

Digital rectal examination and urethral catheterization by medical students: comparative study

Received: 19/5/2012

Accepted: 16/1/2013

Ismaeel Hama Ameen Aghaways*

Abstract

Background and objective: To determine the difference of acquired skills of how to perform Digital Rectal Examination and Urethral Catheterization, by medical students of two groups. Group (A) large group (traditional teaching group) and Group (B) small teaching group

Methods: A questionnaire containing information related to digital rectal examination (DRE) and urethral catheterization was given to all year six medical students at College of Medicine, University of Sulaimania, in June 2004 and 2007, just before their final examination. The questionnaire focused on the important points in relation to ways of teaching.

Results: Responses to all given questions in the questionnaire from the two groups were different, 54% of students from traditional teaching group responded as oppose to 53% from small group. Up to 93% of traditional teaching group student were taught how to perform Digital Rectal Examination, while approximately 80% of students from small teaching group have been taught to do DRE. Only 23% of those among traditional teaching group have done more than 3 DRE, while that of small teaching group was only 8%. In both groups, their findings were uncommonly checked by senior doctor. In both groups nearly 80% of the students had never felt a clinically malignant prostate and nearly the same for rectal tumor. Students from traditional teaching group, who did Digital Rectal Examination, 22% of them were not sure about their ability to give an opinion based on their clinical findings, while 33% of the small teaching groups were unable to give opinion. Nearly 73% in traditional teaching group have been taught how to perform male urethral catheterization, while that of small teaching group was 78%. In traditional teaching group, only 23% have performed 2 and less male urethral catheterization on qualification while 44% in small teaching group. 39% of small teaching group were not confident at all to do male urethral catheterization, while that of traditional teaching group was 27% only.

Conclusion: There was obvious similarity between the two groups regarding the lack of basic skill in conducting DRE, urethral catheterization. This was probably due lack of objectives in the teaching curriculum.

Keywords: Medical students, small teaching group, traditional teaching group, DRE, urethral catheterization.

Introduction

The DRE is an integral skill in clinical exam. It is an important part of complete physical examination. It is done to check for growths of or enlargement of Prostate gland. It helps to find the cause of symptoms such as rectal bleeding, lower abdominal or pelvic pain. It can be used to

identify abnormalities of the anus and rectum, including rectal tumor. It is often done in gynaecological examination to check on symptoms such as vaginal bleeding, or to check for problems in uterus or ovaries¹. The symptoms of urogenital and anorectal tract account for 5-19% of

* Department of General Surgery, College of Medicine, University of Sulaimania, Sulaimania, Iraq

consultations in general practice ^{2,3}. Most of the patient present in this way undergo no rectal exam before specialist referral. About one-third of rectal cancers are palpable on DRE, while an abnormal prostate on DRE may have a positive predictive value for prostatic cancer up to 30% ¹. Rectal examination should be performed in every male after the age of 40 and in men of any age who present for urological evaluation because most of prostate cancer be detected in an early curable stage by rectal exam in combination with a stool guaiac culture ⁴. Rectal examination must be done in every case of lower abdominal pain because tenderness in case of acute appendicitis may be confined to the pelvis "if you don't put your finger in the rectum, you may put your foot in" Charles McBurney ⁵. Urethral catheterization is not without complications, a quarter of all patients admitted to hospital are catheterized. This is associated with significant morbidity and associated mortality ^{6,7}. Urethral catheterization is the most frequent retrograde manipulation performed on the urinary tract ⁸. Although newly qualified doctors perform male urethral catheterization, few have received formal instruction in the technique as undergraduate ⁹. Digital Rectal Examination is done while the patient is lying on left lateral position, knees flexed close to chest. Privacy of the patient should be preserved. It is necessary to have a nurse attending the examination. During the examination, the doctor gently puts a lubricated, gloved finger of one hand into the rectum. He or she may use the other hand to press on the lower abdomen or pelvic area ¹⁰. The aim of this study is to assess the learning outcome of undergraduate medical program with regard to these two basic skills associated with Sulaimanyia College of medicine. Two different graduate groups A (traditional teaching group, 2004) and B (small teaching group, 2007) who were prepared to be evaluated by OSCE) were compared. This research compares the advantage

of teaching small teaching group over traditional teaching group. It is easier for teaching staff and students have better opportunity to learn these basic skills, which is one of the accreditation by the national and international Colleges of Medicine. Evaluations of how much confidence students, of both groups, have in these clinical skills have been done. The reasons why students are progressively performing fewer DRE and urethral catheterization have been highlighted. Suggestions have been introduced to improve the quality of performing technical procedures.

