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Vertical strip technique: More effective at detecting breast masses

Meredith Amenell, Heidi Braun, Lauren Herring and **Allison Sarcinella**

Background/Purpose: Clinicians use a variety of techniques to conduct a clinical breast exam (CBE). There is ample research evaluating the efficacy of the CBE, but few studies have focused on the examination technique. The purpose of this study was to evaluate and compare the accuracy of CBE techniques on premenopausal women ages 21-55 in order to enhance the ability to detect breast masses in a clinical setting.

Methods: Studies were filtered using specific search limits and inclusion criteria, which included study design, data published within the last 10 years, use of breast search patterns, and age of participants. Observational prospective cohorts and randomized controlled trials were the preferred study designs, with premenopausal females ages 21-55 being the population of interest. The CBE utilizing the vertical strip, circular or radial spoke technique were the interventions included in the search. Any detection of masses was the desired outcome among the reviewed studies. Electronic searches utilizing the Cochrane Library, Medline, Google Scholar, and the *New England Journal of Medicine* were the search engines used to find desired studies. Quality assessment was performed using The Cochrane Collaboration's Tool for Assessing Risk of Bias. Empirical data was extracted from the remaining analyses and only comparisons of breast search pattern techniques within each study were performed to limit potential bias.

Results: The main study that was examined compared the percentage of breast tissue coverage in three CBE techniques; the vertical strip pattern, the circular pattern, and the radial spoke pattern. In the first trial of the study, the vertical strip pattern encompassed more thorough coverage of the total breast area (64.4% coverage) when compared to the circular pattern (38.9% coverage). The results of a second trial showed the vertical strip pattern also produced more thorough coverage of the total area (67.9% coverage) when compared to the radial spoke pattern (44.7% coverage). All differences were statistically reliable.

Conclusion: Overall, clinical breast exams have been shown to be effective at detecting breast masses in premenopausal women who are 21-55 years of age. When comparing the various techniques used during a CBE, the vertical strip technique has been shown to have more thorough coverage of the breast tissue and allows a greater ability to detect breast masses than the circular or radial spoke technique. Some limitations noted include the broad age range used since most malignant masses occur after the age of 40, the years of experience clinicians had performing CBE, as well as the type of clinicians involved in the studies (i.e. OB/GYN, PCP). Future studies should focus on the detection rate of actual breast cancers versus benign findings such as fibroadenomas or fibrocystic breast changes when comparing the vertical strip technique to the circular pattern or radial spoke techniques.

hebraun@utmb.edu