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DIGITAL RECTAL EXAMINATION FOR PROSTATE CANCER: ATTITUDE AND EXPERIENCE OF FINAL YEAR MEDICAL STUDENTS.

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ABSTRACT

Objective: Prostate cancer which tends to take an aggressive course in black populations can be detected by digital rectal examination (DRE). There are concerns however that medical students are not acquiring the necessary DRE skills. We therefore studied their experience and attitude towards DRE for prostate cancer to assist us make any necessary adjustments in training.

Methods: This was a self-administered questionnaire based study of final year medical students two months to graduation carried out at the Jos University Teaching Hospital, location for clinical studies of the Medical Faculty of the University of Jos.

Results: There were 100 students in the study, with a male: female ratio of 3.6:1. The ages ranged from 24 to 35 with a mean of 28 years. Fifty-one percent and 94% agreed they had been taught DRE in class and on the ward/clinic respectively. Almost half (45%) had never performed a DRE and 43% performed it only1-2 times. Sixty-two percent of the students had never confidently palpated a prostate; while 30% had palpated it 1 2 times. Eighty-six percent and 7% respectively have never felt a clinically malignant prostate or felt it 1 2 times. There was no statistically significant difference in the number of DREs performed by sex or age ($p > 0.05$). On supervision 43% were never supervised to do DRE while 23% were supervised all the time. Ninety-five percent believed DRE is an essential requirement for a medical practitioner and 96% believed they should have the skills before graduating. Only 36%, however, believed their teachers have been supportive, teaching them DRE (p value= .033). Ninety percent agreed that DRE is useful for screening for prostate cancer. The major reason for not performing DRE more than half the time was the student not feeling competent (54%).

Conclusion: Students have received adequate teaching on DRE, have the right attitude and perspective, have adequate knowledge on DRE findings suggestive of prostate cancer but have not translated this knowledge into practice. This is mainly due to the students not feeling competent. Teachers need to intensify practical supervision to enable medical students acquire the necessary experience during clinical training.

Keywords: prostate, cancer, digital rectal examination, students *(Accepted 5 April 2006)*

INTRODUCTION

African-American men exhibit the highest rates of prostate cancer[1, 2], although another study suggests Jamaicans have the highest incidence in the world[3]. Presentation in this group of people is usually with more aggressive disease than from other ethnic groups[1,2]. 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]. It is therefore of the utmost importance to make a diagnosis on these patients early so as to offer hope of cure.

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A combination of physician conducted ultrasonography, digital rectal examination (DRE) and serum determination of prostate specific antigen (PSA) has been shown to give a detection rate of cancer of the prostate of 14.6%[5]. Of these, digital rectal examination is easily carried out even in environments where facilities are not available for PSA or ultrasonography. A study has shown that an abnormal finding on DRE points to a diagnosis of carcinoma of the prostate in 54.2% of cases[6]. Igbal et al[7] had a sensitivity of 63%, specificity of 73.2% and positive and negative Predictive values respectively of 57.5% and 73.2% for carcinoma of prostate on DRE. Mistry and Cable, in a meta-analysis for DRE found a pooled sensitivity, specificity and positive predictive values of 53.2%, 83.6%, and 17.8% respectively[8].

There is also a chance of one in four or five of having prostate cancer when a patient has abnormal findings using PSA and DRE[8].

It is therefore necessary for medical students and doctors to have the necessary skills and attitude towards DRE. There are concerns however that medical students are not acquiring the necessary skills. A study in UK showed that the number of DREs performed by medical students during clinical training fell from a median of 11-30 to 3-5 between 1990 to 2000[9, 10]. Lawrentschuk and Bolton[11] in a survey of final year medical students at university of Melbourne found that the median number of DREs performed was two, with 17% of students performing none. The same study also showed that 63% had palpated a prostate and 24% a prostate cancer.

We undertook a study of final year medical students at our centre to assess their experience and attitude towards DRE for prostate cancer with a view to making necessary adjustments in training.

METHODOLOGY

Study area: This study was carried out at the Department of Surgery of the Jos University Teaching Hospital. This hospital is a tertiary health institution located in the North Central region of Nigeria and serves as the location for clinical studies of the Medical Faculty of the University of Jos.

Study population: The subjects of this study were final year medical students, two months to their graduation from medical school. Students spend three years in preclinical sciences and three years studying clinical subjects. The final examination includes surgery among others.

