Breast MRI Screening For Asain Women, A Preliminary Result

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Purpose

Breast MRI emerges as a very powerful tool as an aid for detection, to provide more accurate diagnosis, staging and to monitor breast cancer. The effectiveness as screening examination was however often questioned due to its inability to depict microcalcifications, an important presentation of breast cancer readily seen on X-ray mammogram. Yet, the accuracy of mammogram is often hampered by dense fibroglandular tissue, typical type of Asian female breast. Our goal is to evaluate whether or not MRI can be a sensitive diagnostic tool for breast cancer from racial prospect.

Subject and Methods

From October 2000 to September 2006, we had conducted breast MRI screening for 2,226 women in general through self-referral. The MRI protocol included high temporal resolution dynamic contrast enhanced study for kinetic analysis and high spatial resolution images for morphological assessment. A thorough ultrasound (US) examination was done for each individual at the same time to complement on tissue characterization and to also provide guidance for needle biopsy when in need. The MRI and US findings were carefully compared and correlated. Follow-up mammogram was also performed selectively in those with suspicious MRI results and was reviewed by two radiologists independently.

Results

Among 2,226 cases, there were 20 cases of invasive cancer, 9 cases of DCIS and 13 cases of epithelial hyperplasia showing cellular atypia (AH). For the invasive lesions, 12/20 (60%) were non-palpable and for the DCIS, 6/9 (66.7%) were non-palpable. The age ranges from 46 to 63 years with mean age of 51.6 years old. The incidence for malignancy in our asymptomatic group was about 1.3% and increases to 1.9% if AH is included. The mean size for invasive cancer was 14.7 mm and for DCIS was 9.5 mm. Almost all the lesions demonstrated early and intense contrast enhancement with variable morphological features preferable for malignancy on MRI. Except for two, all the lesions were able to be identified on US, and five cases were found at second-look after acquiring the lesion map on MRI. Mammogram were obtained for 13 cases of the invasive cancer group and 8 cases of the DCIS group. Only 2/13 invasive cancer had suspicious mammographic findings and the rest were reported as ACR BI-RADS categories 0-2. Similar results in the DCIS group, 2/8 lesions had presented focal nodules on mammogram and reported as category 2, and the rest were neative, either category 0 or 1. Notably, none of the lesions showed the typical clustered microcalcifications. Out of 29 cases, seven carried risk factors and two had hereditary risk factors for breast cancer.

Conclusion

Mammogram is the only recommended diagnostic tool in early detection of breast cancer. Despite the monumental post it has as a screening modality, many of the radiologists and also some surgeons in our nation have often troubled by difficult-to-read or false negative mammographic result. As a consequence, adjunctive US was often needed to add some sense of security for the physicians and sometimes even replace mammogram in cases of dense breasts. However, the value of US is limited by the operator-dependent issue. One of the main reasons that x-ray mammogram being false negative in our cases was because the Asian women in general have dense glandular breasts with little fat even after menopause. Breast MRI has an advantage of examining breasts systematically and reflecting the angiogenic activity concealed in the breasts aside from morphological assessment. From this preliminary results, we firmly believe that breast MRI can be beneficial as a screening tool not only for younger women or those with high risk, but also for women of any risk status. The advances of MRI has brought a better sensitivity and specificity that brings about better prospective in detecting breast cancer.