enseignées DRE. La plupart des étudiants, 102 (80,3%), ont fait une à cinq DRE, trois (2,4%) et n'ont jamais fait DRE alors qu'aucun des étudiants ont fait plus de dix DRE. Ce n'est que dans 49 (38,6%) des cas ont été les conclusions des étudiants sur DRE toujours confirmé par un médecin. Neuf étudiants (7,1%) n'ont jamais senti une HBP clinique et aucun n'avait senti plus de cinq fois. Soixante-six (52,0%) n'ont jamais senti une prostate malignes et aucun des élèves l'ont ressenti jusqu'à trois fois. La plupart des étudiants, 106 (83,5%), n'ont jamais ressenti une tumeur rectale DRE sur cinq seulement (3,9%) se sentait très confiants dans leur capacité à donner un avis fondé sur leurs conclusions sur DRE tandis que 105 (82,7%) a estimé raisonnablement confiant.*

CONCLUSIONS: *Les élèves ont appris toucher rectal et un bon nombre d'entre eux l'ayant effectué. Peu de DRE effectué par les étudiants ont été contre-vérifiée par un médecin. La plupart des élèves ont des difficultés de différenciation HBP d'un cancer de la prostate et beaucoup d'entre eux n'étaient pas très sûrs de leurs conclusions sur les DRE. WAJM 2009; 28 (5): 318-322.*

Mots-clés: *toucher rectal, étudiants en médecine, de la prostate, une tumeur rectale.*

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Abbreviations: CEA, Carcinoedm; **LAUTECH,** Ladoke Akintola University of Technology; **OSCE,** Objective Structure Chemical Examination; **PSA,** Prostate Specific Antigen; **RTA,** Rectal Teaching Associate; **SPETA,** Standardized Physical Examination Teaching Associates.

INTRODUCTION

Prostate cancer is the fourth most common male malignant neoplasm worldwide.[1] African American men have the highest reported incident of 1.6 per 100,000 population compared with men in the United States.[1] It, usually present along with more aggressive disease in African American than from other ethnic groups.[2,3] The hospital incidence of prostate cancer in Nigeria, the largest concentration of indigenous black patients in the world, is 127/100,000 with a national prostate cancer risk of 2% of patients[4] and presently the commonest cancer in males in Nigeria from 50 years and above.[5] Symptoms of anorectum and urogenital tract account for 5 to 10% of all consultations in general practice.[6] Up to two-thirds of patients that present this way undergo no rectal examination before specialist referral.[1] This is difficult to understand as approximately in 90% of cases rectal cancer can be felt digitally.[7] Galic *et al*[8] showed that an abnormal findings on DRE points to the diagnosis of cancer of the prostate in 54.2% of cases. DRE can easily be done even in areas where facilities for prostate specific antigen (PSA), carcinoembroyonic antigen (CEA) and ultrasound are not available. DRE should be performed in every male after 40 years and in men of any age that present for urological evaluation.[9]

It is pertinent to note that medical students are taught the necessary skills for DRE before they become doctors. Although many of them are taught the basic rudiments but[10,11] many still are not confident of their findings on DRE.

We carried out this study to find out the knowledge and experience of final year medical students regarding the ability to diagnose prostatic and rectal tumours from DRE.

SUBJECTS, MATERIALS, AND METHODS

A self-administered questionnaire was given to all the 215 final year medical students of LAUTECH one week before their final examinations in February 2007 with 60% completing the questionnaire. Involvement in this study was voluntary and did not constitute part of the summative assessment.

Information obtained included personal data, understanding about the technique of DRE, ability to differentiate tumours of the prostate, and rectal cancers on DRE and level of confidence in the ability of the students to perform DRE.

The data obtained was analyzed using SPSS statistical software 15.0, 2006 to obtain percentages, means, median and standard deviation. Ethical clearance and informed consent were obtained.

