Usefulness of Cube-IDEAL/Flex sequence in breast MRI evaluation of response to neo-adjuvant chemotherapy without contrast media

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Aims and objectives

To evaluate the feasibility of 3D Cube-IDEAL/Flex sequence in the evaluation of response to neo-adjuvant chemotherapy without contrast media in patients with breast cancer, in comparison with 2D T2 fast spin echo sequence with fat suppression.

Methods and materials

30 patients with proven breast cancer (BIRADS 6) detected at x-ray mammography (Mx) and ultrasound (US), candidate for neo-adjuvant chemotherapy (age 18-70 years old), underwent standard MR examination with contrast media administration, including Cube-IDEAL/Flex and 2D T2 FSE fat-sat sequences. Two independent breast MD radiologists evaluated 3D Cube-IDEAL/Flex and the 2D T2 FSE images based on contrast resolution, spatial resolution, lesion contour delineation (if applicable), fat signal suppression homogeneity and scan times. Tumor size measurements on 3D Cube-IDEAL/Flex have been compared with those of 2D T2 FSE before and every two cycles after neo-adjuvant chemotherapy, by means of statistic T-test.

Images for this section:

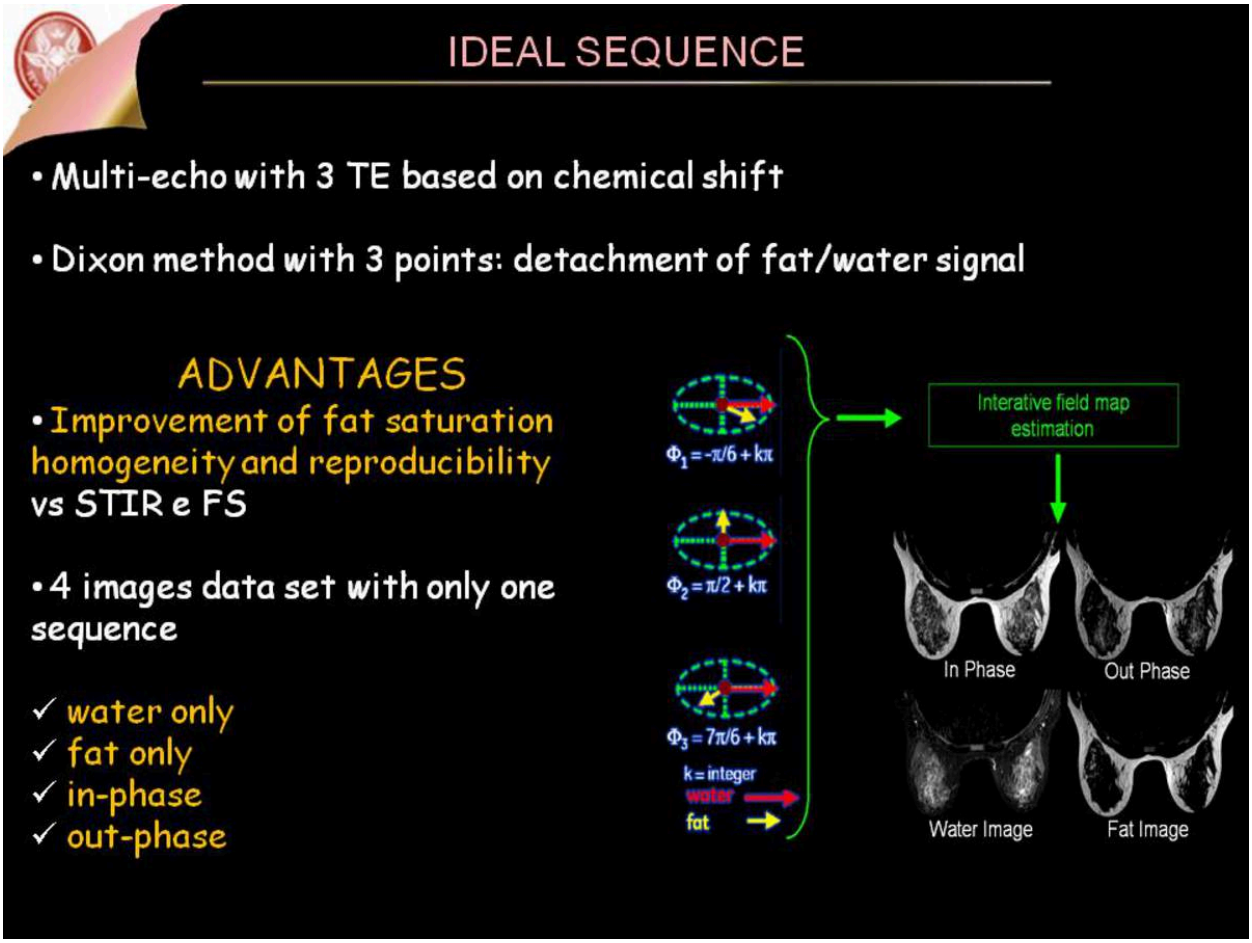

Fig. 1: Ideal Sequence description

Results

No significant differences were found in the lesion size evaluation between the two sequences for both radiologists.
The images quality of Cube-Flex and Cube-Ideal was considered better, for both radiologists, in terms of spatial and contrast resolution, compared to 2D Ideal.

Images for this section:

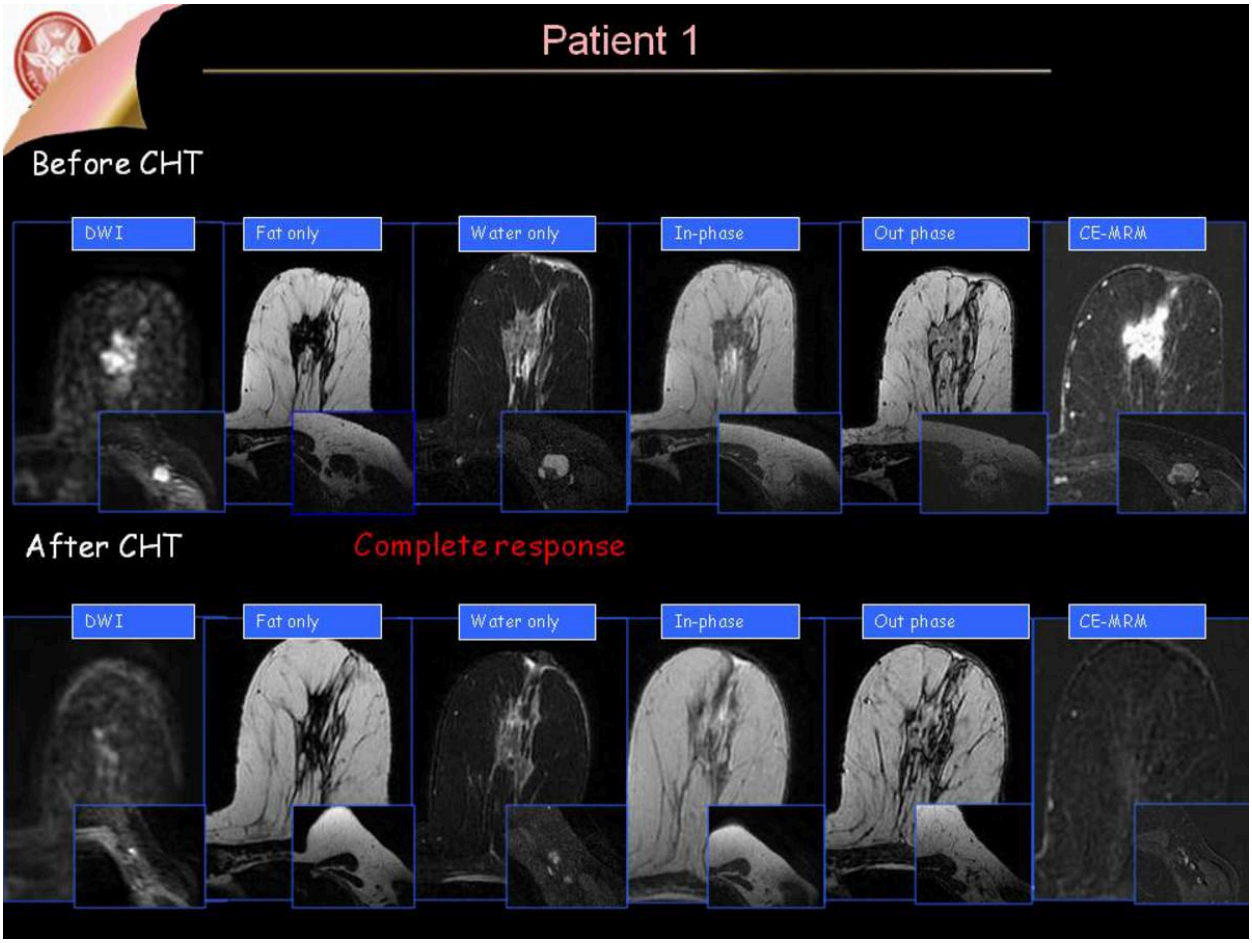

Fig. 2: Patient #1 before and after CHT

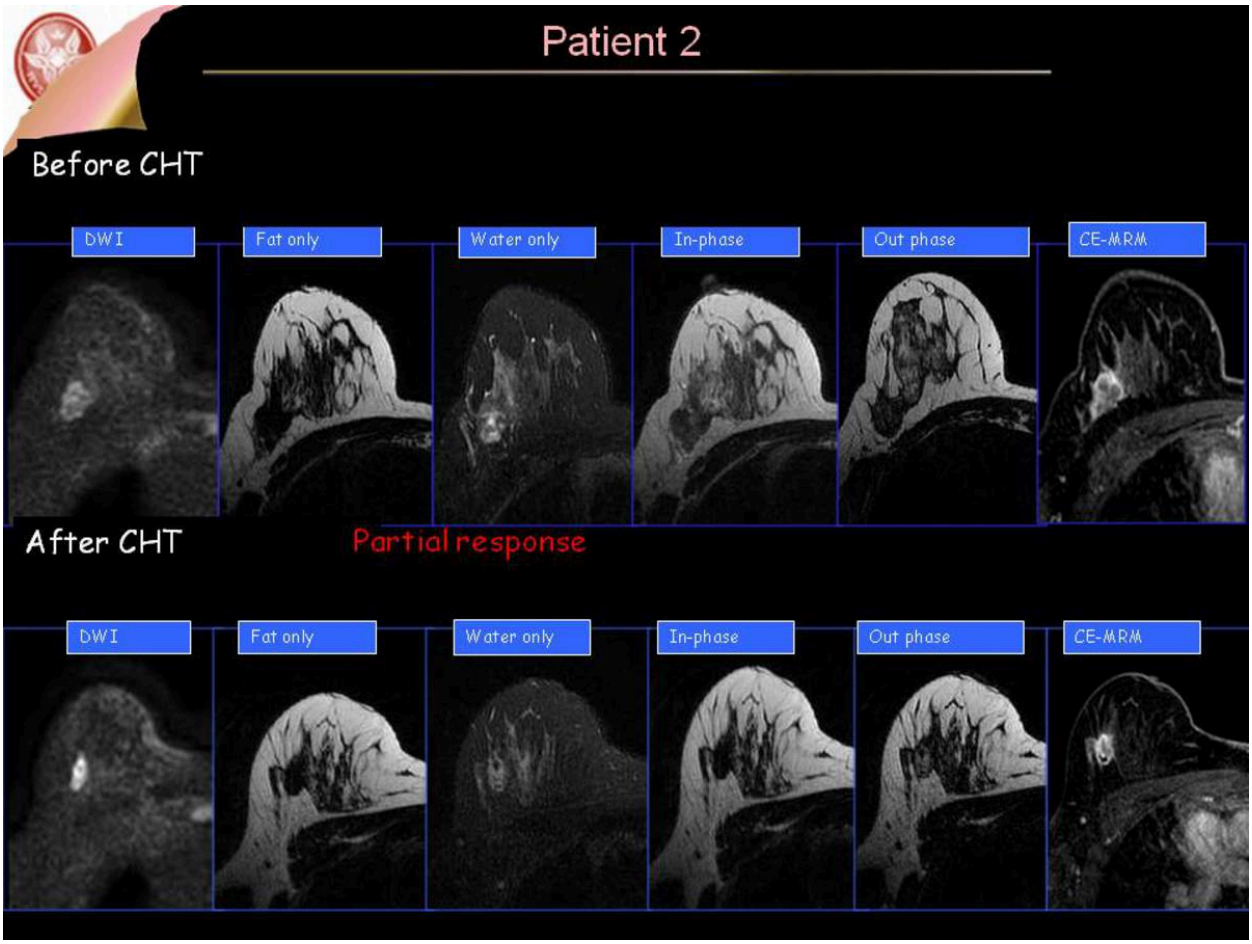

Fig. 3: Patient #2 before and after CHT

Conclusion

Cube-IDEAL/Flex sequence could be very useful in measuring breast cancer size during follow-up evaluation of response to neo-adjuvant chemotherapy, without contrast media administration.

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