Method: Consent was obtained from the institutions Human Ethics Committee. Involvement in the study was voluntary and did not constitute part of continuous assessment. Students of all ages and sexes were given self-administered (not interviewer administered) questionnaire to fill immediately after a lecture. There was no external, validation of the questionnaire, as was the case in the University of Melbourne, where it was also attested that no externally validated DRE questionnaire exists[11].

Outcome indices: Data obtained were information regarding personal data, attitudes and self-perceived competence, reasons for not performing DRE, teaching about DRE, number of DREs performed and their knowledge on DRE findings suggestive of carcinoma of the prostate.

Statistical analysis: The data was subsequently analysed using SPSS statistical software 11.0.1, 2001 to obtain percentages, means, median and standard deviations. Chi-square was used to test for significance in various groups, with level of significance at $p<0.05$.

RESULTS

There were a total of 100 respondents in the study (out of 105 administered to the students), with a male: female ratio of 3.6:1. The ages ranged from 24 to 35 with a mean of 28 years. On the teaching of DRE, 51% and 94% agreed they had been taught in class and on the ward/clinic respectively, with 91% agreeing the teaching was helpful. About 32% of the students performed DRE shortly after the teaching with 27% of these feeling more confident about performing DRE.

Almost half (45%) have never performed DRE and 43% performed it 1-2 times (Fig. I). Sixty-two percent of the students had never confidently palpated a prostate with 30% having confidently palpated 1 2 times (Fig. II). Sixteen percent palpated a prostate during the rotation in urology and others during other rotations. Eighty-six percent and 7% respectively have never felt a clinically malignant prostate or felt it 1 2 times. There was no statistically significant difference in the number of DREs performed by sex or age ($p> 0.05$)

On supervision (Table I), 43% were never supervised to do DRE while 23% were supervised all the time. The findings were never supervised in 42% and supervised all the time in 20% of the students (Table II). Consent to perform DRE was obtained all the time in 38% and never in 27% of the students.

Assessment of attitudes and self perceived competence on DRE showed that 95% believed DRE is an essential requirement for a medical practitioner and 96% agreed that they should have the skills before graduating. Only 36%, however, agreed their teachers had been supportive, teaching them DRE (22males, 12 females, p value= 0 .033). Forty-two percent, 39% and 4% of students were either not all confident, reasonably confident or very confident, respectively, giving an opinion based on their DRE findings. Ninety percent, however, agreed that DRE is a useful tool for screening for prostate cancer.

The major reasons for not performing DRE (Table II) over half of the time were the student not feeling competent (54%), lack of facilities e.g. gloves (22%), absence of a chaperon around (20%), and patient being of opposite sex (18%). Less than half the time the reasons were refusal of the nurse (50%), lack of facilities (25%), the procedure being two bothersome to organize (15%) and the student not feeling competent (14%). Nursing staff refusal, fear of being reported by the patient, fear of being reported for not doing things correctly and ethical position were never reasons for not doing DRE in 54%, 54%, 50% and 47% of students respectively.

The knowledge of DRE findings of prostate cancer was correct in most responses as shown on Table III.

Pearson chi-square analysis did not show any statistically significant difference in the responses in all the variables in relation to age or sex ($p>0.05$) except on the issue of teachers' support to perform DRE as alluded to earlier.

Figure I: Number of DREs performed by 100 final year medical students

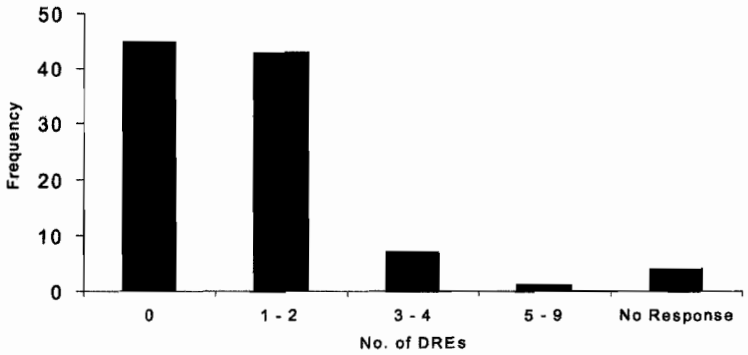

Figure II: Frequency of palpation of prostate and prostate cancer in 100 final year medical students.