RESULTS

A total number of 127 students were in the study, with a male to female ratio of 1:1. The ages ranged from 21 to 35 years with a median of 28 years. The minimum number of years each of these students spent in medical school was seven years while the maximum was 10 years and 16 of them did not state the number of years each person has spent in the medical school. Sixty five (51.2%) students spent eight years, 40 (31.5%) students spent nine years, three (2.4%) students spent seven years, another set of three (2.4%) students spent ten years in medical school while 16 (12.6%) students did not state the number of years they spent in medical school. One hundred and twenty four (97.6%) agreed that they had been taught DRE either in the ward or in the clinic. Three (2.4%) of the students had never performed DRE while 102 (80.3%) had done one to five DRE, 13 (10.2%) had done six to ten DRE and none of the students had done more than ten DRE while nine (7.1%) did not respond to the question, Figure 1. There is a weak correlation between the number of years spent in medical school and the number of DRE done by each student with Spearman's rho equals 0.268. One hundred and nineteen (93.7%) of the students knew that DRE is usually done in the left lateral position while two (1.6%) each responded that lithotomy and dorsal positions were the positions that DRE should be done and one (0.8%) said it is usually done in the knee-elbow position. Three (2.4%) of the students did not respond.

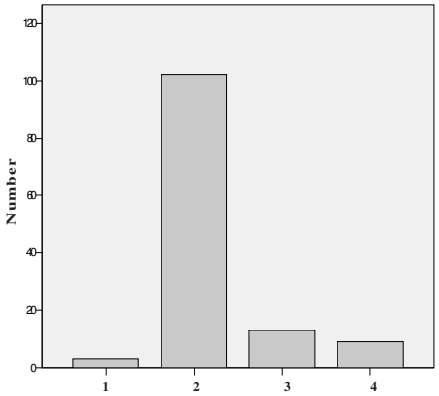

Figure 1: Number of Rectal Examinations performed by student. 1, Never performed; 2, performed more than 5 times; 3, performed 6–10 times; 4, no response.

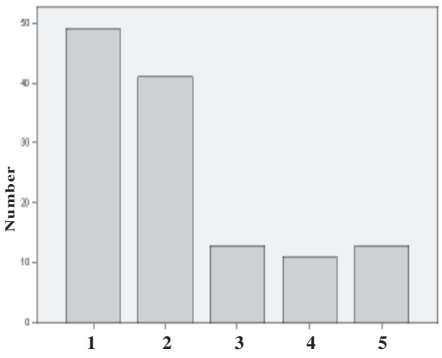

Figure 2: Number of times Students' findings on DRE were confirmed by a Doctor. 1, always confirmed by doctor; 2, confirmed more than 50% of times; 3, confirmed less than 50% of times; 4, never confirmed; 5, no response.

Forty-nine (38.6%) answered that their findings on DRE were always confirmed by a doctor while 41 (32.3%) responded that it was confirmed by a doctor more than half of the time, 13 (10.2%) said less than half of the time, and 11 (8.7%) said never while in 13 cases (10.2%) there was no response, Figure 2. Twenty (15.7%) have always felt an enlarged prostate, 34 (26.8%) says more than half of the time, 40 (31.5%) says less than half of the time while 23 (18.1%) have never felt an enlarged prostate and 10 (7.9%) had no response. Nine (7.1%) have never felt a clinical BPH, 49 (38.6%) have felt clinical BPH on one or two occasions, 13 (10.2%) in three to five times, none had felt it more than nine times and 56 students (44.1%) had no response. Sixty-one (48.0%) agreed that an enlarged prostate in BPH should be firm, two (1.6%) did not agree while 64 (50.4%) had no response, Table 1. Sixteen (12.6%) agreed that one can ***get*** above an enlarged prostate in BPH, 37 (29.1%) did not agree while 74 (58.3%) did not respond. Nine (7.1%) responded that an

Table 1: Knowledge of 126 final year medical students suggestive of BPH

Finding	Yes	No	No Response	Total
Was it firm?	48.0	1.6	50.4	100
Can you get above it?	12.6	29.1	58.3	100
Was it hard?	7.1	40.9	52.0	100
Was the median groove preserved?	28.3	18.9	52.8	100
Was the lateral sulci deepened?	19.7	20.5	59.8	100
Was there any hard nodule?	4.7	45.7	49.6	100
Any infilteration to the pelvic side wall?	0.8	48.8	50.4	100
Could you palpate the seminal vesicle?	3.1	35.4	61.4	100

