Reducing False-Positive Screening MRI Rate in Women with Extremely Dense Breasts Using Prediction Models Based on Data from the DENSE Trial

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Why it matters

Key takeaways

This study describes prediction models, based on clinical characteristics and MRI findings, that could be useful in reducing unnecessary diagnostic workup and/or biopsies in women with extremeley dense breasts undergoing supplemental screening with MRI. The full model could have prevented 45.1% of false positives and 21.3% of benign biopsies without missing any cancers.

Study location

Netherlands, multicenter.

Study participants

454 women with extremely dense breasts and positive findings on supplemental MRI, after a negative mammogram.

Study design

Prospectively collected positive MRI cases from within the DENSE trial (randomized controlled trial), 2011-2015.

Methods

- Women aged 50-75 years with extremely dense breasts (determined by Volpara TruDensity™) and a negative mammogram were randomized to either supplemental MRI or mammography screening alone.
- All women with positive MRI findings (n=454), from first round supplemental screening were identified.
- Two prediction models were developed to distinguish between true positives and false positives on MRI, based on clinical characteristics and MRI findings in the 454 women.

Study results

- The first prediction model included all collected MRI findings and clinical characteristics and could have prevented 45.5% of false positive recalls and 21.3% of benign biopsies without missing any cancers.
- The second model, incorporating only MRI results and patient age, could have prevented 35.5% of false positives and 13% of benign biopsies.

Conclusions

- These prediction models demonstrate promise for reducing false-positive and benign biopsy rates from first round supplemental MRI screening, making implementation of supplemental MRI for dense breasts more clinically feasible.