

Assessment of Training Needs of Medical Graduates in Clinical Breast Examination-Cross-Sectional Study from India

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Abstract

Background: In order to be able to detect it at the earliest it is essential that the physicians are able to perform a good clinical breast exam. Also Clinical Breast Examination (CBE) presents the physician with an opportunity to make the women aware about their breasts. But whether our medical graduates are trained well enough to a good breast exam needs to be assessed.

Material and Methods: The present study was conducted in New Delhi, capital of India. Since there is paucity of literature on this topic in India the sample size was calculated with p to be 50% so as to get the maximum sample size. Allowable error was fixed at 5%. Calculated sample size was 400. Study subjects were fresh medical graduates who had completed one year of compulsory internship posting. Data was collected from students who had reported for interviews for junior residency at various hospitals both teaching as well as non-teaching located in Delhi in the year 2014. A self-administered questionnaire was prepared in English. Questionnaire was given to them to be filled after the interview was over as then subjects could be freely contacted. Data was entered in Excel sheet. Analysis was done using SPSS licensed version 21.0. Simple and cross tables were made. Also appropriate tests of significance were applied. P value of <0.05 was taken to be significant.

Results: Mean age of the participants was 23.8 years. 278(67.8%) of the participants were females and 132 (32.2%) were males. 271 (66.1%) of the participants were from a government medical college and 129 (31.5%) from private medical college. Out of a total of 410 participants 402 (98%) mentioned that they knew how to perform a CBE whereas 08 (1.95%) said they did not know how to do it. On being enquired about indications of doing a clinical breast exam majority mentioned 269 (66.9%) if a woman with a breast problem approached them then, 12 (3%) said for all women more than 40 years of age as a screening method and 121 (30.1%) mentioned in both the situations. A low proportion, 84 (20.9%) actually knew the correct perimeter of the breast. Participants also did not have adequate knowledge about the part of the hand to be used for palpation as only 116 (28.85%) responded that pads of middle three fingers should be used. Vertical strip pattern which is said to cover maximum breast area was stated by only 18 (4.5%). 99.5% (400) knew that nipples were to be examined as a part of CBE but did not know that spontaneous discharge from breast is an important sign of breast cancer. 87 (21.6%) even stated that they had never done a clinical breast exam. Only 2 (0.50%) had done more than 5 breast

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exams during graduation. A large number of 390 (97.0%) stated that they were not confident of doing a CBE and the main reason cited for that was not enough clinical exposure and practice. Out of 392 who stated they further wanted training main reasons cited were that as a part of general; practice this skill is required 248 (61.7%), cancer is on the increase and hence one must learn CBE, 191 (47.5%), half of the women are patients 54 (13.4%). 301/392 (74.9%) said they would like to teach the women about breast self-awareness while doing a CBE whereas 91/392 (22.6%) were apprehensive that either the lady might not understand or they might not have enough time to explain the procedure to the lady who comes to them. On being enquired about how would they like to improve their CBE skill responses were by practicing on patients 214/392 (54.6%), 174/392 (44.4%), by practicing on models/mannequin and 98(25%) by seeing videos.

Conclusion: A structured training programme for imparting skill of CBE should be formulated for the medical graduates so that they can contribute towards breast cancer screening of the large number of needy women.

Key words: Clinical breast examination, training needs assessment, India, medical graduates

Introduction

It is well evident from the data available that the survival time of women with invasive breast cancer is more if the size of the breast tumour at the time of diagnosis is small. It has also been observed that there is an inverse relationship between Clinical Breast Examination (CBE.) and the size of tumour detected by it [1]. According to Fletcher et al, physician can detect lumps as small as 3 mm by Clinical Breast Examination especially if physicians are trained on silicone breast models [2]. Although variations and inconsistencies have been there in technique of CBE all over the world but if physicians are trained in a standardized technique of doing this exam patients could benefit especially in low resource countries where quality mammography services are not freely available for screening. There has been steady increase in breast cancer cases in India and the figure is likely to go up in future and also breast cancer affects the women earlier than it does women in the west so there is a need to look at a screening modality other than mammography which may not be as effective in the younger population. A simulation study of breast cancer in India estimated that the cost of one mammogram is 3.34 times higher than that of one CBE. Also Annual CBE achieves nearly same number of life-years saved as biennial mammography, at half the cost [3]. There is a wide gap in demand for oncology services and supply in India. There is a shortage of specialists in the field of oncology as well as

infrastructure for providing diagnosis and treatment. In such a scenario, if all the physicians are trained in the skill of CBE, it may be used as a screening modality for the large population. A trial of CBE in Trivandrum has already shown down staging of the tumor in the group that was offered CBE [4]. Also CBE presents the physician with an opportunity to make the women aware about their breasts. How well are we prepared to address this issue remains to be seen as Medical Council of India has non-specific guidelines for posting in oncology and majority of medical colleges have no mandatory oncology posting [5]. Against this background, the present study was conducted to find out the training needs of the medical graduates with respect to Clinical Breast Examination.

