

The article titled “Short-Term Outcomes of Screening Mammography Using Computer-Aided Detection” by Fenton et al describes a retrospective cohort study of 163,099 women aged 67 to 89 years who underwent 409,459 screening mammograms in the SEER program between 2001 and 2006. The goal of the study was to determine the associations between CAD and the incidence of ductal carcinoma in situ and invasive carcinoma, invasive cancer stage, and diagnostic testing. The authors found that CAD prevalence increased from 3.6% to 60.5% during that time frame. They also note that the use of CAD was associated with a 17% greater incidence of DCIS but no difference in the incidence of invasive breast cancer. They found and concluded that CAD was associated with a greater likelihood of detecting stages I and II invasive cancers compared to stages III and IV, and that CAD was associated with a 28% increased likelihood of performing diagnostic mammography. They also noted that there was a 7% increased chance of performing breast ultrasound and a 10% increased chance of a woman undergoing a breast biopsy.

The results of this paper show that when screening mammography was performed with CAD more cases of early (stages I and II) invasive carcinoma were able to be detected. This is a favorable result and precisely why we do screening mammography. The prognosis of a woman with breast cancer is best predicted by tumor stage. In addition, more cases of DCIS were detected when CAD was used. Some of these tumors likely would have progressed to invasive carcinoma and potentially lethal cancers if CAD had not been employed. Until we can better predict which subtypes of DCIS are likely to undergo this transformation, most physicians who manage breast cancer patients

believe that it is important to diagnose and treat ductal carcinoma in situ.

These benefits occurred at the expense of performing more diagnostic imaging tests and breast biopsies. In order to improve sensitivity there is often an increase in false positives (decreased specificity). However, since our goal is to detect breast cancer at its earliest point of development, this is not an unreasonable trade-off especially given the unlikely possibility of a call-back necessitating a biopsy, which is most often minimally invasive.

There are several flaws associated with the methodology of the paper. Ideally, a prospective randomized control study should have been done. The women were not randomly divided into a group that had CAD and a group that did not. This caused undefined selection biases. Also, the authors did not know which cancers were detected as a result of CAD and which were detected despite having CAD.

The use of CAD in association with screening mammography remains controversial- some studies have demonstrated an improvement in diagnostic performance for the radiologists while others have not. This article does show a benefit in the diagnosis of early stage invasive carcinoma and DCIS however it comes at a cost of increased number of diagnostic studies and breast biopsies.