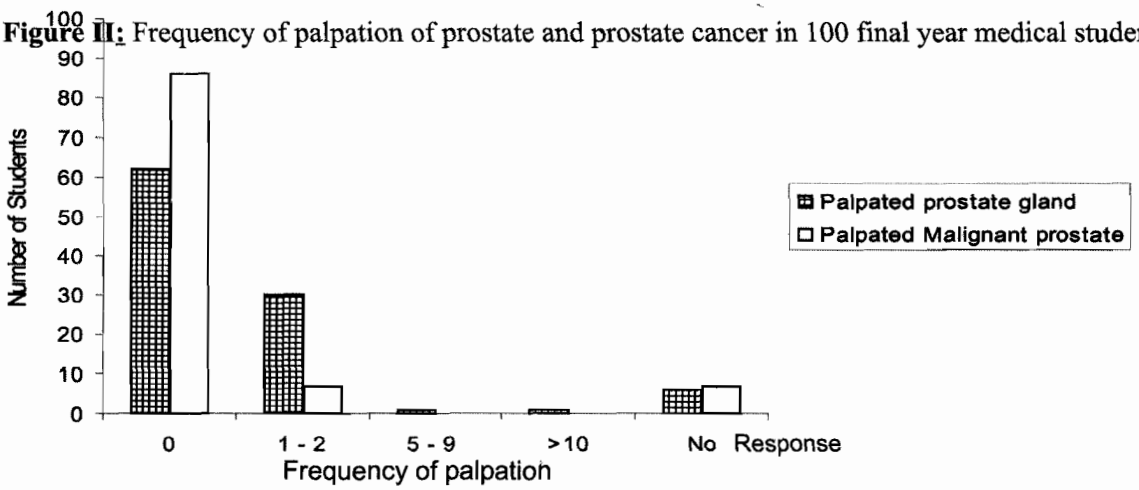

Table 1: **Supervision on DRE in 100 final year medical students**

Frequency of supervision	Supervision to perform DRE	Supervision of findings of DRE	Patient consent obtained
All the time	23	20	38
>half the time	8	8	1
<half the time	12	10	7
Never	86	42	27
No response	14	20	27
Total	**100**	**100**	**100**

Table II: **Reasons for not performing DRE in 100 final year medical students.**

Reason	>Half the time	<half the time	Never
Not feeling competent	31	14	34
Too bothersome to organize	8	15	31
Ethical opposition	8	3	47
Patient of opposite sex to student	18	9	37
No chaperon around	20	11	37
Patient refusal	18	9	37
Nurse refusal	4	50	54
Doctor refusal	10	10	41
Fear of being reported by patient	1	1	54
Fear of being reported for not doing things correctly	6	5	50
No facilities available(e.g. gloves)	22	23	24
Other reasons	4	1	12

Table III: **Knowledge of 100 final year medical students on DRE findings suggestive of prostate cancer**

Findings	Yes	No	Total
* Hard prostate	71	29	100
* Nodularity	71	29	100
*Obliterated median sulci	71	29	100
* Fixed mucosa	62	38	100
* Blood on gloved finger	61	39	100
Tender prostate	36	64	100
Boggy prostate	18	82	100
Clearly defined lateral edges	3	97	100

* Correct answers

DISCUSSION

This study has shown that while final year medical students have received adequate teaching on DRE with 95% agreeing it is an essential requirement for a medical practitioner, 85% of them have performed only 1 2; and over half (67%) have never palpated a prostate and 86% have never palpated a malignant prostate. The major reason for not performing DRE was the student not feeling competent.

The teaching of DRE appears to be adequate with 57% and 94% agreeing they had been taught in class and wards/clinics respectively. This compares favourably with the situation in Melbourne where 92% agreed they had been taught[11]. This teaching should be encouraged, particularly on the wards/clinics where the students should be allowed to perform the procedure under supervision. This will form a firm foundation upon which the students can build and also improve their confidence. Where there are plastic models, these should also be used to teach the technique as suggested by other authors[11].

This adequate teaching, however, has not translated into practice on patients as 45% and 43% had never performed it or performed only 1 2 times respectively. In Melbourne[11], 37 (17%) had performed none and 81 (37.2%) had performed 1 2 DREs. At University of Oxford Medical School[9], however, the situation is more favourable where 58% of students had performed five or more DRE (versus 1% in our study). Apart from teaching, the use of logbooks where a high premium should be placed on the number of DREs performed before final exam should be encouraged. These measures will assist to halt a decline in number of DREs performed as revealed by a UK study[10].

Although DRE is not the most sensitive method of detecting cancer of the prostate, it is necessary for students to be conversant with palpating the prostate before graduation. It is a dismal situation where 62% of the students had never palpated a prostate and 86% never palpated a malignant prostate. Only 7% had ever palpated a prostate cancer (versus 54% in Melbourne[11] and 53% in Oxford[9]). This may also be the situation in many other institutions, or even worse. The students however have good knowledge of DRE findings suggestive of cancer of the prostate as > 61% knew these (Table II). The students need to be encouraged to be more practical especially in the ward/clinics; even then under adequate supervision. Recently, the student load has been increasing without corresponding increase in faculty members; making adequate supervision difficult. Senior resident doctors could provide the much needed supervision.