Material and Methods

The present study was conducted in New Delhi, capital of India. Since there is paucity of literature on this topic in India the sample size was calculated with p to be 50% so as to get the maximum sample size. Allowable error was fixed at 5%. Calculated sample size was 400. Study subjects were fresh medical graduates who had completed one year of compulsory internship posting. Although Delhi has over 6 medical colleges there are large number of fresh graduates who come to Delhi every year to do junior residency in order to widen their exposure to various fields. Data was collected from students who had reported for interviews for



Figure 1: Reason for need in CBE training

junior residency at various hospitals both teaching as well as non-teaching located in Delhi in the year 2014. Subjects both from within Delhi and other states were included for the purpose of this study. A self-administered questionnaire was prepared in English. Questionnaire was given to them to be filled after the interview was over as then subjects could be freely contacted. They were approached till the desired sample size was achieved. All those who had done a junior residency already for 6 months their Performa was not included in the data analysis in order to have a comparable baseline. Data was entered in Excel sheet. Analysis was done using SPSS licensed version 21.0. Simple and cross tables were made. Also appropriate tests of significance were applied. p value of <0.05 was taken to be significant.

Results

Out of a total of 410 participants 402 (98%) mentioned that they knew how to perform a Clinical breast exam whereas 08 (1.95%) said they did not know how to do it. Mean age of the participants was 23.8years. 278 (67.8%) of the participants were females and 132 (32.2%) were males. 147 (35.8%) of them had graduated from Delhi and rest from other parts of the country. 271 (66.1%) of the participants were from a government medical college and 129 (31.5%) from private medical college. Most of the participants (389, 96.8%) were aware that a detailed history of existing breast problem

Table1: Distribution of the study participants according to relevant history to be taken by them before a Clinical Breast Exam* (N=402)

| | n | percentage |
|---------------------------------------|-----|------------|
| Breast problem in detail | 389 | 96.8 |
| Family history of breast cancer | 236 | 58.7 |
| Hormone replacement therapy | 112 | 27.9 |
| Any breast change noticed in the past | 84 | 20.9 |
| History of breast feeding | 69 | 17.2 |
| History of alcohol, smoking, exercise | 24 | 06 |
| History of breast surgery | 12 | 03 |
| Mammography/Ultrasound/FNAC | 07 | 1.7 |

*Multiple responses

should be taken before doing a clinical breast examination followed by 236 (58.7%) who mentioned that history of breast cancer should be enquired. Least number of 7 (1.7%) participants stated that history of mammography, ultrasound and FNAC should be asked (Table1). 322 (80.1%) correctly knew that lump nodes should be examined in sitting position. 128 (31.8%) correctly responded that axillary, supraclavicular as well as infraclavicular lymph nodes should be examined. Only 28 (7%) of the participants correctly knew that the best posture for visual inspection of breasts would 'standing'. Only 165 (45%) correctly responded to the question regarding posture of the patient while doing a visual inspection. 154 (38.3%) knew correct posture for doing palpation of the breast. Only 84 (20.9%) knew the correct perimeter of breast for the purpose of examination. 116 (28.25%) of the participants correctly responded that pads of the middle three fingers should be used for a good CBE. A type of pressure to be applied to breast during a CBE was known to a dismal figure of 07 (1.7%). Vertical pattern of palpation of the breast which covers the whole breast effectively was again known to very few participants (18, 4.5%). Whether nipple should be examined while doing a CBE was correctly responded to by almost all 400 (99.5%) Table2. Almost half (198, 49.5%) of the participants correctly knew that CBE should be performed on a lady once a year after 40 years of age (Table 3). 87 (21.6%) even stated that they had never done a clinical breast exam. Only 2 (0.50%) had done

