Breast Can Curr Res 2017, 2:3(Suppl)
DOI: 10.4172/2572-4118-C1-006

Value of biannual DCE-MRI in surveillance of high risk women: Is it worthy?

Deepa Sheth
The University of Chicago Medicine, USA

Purpose: The purpose of this study is to evaluate the diagnostic value of biannual dynamic contrast-enhanced magnetic resonance imaging (DCE-MRI) regarding the early detection of breast cancer in women at elevated risk.

Materials and Methods: A retrospective review was performed of the records of 232 asymptomatic women at elevated risk for breast cancer (mean age at entry: 44 years; range: 22-73 years). A total of 1440 biannual DCE-MRI rounds and 802 annual screening mammography rounds from 2002 to 2014 were reviewed. All lesions were detected as abnormal enhancing findings on a dynamic contrast enhanced MRI and subsequently biopsied. Pathology findings were then correlated with imaging to ensure concordance.

Results: A total of 33 biopsies were performed on 31 high risk women (PPV2: 21%). As a result, 7 cancers (21%) and 26 benign lesions (79%) were detected (PPV3: 21%). Of the detected cancers (2 DCIS and 5 IDC), 0 were axillary node positive. Mean size of detected invasive cancer was 0.7 cm (range: 0.4–1.1 cm) and the most common imaging appearance was an enhancing mass (86%). Of these cancers, 5 (71%) were detected in patients with a personal history of cancer and 6 (86%) were in non-baseline examinations. All 7 cancers were detected on DCE-MRI, 4 of which were seen only on DCE-MRI (56%).

Conclusions: Biannual screening DCE-MRI can serve as an effective surveillance tool in high-risk women, particularly for the detection of small, node-negative breast cancers. Biannual screening DCE-MRI may allow for the detection of smaller cancers than with annual screening DCE-MRI.

DSheth@radiology.bsd.uchicago.edu

Inhibition of breast cancer by resveratrol and resveratrol analogs

Hari K Bhat
UMKC School of Pharmacy, USA

Most of the currently available drugs to treat breast cancer (BC) have major limitations in long-term use because of significant toxicities or adverse effects associated with these drugs. Published studies have established that resveratrol (Res), possesses antioxidant, anti-inflammatory and anticancer activities. Unfortunately, however, the available evidence supports the conclusion that its potency in preventing or treating BC is relatively modest at best. We hypothesize that this problem can be successfully addressed through synthesis of Res analogs with appropriate structural modifications. We have synthesized a series of novel compounds that resemble the basic Res skeleton but contain some structural modifications with different pharmacophoric groups. We evaluated these compounds for their cytotoxicities against several BC cell lines. We demonstrate that one of the synthesized compounds 4-(E) {(p-tolylimino)-methylbenzene-1,2-diol} (TIMBD) has significantly higher potency than Res in inhibiting the growth of all BC cell lines that we tested. Moreover, TIMBD did not have any detectable detrimental effect on the growth of normal (non-neoplastic) human breast cells and other cell types of the brain. Additionally, increased oxidative stress has been suggested to contribute to development of breast tumors and many other diseases. Our preliminary results suggest that TIMBD also functions to decrease levels of oxidative stress, induce mRNA and protein expression levels of antioxidant defense genes such as NQO1, SOD3 and Nrf2 in normal (non-neoplastic) breast cell lines as well as in human SVGA astrocytes but not in BC cells. Our results thus suggest that TIMBD is not only cytotoxic towards BC cells but can also help to protect normal cells against increased oxidative burden. Thus, chemotherapeutic agents that have the potential of specifically killing, or inhibiting the growth of, BC cells with relatively minimal toxicity towards normal cells, would be expected to have a significant therapeutic advantage in selectively targeting BCs.

bhath@umkc.edu