



The effect of acute aromatase inhibition on breast parenchymal enhancement in magnetic resonance imaging: a prospective pilot clinical trial.

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Abstract:

OBJECTIVE: The breast is highly hormonally sensitive especially to the sex steroid hormone estrogen. Both physiological and iatrogenic steroid hormone modifications could affect how the breast tissue may appear in breast imaging techniques. We hypothesized that estrogen deprivation therapy could reduce breast nonspecific enhancement on magnetic resonance imaging (MRI). **METHODS:** This study was a prospective pilot phase II clinical trial. The study was approved by Health Canada and the institutional research ethics board, and participants signed informed consent forms. Sixteen healthy postmenopausal women were enrolled, and 14 completed the study. Baseline breast MRI was done followed 1 month later by administration of a high-dose aromatase inhibitor (letrozole 12.5 mg/day) for 3 successive days before a second breast MRI. Background breast parenchymal enhancement was compared between the pretreatment and posttreatment studies. **RESULTS:** There was a statistically significant reduction of the average background breast enhancement after treatment with aromatase inhibitors compared with baseline MRI. Of particular interest, specific areas of benign breast enhancement were reduced after aromatase inhibitor treatment. No significant adverse effects were recorded using this relatively high dose of the aromatase inhibitors. **CONCLUSIONS:** This preliminary study provided evidence that aromatase inhibitors could reduce the parenchymal background enhancement of benign breast tissue during MRI and may improve the specificity of the technique.

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