BPH, benign prostatic hyperplasia. Figures are as percentages

Table 2: Knowledge of 126 Final Year Medical Students suggestive of Cancer of the Prostate

Finding	Yes	No	No Response	Total
Was it firm?	8.7	25.2	66.2	100
Can you get above it?	9.4	25.2	65.4	100
Was it hard?	36.2	3.1	60.6	100
Was the median groove preserved?	0.8	33.9	65.4	100
Was the lateral sulci deepened?	19.7	14.2	66.2	100
Was there any hard nodule?	33.9	3.9	62.2	100
Any infilteration to the pelvic side wall?	15.0	18.1	66.9	100
Could you palpate the seminal vesicle?	1.6	29.1	69.3	100

Figures are as percentages

enlarged prostate in BPH is usually hard, 52 (40.9%) says it is not usually hard while 66 (52.0%) did not respond. Thirty-six (28.3%) responded that the median groove is usually preserved, 24 (18.9%) says it is not preserved while 67 (52.8%) had no response. Twenty-five (19.7%) responded that the lateral sulci are deepened in BPH, 26 (20.5%) says it is not deepened while 76 (59.8%) had no response. One (0.8%) responded that there was infiltration of the pelvic side wall in the clinical BPH they felt, 62 (48.8%) says no while 64 (50.4%) had no response. Four (3.1%) responded that they could not palpate the seminal vesicles in BPH, 45 (35.4%) says they could while 78 (61.4%) did not respond. Sixty-six (52.0%) have never felt a malignant prostate, 49 (38.6%) have felt it in one to two times, none of the students have felt it up to three times while 12 (9.4%) did not respond. Table 2. Eleven (8.7%) responded that the malignant prostate they felt was firm, 32 (25.2%) says it was not while 83 (65.4%) had no response. Twelve (9.4%) of the students responded that they could get above the malignant prostate they felt, 32 (25.2%) said they could not while 83 (65.4%) had no response. Forty-six (36.2%) responded that the enlarged prostate they felt was hard, 4 (3.1%) said it was not while 77(60.6%) did not respond. One 0.8% responded that the median groove was preserved in the malignant prostate they felt, 43 (33.9%) said it was not while 83 (65.4%) did not respond. Twenty-five (19.7%) said that in the malignant prostate they felt, the lateral sulci were deepened, 18 (14.2%) said it was not while 83 (65.4%) had no response. Forty-three (33.9%) answered that they felt hard nodule in the malignant prostate(s) they had examined, five (3.9%) said they did not while 79 (62.2%) had no response. Nineteen(15.0%) responded that the malignant prostate(s) they felt there was infiltration of the pelvic side wall, 23 (18.1%) said there was none while 85 (66.9%) had no response. Two (1.6%) answered that there felt the seminal vesicle in the malignant prostate they examined, 37 (29.1%) said they did not, while 88 (69.9%) had no response.

One hundred and six (83.5%) of the students have never felt a rectal tumour on DRE, 12 (9.4%) have felt it one to two times none of the students have felt it up to three times while nine (7.1%) did not respond.

Only five (3.9%) felt very confident of their ability to give an opinion based on their findings on DRE, 105 (82.7%) felt reasonably confident, seven (5.5%) were not confident at all while 10 (7.9%) had no response.

