

SUMMARY

Supplemental MRI Screening for Women with Extremely Dense Breast Tissue

[Bakker MF, de Lange SV, Pijnappel RM, Mann RM, Peeters PHM, Monninkhof EM, Emaus MJ, Loo CE, Bisschops RHC, Lobbes MBI, de Jong MDF, Duvivier KM, Veltman J, Karssemeijer N, de Koning HJ, van Diest PJ, Mali WPTM, van de Bosch MAAJ, Veldhuis WB, van Gils CH; DENSE Trial Study Group. N Engl J Med. 2019 Nov 28;381\(22\):2091-2102. doi: 10.1056/NEJMoa1903986.](#)

Volumetric breast density, supplemental breast cancer screening, early cancer detection

Why it matters

Key takeaways

This study successfully demonstrates the use of the Volpara TruDensity™ algorithm in identifying women with extremely dense breasts who could benefit from supplemental MRI after a negative mammogram. Among the patients who underwent the additional MRI screening, there was a significant reduction in the number of interval cancers diagnosed after the first screening round.

Study location

Netherlands, multicenter.

Study participants

40,373 participants with extremely dense breast tissue and normal mammography results, aged 50-75 years.

Study design

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

Methods

- From the pool of participants, whose breast density was assessed by Volpara as Volpara Density Grade (VDG) 4, 8,061 women with normal mammogram results were randomly assigned into a group invited to participate in supplemental MRI screening, while 32,312 women were assigned to the mammography-only group.
- The interval-cancer rate, recall rate, cancer detection rate (CDR), and false positive rate (FPR) were measured.

Study results

- The number of interval cancers diagnosed was reduced from 5.0 per 1000 exams in the mammography-only group to 2.5 per 1000 exams in the MRI-invitation group.
- The CDR with MRI screening was 16.5 per 1000 exams, and the FPR was 79.8 per 1000 exams.
- As a result of the MRI screening, 300 women underwent breast biopsy, and of those women, 79 were diagnosed with breast cancer.

Conclusions

- Use of supplemental MRI screening in women with normal mammography and extremely dense breast tissue (as identified by TruDensity) resulted in the diagnosis of significantly fewer interval cancers compared to mammography alone.