Table2: Distribution of study participants according to knowledge about Clinical Breast Exam (N=402)

| | number | percentage |
|---|--------|------------|
| Position in which lymph node should be examined | | |
| Sitting | 322 | 80.1 |
| Lying down | 03 | 0.7 |
| Not sure | 18 | 2.5 |
| Group of lymph nodes to be examined | | |
| Axillary | 254 | 63.2 |
| Supraclavicular | 06 | 1.5 |
| Infra clavicular | 00 | 00 |
| All of the above | 128 | 31.8 |
| Not sure | 14 | 3.5 |
| Posture of the patient for visual Inspection | | |
| Sitting | 300 | 74.6 |
| Standing | 28 | 07 |
| Lying down | 04 | 01 |
| All of the above | 54 | 13.4 |
| Not sure | 16 | 04 |
| Position of the patient for visual inspection | | |
| Front and side of both the breasts | 148 | 36.8 |
| Arms overhead | 0 | 0 |
| Arms on the waist applying pressure | 68 | 16.9 |
| Leaning forwards bending at the waist | 0 | 0 |
| All of the above | 165 | 41 |
| Not sure | 21 | 5.2 |
| Posture of the patient for doing palpation | | |
| Lying down straight | 178 | 44.3 |
| Lying down with pillow under shoulder and arm extended at right angle | 154 | 38.3 |
| Sitting | 70 | 17.4 |
| Knowledge about breast perimeter to be examined | | |
| Correct | 84 | 20.9 |
| Incorrect | 146 | 36.3 |
| Partly correct | 154 | 38.3 |
| Don't know | 18 | 4.5 |
| Knowledge about the part of the hand with which CBE should be done | | |
| Flat portion of palm | 118 | 29.35 |
| Pads of middle three fingers | 116 | 28.85 |
| All fingers | 43 | 10.7 |
| Not sure | 36 | 8.95 |
| Types of pressures to be applied while doing palpation | | |
| One | 295 | 73.4 |
| Two | 53 | 13.2 |
| Three | 07 | 1.7 |
| Not sure | 47 | 11.7 |
| Pattern of examination of breast | | |
| Circular | 246 | 61.2 |
| Spoke | 24 | 6 |
| Vertical strip | 18 | 4.5 |
| Not sure | 114 | 28.35 |
| Nipple examination | | |
| Yes | 400 | 99.5 |
| No | 02 | 0.5 |

more than 5 breast exams during graduation. 304 (75.6%) did not know the amount of time required to be spent for CBE of an average breast. 71 (17.7%) answered that 2 minutes were required to examine a breast whereas 27(6.7%) stated it to be 5 minutes. A large number of 390

(97.0%) stated that they were not confident of doing a CBE and the main reason cited for that was not enough clinical exposure and practice. They have also expressed high level desire to get training in order to improve their CBE skill.

Table3: Distribution of study participants according to knowledge of frequency of screening by Clinical Breast Exam N=402

| | n | percentage |
|---|-----|------------|
| Once in a year after 40 years of age | 198 | 49.25 |
| Once in six months | 107 | 26.6 |
| Whenever a lady comes with breast problem | 67 | 16.7 |
| Did not know | 30 | 7.46 |

Out of 392 who stated they further wanted training main reasons cited were that as a part of general; practice this skill is required 248 (61.7%), cancer is on the increase and hence one must learn CBE 191 (47.5%), half of the women are patients 54 (13.4%) Figure1. 301/392 (74.9%) said they would like to teach the women about breast self-awareness while doing a CBE whereas 91/392 (22.6%) were apprehensive that either the lady might not understand or they might not have enough time to explain the procedure to the lady who comes to them. On being enquired about how would they like to improve their CBE skill responses were by practicing on patients 214/392 (54.6%), 174/392 (44.4%), by practicing on models/mannequin and 98(25%) by seeing videos. There was no statistically significant difference between the knowledge of students from government college as compared to private colleges and also between females and males $p>0.05$.

Discussion

In the present study, at the outset, 98% stated they knew how to perform a Clinical breast exam. In another study done among interns in Ireland 61% said they had either observed or had theoretical knowledge about breast exam and only 39% had performed it [6].

In the present study only 12 (3%) participants stated that CBE was required to be done for all women more than 40 years of age as a screening method. This shows that the participants are not

yet sensitized enough towards the screening needs of women. Majority of 322 (80.1%) responded correctly that they would examine the lymph nodes in sitting position. Knowledge of group of lymph nodes to be examined was poor at 128 (31.8%). 300 (74.6%) correctly responded that the correct position to examine lymph nodes would be in sitting position. In a study by 27% of the first and second year postgraduate's year students in surgery failed to perform axillary examination, 46% failed to perform supraclavicular region, and 36% failed to perform a visual inspection [7]. 41 (16.5%) knew of all the four positions of visual inspection of the breast. 148(36.8%) thought only inspection from front and sides was required.

