Breast density on mammograms has been identified as an important risk indicator for breast cancer. For women who had a CT of the chest and not undergone mammography, if breast density could be determined reliably on the CT images, it could also provide the same type of valuable information on the person's risk of breast cancer.

**Introduction**

**Aims & Objectives**

1. To compare radiologists' breast mammographic density readings withComputed tomography (CT) breast density
2. To evaluate if computer derived measurement of CT density is more reliable
3. To evaluate density distributions in this cohort of patients with breast cancer.

**Methodology**

Semi-automated CT analysis of the breast CT density was performed using GE licensed software on an Advantage workstation. Region of interest was manually outlined at the level of nipple, which was then partitioned automatically into fat and glandular tissue on the basis of Hounsfield Units using Histogram Threshold technique. The software then calculated the percentage of glandular tissue in the breast region of interest. The computer derived breast density value was then classified into one of the four BI-RADS density grades and compared with the readings by radiologists.

Retrospective review of mammograms and CT scans in 77 breast cancer patients obtained within one year of each other was performed. Two radiologists independently reviewed both CT and mammograms and classified each case into four categories as defined by the Breast Imaging-Reporting and Data system of the American College of Radiology. Inter-reader agreements were obtained for both mammographic and CT density evaluations by using the Cohen weighted k statistic. Correlation was also sought between CT density measurement and mammographic density measurements for each reader by using Spearman correlation coefficient. The semi-automated computer derived measurement of breast density was correlated with visual measurements. Finally, density distribution of this particular cohort of patients was analysed.

**Results**

Average age of our patients was 60.3(27-91 years). Inter-reader agreements was lower for CT density grades than for mammographic readings 0.428(CI:0.24-0.89) versus 0.571(CI 0.35-0.76). There was moderately good correlations between the CT density grades and the mammographic density grades for both readers (0.760-reader1, 0.913-Reader 2). The semi-automated CT density measurement correlated well with the subjective assessments, with complete agreement of the density grades in 84.9%of patients and only one level difference in the rest. Finally, 60.2 % of patients had density grade2 in this cohort of breast cancers, followed by 27.9% Grade 3.

**Conclusions**

Semi-automated CT density measurements in the evaluation of breast density correlated well with subjective mammographic density measurement. Further studies are needed to incorporate this extra information from a CT scan in the risk stratification of patients.

**References:**