Methods

Setting: Sulaimanyia teaching hospital before their final examination. Duration of the study: at June 2004 and June 2007. All the students were included in this study. A questionnaire table1 was given to all 59 final medical year students at College of Medicine just before their final examination at June 2004. This year was the last of the traditional (classical) teaching program and examination. After three years of changing to small teaching groups, the same questionnaire was given to all 86 final year medical students in June 2007, just before their final examination. The response rate of filling and returning the questionnaire among first group (traditional teaching group) was 51%; while the response rate was 52% among students belong to group B (small teaching group) The questionnaire that has been used was also used by K.J. URNER and S.F BREWSTER ¹¹.

Results

Regarding group (A) 93% and 80% of group (B) who responded had been taught how to perform DRE as part of the undergraduate curriculum. Group (A) is better than group (B) in teaching DRE and this difference was statistically significant (P. value = 0.023). In group (A) 25% and in group (B) 8% students have performed more than 3 DRE, and only 4 students

(7%) of group (A) had performed more than 10 DRE, while that of group (B) was zero. Nearly both groups: 51% of group (A) and 52% group (B) had done 3 and less DRE and number of the students that never had done DRE is less in group A (5%) than group B (27%), over all group (A) is better than group (B) in number of DRE and this association is statistically

Table 1: The responses by medical students (Traditional Teaching Group (A)), and Small Teaching Group regarding DRE (B)), and comparison between them

Questionnaire (Variables)	Group A N (%)	Group B N (%)	P value
Have you been taught how to perform DRE?			
Yes	55 (93)	69 (80)	0.023
No	4 (7)	17 (20)	
No response	0 (0)	0 (0)	
How many DRE have been performed?			
1-3	30 (51)	45 (52)	< 0.001
4-10	15 (25)	7 (8)	
No more than 10	4 (7)	Zero (0)	
Nil	3 (5)	23 (27)	
No response	7 (12)	11 (13)	
How often was your finding confirmed by a senior doctor?			
All the time	9 (15)	20 (23)	0.267
More than half the time	21 (36)	19 (22)	
Less than half the time	14 (24)	16 (19)	
Never	10 (17)	22 (26)	
No response	5 (8)	9 (10)	
How many times have you felt a clinically malignant prostate?			
Non	47 (79)	69 (81)	0.455
1-2	11 (19)	12 (14)	
3-5	Nil (0)	3 (3)	
More than 5	Nil (0)	Zero (0)	
No response	1 (2)	2 (2)	
How many times have you felt a rectal mass?			
Non	48 (82)	73 (85)	0.269
1-2	7 (12)	10 (12)	
3-5	2 (3)	1 (1)	
More than 5	2 (3)	Zero (0)	
No response	Nil (0)	2 (2)	
Please indicate how confident you feel about your ability give an opinion based on your clinical finding DRE?			
Very	4 (7)	7 (8)	0.510
Reasonable	30 (51)	35 (40)	
Not at all	13 (22)	28 (33)	
No response	12 (20)	16 (19)	

highly significant (P.value < 0.001). The accuracy of the student finding on DRE was rarely checked by a senior doctor, 9 students for group (A) (15%) and only 20 students for group (B) (23%), this association was statistically not significant (p.value = 0.267). Experience in the diagnosis of the relatively common condition was also limited (79%) group A, 81% group B) of the students never having felt a malignant prostatic gland and association is statistically not significant (p.value = 0.456). (82% group A and nearly 85% group B) of the students have never had felt a malignant rectal tumor, and these association are statistically not significant (p.value = 0.269). When asked about giving their opinion based on their clinical finding on DRE (22% group A and 33% group B) of the students not at all confident, and (51% group A and 40% group B) of the respondents were reasonably confident and nearly 7% of group (A) and 8% of group (B) felt very confident, and

these association statistically not significant (p.value = 0.510). Regarding urethral catheterization 73% of group (A) and 78% of group (B) responded that they had been taught how to perform urethral catheterization, this association statistically not significant (p.value= 0.19). The 37% of group (B) and 71% of group (A) have never had done urethral catheterization. In group A 12 students (20%) have done 2 and less urethral catheterization, while in group B 37 students (44%) have done 2 and less urethral catheterization, these association statistically highly significant (p.value<0.001)so it means that group A is better than group B. How they feel confident about doing urethral catheterization: 39% of group A, and 27% group B were not at all confident. And 46% of group A and 58% of group B replied by reasonably confident. And 15% of group A and 15% of group B were very reasonably confident to do it, these finding statistically not significant (p.value =0.264).