Only 154 (38.3%) knew about correct posture of doing palpation of the breasts. A low proportion, 84 (20.9%) actually knew the correct perimeter of the breast. Participants also did not have adequate knowledge about the part of the hand to be used for palpation as only 116 (28.85%) responded that pads of middle three fingers should be used. Several articles either advise using flat of the fingers for palpation or do not indicate what part of the finger to use [8, 9, 10]. This may also be the contributing factors towards non standardization of CBE. 07(1.7%) correctly knew that three types of pressures should be applied at a spot to properly examine the breast. Circular pattern of examination of breast was mentioned by most 246 (61.2%).

According to Centre for Disease Control and the American Cancer Society best method of performing CBE is the vertical strip, three pressure methods [11, 12]. Vertical strip pattern which is said to cover maximum breast area was stated by only 18 (4.5%). 400 (99.5%) knew that nipples were to be examined as a part of CBE but did not know that spontaneous discharge from breast is an important sign of breast cancer. 87 (21.6%) even stated that they had never done a clinical breast exam. Only 2 (0.50%) had done more than 5 breast exams during graduation. According to study done in Kolkota 53% of the respondents had seen less than 5 patients during

their undergraduate days of cancer and about three quarter less than ten patients [13]. 304 (75.6%) did not know the amount of time required to be spent for CBE of an average breast. 71 (17.7%) answered that 2 minutes were required to examine a breast whereas 27 (6.7%) stated it to be 5 minutes. According to largest increase in proportion of residents finding the breast masses occurred among those who took more than 150 seconds in which 90% of the residents found the mass [14]. Calculation of time to be taken for CBE by vertical strip pattern time required to examine both the breasts of an average patient would range from 6 to 8 minutes [15]. A large number of 390 (97.0%) stated that they were not confident of doing a CBE and the main reason cited for that was not enough clinical exposure and practice. Same, lack of exposure during the undergraduate medical education has also been cited as the main reason for lack of knowledge about cancers but others also [5, 16].

Medical students' perceptions of their own need for additional training and the small number of CBEs they have performed has also been studied by others [12, 17, 18]. Similarly physicians have also reported lack of confidence in their CBE skills, 392 (97.5%) expressed the desire to get training in CBE whereas 10 (2.5%) mentioned they did not require further training as they were likely to take up certain other specialty in future where this would not be required [19]. They have also expressed high level desire to get training in order to improve their CBE skill. Out of 392 who stated they further wanted training main reasons cited were that as a part of general; practice this skill is required 248 (61.7%), cancer is on the increase and hence one must learn CBE, 191 (47.5%), half of the women are patients 54 (13.4%). 301/392 (74.9%) said they would like to teach the women about breast self-awareness while doing a CBE whereas 91/392 (22.6%) were apprehensive that either the lady might not understand or they might not have enough time to explain the procedure to the lady who comes to them. On being enquired about how would they like to improve their CBE

skill responses were by practicing on patients 214/392 (54.6%); 174/392 (44.4%), by practicing on models/mannequin and 98 (25%) by seeing videos.

As per Gaffan's recent review of undergraduate medical education several methods are shown to be effective in teaching breast exam. These include silicone models for breast examination which increases the examiners sensitivity to the lumps, shadowing of a cancer patient by a medical student for a period of months, role pals where students deal with standardized patients. These responses were not mutually exclusive [20]. In another study by Barret et al., among third-year medical students (47 men and 49 women) at the University of Massachusetts Medical School the students with one extra training session with a standardized patient performed significantly better on the CBE [21]. Practice with immediate feedback is found to be more effective than lecture alone in teaching clinical breast examination by Pilgrim [22]. In another study conducted among students of medical college of Wisconsin although the students performed significantly better on the knowledge-based questions in their fourth year than they did in their first year, considerable room for improvement remained. The students reported learning the most from surgery rotations and more from standardized patients than from faculty. Also in their study women medical students performed significantly more clinical breast examinations than did men students. Most of the medical students reported needing additional training in clinical breast examination [23].

Conclusion

A structured training programme for imparting skill of CBE should be formulated for the medical graduates so that they can contribute towards breast cancer screening of the large number of needy women. Also it is important to directly measure their examination skills as perception of a student's regarding their skill may not actually

correspond with the required level of performance.

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Authors Contribution

AK: Concept and design, editing of manuscript

ZHK: collection of data, analysis of data and preparation of manuscript.

Ethical Consideration

The study was approved by the Institute Review Board and consent was obtained from all participants

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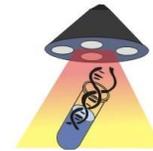
None declared.

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