DISCUSSION

The teaching of DRE appears to be adequate with 97.6% of the students agreeing that they have been taught DRE either in the ward or clinic. In similar studies done in University of Oxford medical school,[10] Melbourne[12] and Jos, Nigeria[11] the percentage of students who agreed that they have been taught DRE were respectively 88%, 92%, and 94%. This is commendable and more teaching on DRE should be encouraged. This will go a long way in early detection of common anorectal and urological diseases. The students appeared to have done a reasonable number DRE in that 80.3% of the students have done one to five DRE and only 2.4% have never done DRE, although none of the students have done more than ten DRE. This is better than the findings in Melbourne[12] and Jos[11], Nigeria were up to 17% and 45% respectively of the students had never done DRE. This may be because the minimum number of years each students have spent in medical school was seven years with 51.2% and 31.5% respectively spending eight and nine years.[1] But the findings at the Charing Cross and Westminister Medical School in 1991 were better in that more than 80% of the final year medical students have performed more than ten DRE.[13] Although the practices in United Kingdom has changed in the last two decades, literature search did not show any recent publication on this topic. In a similar study in Headington, Oxford, the median category for total numbers of DRE done was three to five (35%) with 23% having performed more than ten DRE[10]. 38.6% of the students said that their findings on DRE were always confirmed by a doctor, a higher proportion than found at Oxford (31% of

students) but less than the Melbourne study where 52% of their DRE findings were always confirmed by a supervising doctor[10,12] 18.1% of the students have never felt an enlarged prostate, 7.1% have never felt a clinical BPH, 52.0% have never felt a malignant prostate and 83.5% of the students have never felt a rectal tumour on DRE. In a similar study done in Jos, Nigeria, 62% of the students had never palpated a prostate and 86% never palpated a malignant prostate.[11] Only 9.4% of our students had palpated a rectal tumour, compared with 19%, 45% and 83% respectively in the Melbourne study, Oxford study and earlier London study.[12,10,13] 38.6% of our students had palpated a prostate cancer, compared with 7%, 24% and 53% in Jos, Nigeria, study, Melbourne study and the Oxford study respectively.[11,12,10]

Forty-eight percent of the students have felt benign prostate between one to five times but none have felt it more than five times.

In trying to find out in details the classical features of DRE findings in BPH and Cancer of the prostate, the findings were revealing. Although most of them have palpated prostate by DRE almost greater than 50% of them in all cases did not respond to the questions on the classical clinical findings on BPH and cancer of the prostate (Tables 1 and 2). This is at variance with the findings in Jos, Nigeria, study where the students showed good knowledge of DRE findings suggestive of cancer of the prostate as greater than 61% knew them.[12] Although the students have been taught DRE (97%) and most (90.5%) of them have done between one to ten DRE, only 3.9% felt very confident. The teaching method may be part of the problem because in a work done by Junger *et al*[14] specific training in communication and basic skills enabled the student to perform better in objective structured clinical examination (OSCE).[14] It is clear that the teahing in DRE obtained by students in our medical school is adequate but the supervision is currently inadequate. At the very least we need to ensure that all students and clinicians are aware of the importance of this skill, and that opportunities for learning are maximized whilst the highest possible standards of patient care and professionalism are maintained. Some authors have explored alternative methods to promote students' skills and confidence in intimate examinations. In the teaching of vaginal examination to students in the USA, pairs of trained women have acted as teacher and student during medical student training sessions.[15] Use of plastic models (mannequin) to teach DRE have been suggested by some authors.[12] In addition, in some places like Holland and the USA, students have practised DRE on one another.[16] Further more in New Zealand, 26% of female medical students and 27% of males would volunteer for vaginal or rectal examinations, respectively, if only students of the same sex were present.[17] We are not aware of similar practices in many other medical schools. Barley *et al.*[18] found that standardized physical examination teaching associates (SPETAs) can effectively teach foundational physical examination skills to medical students at a similar and sometimes better performance level as physician faculty.[18] A study using rectal teaching associate (RTA), to teach the DRE as a global skill for evaluating the rectum suggests that the RTA method is effective for increasing skills and students' confidence in the procedure.[19] A competency-based approach with assessment by trained supervisors has been shown to result in rapid acquisition of other clinical skills.[20]

We suggest that ten supervised DREs should be absolute minimum requirement for medical students. Increased supervised instruction in the rectal examination in medical training programs is recommended. This should emphasize not only appropriate indications for this procedure but also attention should be paid to details clinical findings that are pathogmomonic of common anorectal and genitourinary lesions.

