

Breast MRI Utilization in High Risk Population and Pre-Surgical Candidates

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Breast MRI Utilization in High Risk Population and Pre-Surgical Candidates

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Background

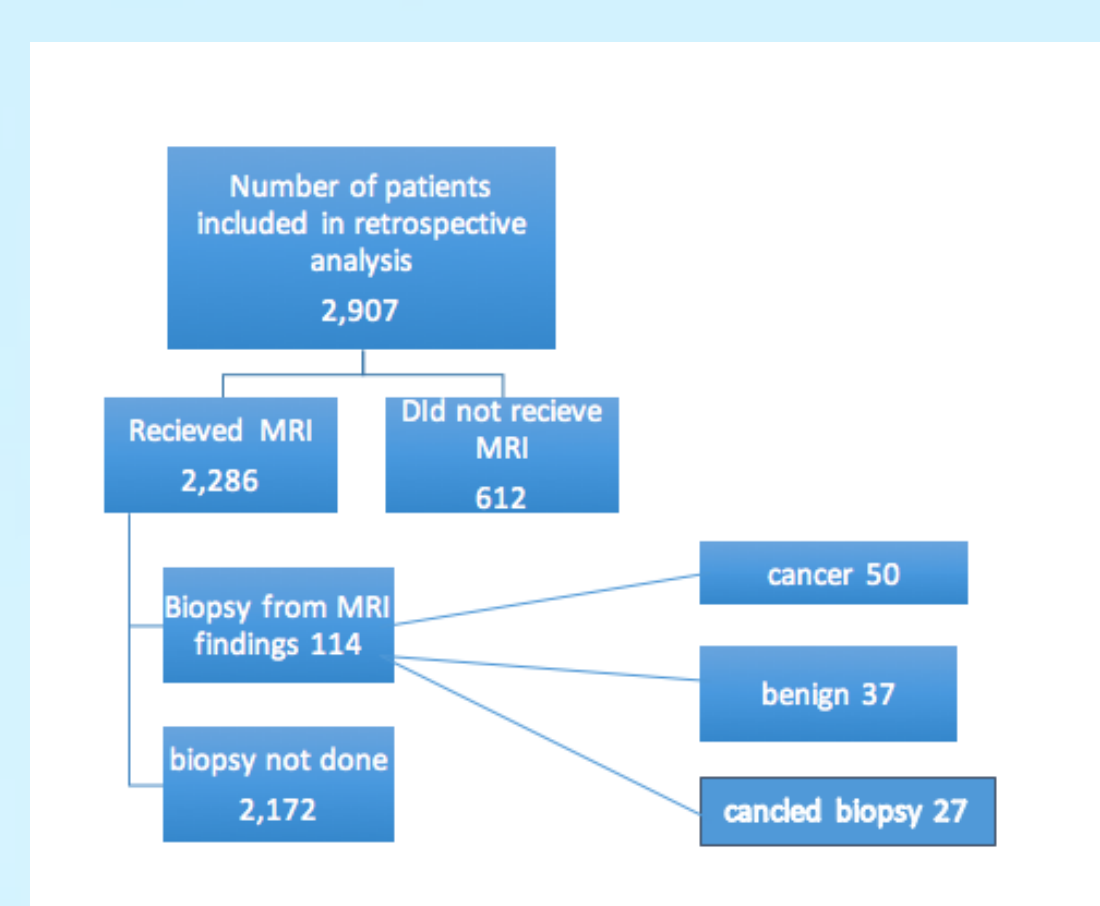
- Breast cancer is the most common cancer diagnosed in woman in the U.S. and one of the most common causes of death from cancer among woman in the country.
- Up to 20% of breast cancers are missed on mammography
- Recently, breast MRIs have been investigated as a screening tool to detect cancer.
- Currently multiple professional societies (NCCN, ACA, ACRO recommend screening MRI for women with know genetic risk factors.
- There is unclear consensus in the current literature on the recommendations of screening MRIs
- MRI screening offers increased sensitivity in comparison to conventional mammograms and ultrasound.

Problem Statement

This Project aims to assess if there are added benefits of breast MRI utilization which include improved detection of contralateral cancer and multicentric cancer in high risk populations as well as decreased positive margins in pre-surgical candidates at LVHN.

Methods

- Retrospective review of prospectively collected database all new invasive breast cancer cases seen at LVHN from January 2010 to December 2015
- Patients were categorized to two groups pre-surgical MRI and no MRI
- MRI group was then sorted by biopsy done for MRI findings vs no biopsy
- The biopsy group was then further divided into 3 categories: positive cancer detected, benign lesion, and canceled biopsy
- Outcome measures included information on patients who were high risk/pre-surgical candidates, if they received an MRI and the BIRAD code associated with exam, whether a biopsy was done because of second look ultrasound and if biopsy was done because of BIRAD code
- This data was sorted by year and analyzed
- Flow diagram of pathology reports from MRI guided biopsy were compared to clinical suspicion for MRI referral
- Materials used: Microsoft excel data analysis, clinical database for reference and complied LVHN patient data.



Results Gathered

- A total of 2,907 patients were included in data analysis
- Of those 2,286 received a pre-surgical MRI, 612 did not due to various reasons
- Of the 2,286 woman who received a MRI, 2,172 did not receive a biopsy
- A total of 114 pre-surgical patients received an MRI guided biopsy between January 2010 through December 2015.
- Of this sample, 27 patients canceled appointments
- Of the 87 patients that received the biopsy, pathology reports confirmed 50 as positive for cancer and 37 as benign.
- A t-Test was conducted with the data to compare total number of MRI guided biopsies to number of cancers detected from MRI guided biopsies.
- The mean detection of cancer for the 5 year period was found to be 8.33. The P value was $0.032 < 0.05$ showing the data to be statistically significant

Table 1.

	2010	2011	2012	2013	2014	2015	Total
MRI Guided Biopsy	19	32	10	32	14	7	114
Biopsy canceled	4	8	2	8	2	3	27
Cancer	4	15	6	18	4	3	50
Benign	8	9	2	6	8	4	37

Conclusion and Future Implications

- Of the woman who received the pre-surgical MRIs and then subsequently got a biopsy due to results, 57% were found to have positive breast cancer via pathology report conformation
- Patients who underwent MRIs had a higher mastectomy rate than historical controls without MRI
- Of the total number of patients who received MRIs, only 5% received a MRI guided biopsy due to results, this number is very low but of the 5% cancer was detected and confirmed in more than half
- This project demonstrates that MRI is useful in detecting cancer but was unable to assess a decrease in positive margins after surgery
- Relationship to SELECT principles
 - Value based patient care:** this information gathered can be used when counseling a pre-surgical patient on pros and cons of getting pre-surgical MRI
 - Leadership:** One way to improve the data collected from a project like this is to create a more standardized approach, this would involve creating and instituting a protocol to accomplish routine pre-treatments MRIs for all woman with the diagnosis of invasive breast cancer and compare patients who underwent pretreatment MRI vs those who did not
 - Health Systems:** distribution of information to different specialties, this information spans multiple disciplinarians and health systems

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