It is encouraging; however, that the students have the right attitude as 95% (versus 97% in Melbourne[11]) believed DRE is an essential requirement for a medical practitioner. Ninety-six percent (94% in Melbourne[11]) believed they should have the skills before graduating and 90% agreed it is useful for screening for cancer of the prostate. They however need to be more confident by performing more DREs as only 4% were very confident of their DRE findings.

The teaching on medical ethics needs to be emphasized as only 38% of students obtained patient consent all the time before carrying out DRE. This is necessary so as to create a good balance between the rights of the patients and the enthusiasm of the students to improve their skills.

A study in Britain also revealed that students performed intimate examination on patients without prior consent in one quarter of cases[12].

In order to improve the performance of DRE by medical students, the reasons for not carrying out this important clinical evaluation need to be properly addressed. The major reason in our study was the student not feeling competent. Competence and confidence will only come with practice, encouragement and proper supervision by consultants and residents who should also be very familiar with the proper technique, as they cannot bequeath what they do not posses. Facilities e.g. gloves should be made available for teaching purposes especially where patients are required to pay for services upfront. A chaperon should be available to encourage the students and secondly for medicolegal reasons. Our study also showed that female students were less likely to be supported to perform DRE on males. This may be related to a perceived impression that female students may be less likely to take to surgery; but they should be supported; as DRE is a part of patient work-up by any doctor.

In conclusion, this study has shown that while students have received adequate teaching on DRE, have the right attitude and perspective, have adequate knowledge on DRE findings suggestive of prostate cancer, they however, have not translated this into practice as 85% of them have performed only 1 2 DREs. This is mainly due to the students not feeling competent. Teachers need to intensify practical supervision to enable medical students acquire the necessary experience before graduating. We are not aware of any similar work in any medical school in Africa.

REFERENCES

1. **Powell J. Pschwartzk, Hussain M.** Removal of the financial barrier to health care: does it impact on prostate cancer at presenting and survival? A comparative study between black and white men in a veterans affairs system. Urology 1995; 46:825-30.

2. **Robbins AS, Whittemore AS, Vanden Eedensk.** Race prostate cancer survival and membership in a large health maintenance organization. J Natl Cancer Inst 1998; 90: 986-90

3. **Glover FE Jr, Coffey DS, Douglas LL et al.** The epidemiology of prostate cancer in Jamaica. J Urol 1998; 159: 1984-6.

4. **Osegbe DN.** Prostate cancer in Nigerians: facts and nonfacts. J Urol 1997; 157: 1340

5. **Cooner WLT, Mosley BR, Rutherford CL Jr, Beard JH, Pond HS, Terry WJ, Igel TC, Kidd DD.** Prostate cancer detection in a clinical Urological practice by ultrasonography digital rectal examination and prostate specific antigen. J Urol. 1990. 143:1146-52 (discussion 1152-4).

6. **Galic J, Karner I, Cenan L, Tucak L, Hegedus I, Pasini J, Bilandzija-peranovic M, Mihaljevic S.** Comparison of digital rectal examination and prostate specific antigen in early detection of prostate cancer. Coll Antropol. 2003, 27: 61-6.

7. **Igbal N, Bhatti AN, Hussain S.** Role of digital rectal examination and prostate specific antigen in detecting carcinoma of prostate. J Coll Physicians Surg Pak. 2003.13: 340-2.

8. **Mistry K, Cable G.** Meta analysis of Prostate specific antigen and digital rectal examination as screening tests for prostate carcinoma. J Am Board Fam Pract. 2003; 16: 95-101.

9. **Turner KJ, Brewster SF.** Rectal examination and urethral catheterisation by medical students and house officers: taught but not used. BJU Int 2000; 86: 422-6.

10. **Hennigan TW, Frank PJ, Hocken DB, Allen-Mersh TG.** Influence of undergraduate teaching on medical students attitudes to rectal examination. BMJ 1991; 302: 829.

11. **Lawrentschuk N, Bolton DM.** experience and attitudes of final year medical students to digital rectal examination. MJA 2004. 181; 6: 323-5.

12. **Coldicott Y, Pope C, Roberts C.** The ethics of intimate examinations teaching tomorrow's doctors. BMJ, 2003; 326:97 101.