Conclusion

The students have been taught DRE and a good number of them have performed it. Few of the DRE done by the students were cross-checked by a doctor. Most of the students have problems differentiating BPH from cancer of the prostate and many of them were not very confident of their findings on DRE. Increased supervised instruction in the rectal examination in medical training programs is recommended.

REFERENCES

1. Klein EA, Platz EA, Thompson IM: Epidemiology, Etiology, and Prevention of Prostate Cancer. Wein AJ ,Kavoussi LR, Novick AC, Partin AW, Peters CA. editors. Campbell's Urology. 9th ed. W.B. Saunders. 2007: 2854–2873.
2. Powell JP, Hussain M: Removal of the financial barrier to health care: does it impact on prostate at presenting and survival? A comparative study between black and white men in veterans affairs. Urology. 1995; **46:** 825–30.
3. Robbins AS, Whittmore AS, Vanden Eedensk: Race prostate cancer survival and membership in a large health maintenance organization. *J Natl Cancer Inst* 1998; **90:** 986–90.
4. Osegbe DN, Prostate Cancer in Nigerians: facts and non-facts. *J Urol.* 1997; **157:** 1340–1343.
5. Ogunbiyi JO, Shittu OB. Increased incidence of prostate cancer in Nigeria. *J Natl Med Assoc.* 1999; **91:** 159–164.
6. McCormick A, Fleming D, Charlton J. Morbidity statistics from general practice. Fourth national study 1991–92. Royal College of General Practitioners, Office of Population Censuses, and Department of Health 1995.
7. Williams NS: The Rectum. In Russell RCG, Williams NS, Bulstrode CJ Eds. Bailey and Love's Short Practice of Surgery. 23rd edition. Arnold. London. 2000: 1093–1114.
8. Galic J, Karner I, Cenan L, *et al.* Comparison of digital rectal examination and prostate specific antigen in early carcinoma of the prostate. *J Coll Physicians Surg Pak.* 2003; **27:** 61–6.
9. Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA. editors. Campbell's Urology. 9th ed. W.B. Saunders. 2007: 81–110.
10. Turner KJ, Brewster SF: Rectal examination and urethral catheterization by medical students and house officers: taught but not used. *BJU Int.* 2000; **86:** 422–6.
11. Dakum NK, Ramyil VM, Agbo S *et al:* Digital rectal examination for prostate cancer: attitude and experience of final year medical students. *Nig J of Clin Prac.* 2007; **10:** 5–7.
12. Lawrentschuk N, Bolton DM:

Experience and attitudes of final year medical students to digital rectal examination. *MJA* 2004; **181:** 323–5.

13. Hennigan TW, Franks PJ, Hocken DB, et al. Influence of undergraduate teaching on medical students' attitudes to rectal examination. *Br Med J* 1991; **302:** 829.
14. Junger J, Schafer S, Roth C *et al:* Effects of basic clinical skills training on objective structured clinical examination performance. Med Educ. 2005; **39:** 1015–20.
15. Kretzschmar RM. Evolution of a gynaecology teaching associate, an education specialist. *Am J Obstet Gynecol* 1978; **131:** 367–72.
16. Wilt TJ, Cutler AF. Physician performance and patient perceptions during the recta examination. *J Gen Intern Med* 1991; **6:** 514–7.
17. Abraham S: Vaginal and speculum examination in medical curricula. *Aust NZ J Obstet Gynaecol* 1995; **35:** 56–60.

x18. Barley GE, Fisher J, Dwinnell B *et al.* Teaching foundational physical examination skills: study results comparing lay teaching associates and Physician instructors. *Acad Med.* 2006, 81 (Suppl.): 95–7.

19. Popadiuk C, Pottle M, Curran V. Teaching digital rectal examinations to medical students: an evaluation study of teaching methods. *Acad Med.*2002; **77:** 1140–6.
20. Martin M, Vashisht B, Frezza E, *et al.* Competency-based instruction in critical invasive skills improves both resident performance and patient safety. *Surgery* 1998; **124:** 313–317.