Short Communication

Training Methods of Clinical Breast Examination

Seyed Mostafa Shiryazdi [1], Mohaddeseh Aboueian-Jahromi [2]*

[1] Department of General Surgery, Breast Diseases Research Center, Shahid Sadoughi University of Medical Sciences, Yazd, Iran

[2] Department of Environmental Health Engineering, Breast Diseases Research Center, Shahid Sadoughi University of Medical Sciences, Yazd, Iran

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Abstract

With respect to the important role of clinical examination in breast lesion diagnosis, training of Clinical Breast Examination (CBE) to medical students is very crucial. Despite the various methods of physical examination, current methods like using patients especially about breast aren't accepted because of various reasons. Review studies about the optimum method of CBE have not been performed yet. The objective of this study was to survey advantages and disadvantages of the existing methods and finally choose the best one. A computer search was performed in Google Scholar site by the following key words: education, clinical examination, and breast. 11 studies published in 2000-2011, were selected for survey of CBE method. There are 6 methods of clinical examination, including 1) naturally physical examination in small groups by exercising each other 2) Compact disk (CD) and multimedia 3) Use of live patients 4) Use of simulators 5) Electronic Palpation Imaging (EPI) and 6) Combination of the above methods. The combination approach makes active and deep learning easy. With respect to our investigation, formal education by using video and simulators as a combined method is suggested for CBE training.

Key words: Training, Clinical Examination, Breast, Simulator.

* **Corresponding author; Tel**: 035-3183815 **Email**: mohaddesehabooean791@gmail.com

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Introduction

CBE instruction: With respect to the important role of clinical examination in breast mass detection, CBE instruction is very important to medical students [1]. The sensitivity of CBE is 39-59% and it shows that palpation skill has been instructed insufficiently [2]. Despite the various methods of physical examination, the current methods like using patients especially about breast aren't accepted because of various reasons [3, 4]. Until now, no review studies have been performed about the optimum method of CBE. The objective of this study was to survey advantages and disadvantages of the existing methods and finally choose the best one.

Material & Methods

A computer search was performed in Google Scholar site by the following key words: education, clinical examination, and breast. The last search was performed in November, 2013 and the language was limited to Persian and English. Any study design like review, to the editor, original, etc. was entered to the current survey. The studies published in 2000-2011 were selected for survey of CBE methods.

Results

Eleven studies identified, including 6 training methods of CBE. These methods include (1) naturally physical examination in small groups by exercising each other (2) compact disk (CD) and multimedia (3) Use of live patients (4) Use of simulators (5) Electronic Palpation Imaging (EPI) and (6) Combination of the above methods.

Discussion

Generally, the physical examination methods consist of the following items:

1) PPE: Peer Physical Examination: Naturally physical examination in small groups by exercising each other [5]. The studies showed that this method for organs such as breast isn't appropriate in cultures like USA. However for the other organs is an appropriate, valuable, and convenient method if it is performed on the same sex [6]. So, this method in CBE isn't considerable, at all.

2) compact disk (CD) and multimedia (video): Although this method is effective especially in basic surgical skills, it isn't solely enough. For instance, it helps weak students to instruct in abdominal physical examination and decreases the participant students' mistakes about lungs sounds instructions. One of the limitations of this method is lack of consistency between the reference book and the computerized source. The provision of physical examination instruction videos consistent with education program in England showed that it is highly time consuming and expensive.

3) Use of live patients: The patients have the right to have the best quality of

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treatment. On the other hands, the patients aren't education tools. So it's the patients' right to have experienced physicians and modern tools. It means that patients' care should be on the basis of the patients' need not training need [3]. In many countries, the voluntary live patients were used. One of the limitations of this method about CBE is this matter that patients may not have breast mass and if it exists, could not be controlled [2]. On the other hand, clinical examination like cadaver dissection is one of the documented sources of students' anxiety while learning. It should be mentioned that the diagnosis expectation of patients, peers, and trainer is the reason of students' anxiety [4].

4) Using simulator (artificial breast model): It is the only method of improving palpation skill in diagnosis and training clinical examination [2], which will be explained more completely.

5) Electronic Palpation Imaging (EPI): This device is performed on the basis of mechanical measurement of pressure. Although using this device decreases the time needed for training, it does not decrease medical judgment and experience. The image quality should be assessed by things felt in physical examination. So the existing method of CBE can be combined with EPI image. The EPI method can make CBE objective, more scientific and decrease the training time. The studies have not yet finished and being continued [7].

6) The combination of the above methods: This is one of the favorite methods of learning because of the high training materials and little opportunities. For instance, Dadgostarnia et al in their study with the title of "Comparing the Effectiveness of Two Educational Approaches of "Electronic Learning and Training in Small Groups" and "Training Only in Small Groups" in Teaching Physical Examination" showed that the combination approach causes ease active and deep learning [5].

Although the recent study recommends the combination of self-education by computer and training in small groups, it had been mentioned that training in small groups isn't appropriate for breast. So in specific background of CBE training, the combination of video and simulator is recommended.

The efficacy of breast lesion diagnosis increases by using both of the above methods during surgical clerkship in formal education [1]. With respect to specific application of simulator in CBE training, the discussion will be about this matter.

Simulators: The artificial breast models are silicon materials embedded with foreign objects indicators of tumor [2]. Also, it has been stated that simulators can be used instead of patients, in order to respect patients' right and safety. One of the advantages of simulator is resolving the students' anxiety while learning CBE. So, by using simulator a two-sided advantage exists for trainees and

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patients. Aliabadi-Wahle et al showed lesion diagnosis, diagnosis specificity (less false positive) and trust increase by using training method of silicon models [1]. In an ideal training session both pre-menopausal and post-menopausal silicon models should be taught. Meanwhile clinical experience (examination of real breast) should be exercised. It means that however the formal course effectiveness during the surgical rotation is documented, the effectiveness of preclinical course is doubtful without further formal reinforcement in clinical rotations [1].

Some of the limitations of silicon breast training model are getting repetitive after determination of all lumps associated with decreasing specialty (causes patients' concern and unnecessary tests in medical center) and increasing sensitivity. They are resolved in dynamic breast model. Also, by using dynamic models the training transfer (training transfer means that training by one model improves the skill performance on other models), which are the most important of training results, improves and the tendency for tumor diagnosis increases and the probable confusion between benign nodularity and lumps decreases [2].

Carla has a critical view on CBE standardization (circular movements with the first three fingers and enough palpation pressure, the time of 3-5 minutes, and search pattern of vertical tape) by using breast training model. Since the time periods of examination are different, depending on breast type and the physician's gender and history [8].

Expensive cost, computerized equipments, existence of enough physical space, trained personnel for operation, control and repair of mannequin and computerized program, and fast and wide changes of technology (increases time and cost, of course cost-effectiveness of simulators are non-direct, long time and slow) are the challenges of simulators [3, 9].

Conclusion: With respect to our investigation, formal education by using video and simulators as a combined method is suggested in order to train CBE

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