Table 2: The responses by medical students (Traditional Teaching Group (A)) and Small teaching Group (B) regarding male urethral catheterizations, and comparison between them.

Questionnaire (Variables)	Group A N (%)	Group B N (%)	P value
Have you been taught to perform male urethral catheterization?			
Yes	43 (73)	67 (78)	0.190
No	12 (20)	18 (21)	
No response	4 (7)	1 (1)	
How many male urethral catheterizations have you performed?			
None	42 (71)	32 (37)	<0.001
1-2	12 (20)	37 (44)	
3-5	Zero (0)	14 (16)	
6-10	1 (2)	2 (2)	
More than 10	4 (7)	1 (1)	
Please indicate how confident you feel about urethral catheterization?			
Very	9 (15)	13 (15)	0.264
Reasonable	27 (46)	50 (58)	
Not at all	23 (39)	23 (27)	

Discussion

Teaching clinical skills is important to help the newly qualified or graduated doctors to improve their diagnostic skills and gain more practical skills. This in turn makes them well prepared and work more confidently. The way of teaching is important; teaching environment should be put in to consideration. It should be done in a friendly suitable environment. Simulation modalities, such as mannequin and standardized patient should be used to help students understand better and practice more. All students should be given equal opportunity to learn and practice these basic clinical skills¹⁰. DRE is an important component of clinical examination because this simple procedure is disagreeable to the patient, so it's often inappropriately omitted¹⁰. Most of the student have received enough information about how to do DRE (93% group A, 80% group B) and there is significant association with other study which gives the same result¹¹. Regarding the number of the DRE that has been performed more than 3 times are 25% group A and 8% group B, it clear that group A is better than group B in performing DRE with statistically significant association and in comparison with other studies that results are very disappointing¹¹. (A study conducted in department of urology, Churchill Hospital, Headington, oxford medical school, UK; in which it shows that the median category for the total number of DRE was 3-5 and was conducted by 35% of the students). And it's much worse if compared to a study conducted at the Charring Cross and Westminster medical school in which 80% of medical students had performed more than 10 DRE¹². But more or less similar to the result of South African medical school⁹. In group A 7% and in group B 0% have done more than 10 DRE, so that it's not surprising that 1/3 of group A, and more than this in group B are not confident in their ability to give an opinion about their finding on DRE and nearly most of them

in both groups had never felt neither a clinically malignant prostate nor rectal tumor. It's also surprising that few DRE performed had been discussed with a senior colleague (15% group A and 23% group B) and it is low if compared with other study^{11,12} (>30%) Regarding the explanations of our results it has been suggested that students are convinced by medical staff no to do DRE because they are embarrassed or because simply the patients rerefusing^{11,10}. Another cause is that the students may lack motivations in practicing these skills because it hardly assessed in examinations. On the other hand it may be due to an organized teaching by clinical staff because they disregard the overt time table, unscheduled changes to teaching sessions where time wasting are very common, or may be due to lack of commitment and poor teaching skills that some teachers had¹³. because their finding has not been confirmed by their seniors. Lack of separate rooms for trainee, basic equipments in each rooms, audit of clinical care and practice organization communications and counseling skills taught may be other possibilities¹⁴. The general medical council (GMC) in UK states that the students should acquire and become proficient in basic clinical skills,¹⁵ and necessitate more than 6 DRE to be done by every student¹¹. Our results are obviously not achieving such proficiency, and whether we have some guideline in our practice and the supervising doctors need to obtain consent from the patient. I think the cause is that in both groups there were no objectives in the teaching programs of their curriculum, although the second group has been prepared to be examined by new method (OSCE); however in both groups the results were similar. Although differences are limited to tow variables, it is also low in comparison to the other study that has been explained above¹⁶. Regarding urethral catheterization both groups received enough instructions about how to do it (nearly 78% group A, 73% group B). The percentage of

urethral catheterization that has not been performed is 37% group B and 71% group A which is very high. However relatively more students in group B have done urethral catheterization (63%) which is highly significant but in comparisons to other also low (83%)¹¹. Many students felt not at all confident in doing urethral catheterization in both groups (nearly 1/3) which is lower than the study that has been done by K.J Turner (69%) confident. As has been mentioned above regarding DRE, the main reason here is also due to lack of objectives in teaching schedule in both groups; lack of demonstration of this procedure in front of the senior doctors and most of the times was done by nursing staff and the source of teaching was provide by junior staff¹⁷. The time has come to change the style of the curriculum of teaching, simulated patients and objective structural clinical examination (OSCE) and their use in medical education will fulfill the main recommendations which have been mentioned by GMC in Tomorrow Doctors 1993¹⁸. In this way (OSCE Teaching) we can obviate students demotivation and perceive their perceptions that many clinical teachers had a low level of commitment to teaching and prevent teacher absents from educational sessions. The OSCE process thus serves to identify areas of weakness in the curriculum and or teaching methods and thus can serve as a mechanism to improve educational effectiveness¹⁹.

Conclusion

In this study, the similarity between the two groups regarding the lack of basic skills was probably due to lack of objectives of the teaching curriculum. Conducting few DRE leads to lack of confidence and inability to pick up the abnormalities and that their finding was uncommonly confirmed by senior doctor. It was also noted that there was lack of experience and confidence in doing male urethral catheterization. We suggest that any final medical students should have performed

at least six of each of these basic clinical skills before entering their final examination. These should be documented and signed by their supervisor. Apply guidelines that should be followed by all supervising doctors. It is recommended that there should be clear objectives in teaching programs and the teaching staff should be assessed periodically by senior qualified staff. It is also important to use simulated patients and objective structural clinical examination.

References

1. Lawrentschuk N, Botton D M Experience and attitudes of final year medical students to DRE, the Medical Journal of Australia, 2004, 181 (6)323-5.
2. Levis J C. A challenge to Saudi Arabian Hospital?, Saudi Medical Journal, 1984 5:1;97-102.
3. McCormick A, Fleming D, Charlton J., Morbidity statistics from general practice fourth national study 1991 -1992, Royal College of General Practitioners, Office of population censuses , and department of health 1995.
4. Franklin C, Lowe M.D, Charles B, Brandler M.D ,Evaluation of the urological patients in Walsh P C, Retik A B, Stamey T A, Vaughan E D (edit).Campbell's Urology 6^t h edition 1992, Philadelphia W,B Saunders. Page 314.
5. McBurney C, The Vermiform appendix in Hardingrains A.J, Ritche D, Baily and loves Short Practice of Surgery 1981 Eighteenth Edition. London, Lewis H.K , Page 1060.
6. patel H R H , Arya M, The urinary catheter : a voiding catastrophe , Hospital Medicine , March 1992 , volume 62. No.3
7. Horgan AF, Prasad B, Waldron DJ, O'Sullivan DC, Acute urinary retention, Comparison of suprapubic and urethral catheterization, BJU, 1992;70;149-51.
8. Stoller M L. Retrograde instrumentation of the urinary tract, in Tanagho E A, McAninch JW. (edit).Smith's General Urology, fifteenth edition, 2000,page 196.
9. Burch VC , Nash RC, Zambow T, Gibbs T, Aubin L, Lacobs B .. et al, A structural assessment of newly qualified graduates, medical Education, 2005;39;723-731 FORD M.J, CUMMING A.D, The Alimentary and Genitourinary system, examination of the rectum, in Munro J F, Campbell I W, (edit).Macleod's Clinical Examination, Tenth edition, Churchills Livingstone, London 2000; page 174.
10. TURNER K.J. BREWSTER S.F, Rectal examination and urethral catheterization by medical students and house officers: taught but not used; BJU International ,2000;86,422-6.

11. Hennigan T W, Frank SPT, Hocken DB, Allen-Marsh TG ,influence of undergraduate teaching on medical students attitudes to rectal examination, BMJ,1991;302;829
12. Lempp H, The Hidden Curriculum in Undergraduate Medical Education; qualitative study of medical students perception of teaching ,BMJ;2004 October 2:329(7469):770-3
13. Reynolds M. SMITH T. Minimum standards for Training, A consumer viewpoint, BMJ; 1985, vol 290;38-5.
14. The Education Committe of the General Medical Council. Goals and objectives of undergraduate medical education, (Tomorrow Doctors) The General Medical Council of The Medical Education and Registration of United Kingdom. December 1993, London Page 12.
15. McKilop JH; Changing perception of the purpose of undergraduate medical education, SMJ;2006-51 (1):23-6.
16. Watkin NA, Moisey CUM, Gallegos CRR, Charlton CAC. Urethral catheterization –any body listeining □ Annal of the Royal College of Surgeons of England 1994 (Suppl) ;13 Pub Med PMID 8017798.
17. Tervo RC; Dimitrievch E, Trujilo A L, Whittle K, Pedinius P, Wellmann L . The objective Structural Clinical Examination (OSCE) in the clinical clerkship;an overview. SDJ Med 1997;50 (5); 153-6 (ISSN :0038-3317).
18. Wallace J, Rao R, Haslam R. Simulated patient and objective structural examination, advances in psychiatric treatment 2002, vol.8;342-50.