The TOMMY trial: a comparison of TOMosynthesis with digital MammographY in the UK NHS Breast Screening Programme – a multicentre retrospective reading study comparing the diagnostic performance of digital breast tomosynthesis and digital mammography with digital mammography alone

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Plain English summary

A comparison of TOMosynthesis with digital MammographY

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Plain English summary

Breast screening is recognised as the best way to detect early-stage breast cancer and reduce the number of deaths from this disease. In a standard breast screening radiograph (mammogram), overlapping breast tissue may hide some cancers or make normal tissue appear abnormal.

Digital breast tomosynthesis (DBT) takes multiple low-dose radiographs of the breast that are processed by a computer to reconstruct a DBT image. This allows abnormalities in the breast be seen more clearly and could make it easier to see small cancers and decrease the number of 'false alarms'. DBT images are usually read with a standard two-dimensional (2D) mammogram. This double radiation exposure could be avoided if a 2D mammogram could be created from DBT images.

The study compared the accuracy of reading (1) a 2D mammogram with (2) 2D mammogram with a DBT or (3) synthetic 2D mammogram with a DBT to identify breast cancer. Data from 7061 cases were analysed: 6021 cases from women (47–73 years) recalled after routine screening for further tests and 1040 cases from women (40–49 years) with a family history of breast cancer attending annual breast screening.

The results of the study indicated that the use of a combination of 2D + DBT or synthetic 2D + DBT produces a small increase in the number of cancer cases detected and could help reduce the number of women who are recalled for unnecessary tests, that is false alarms, which could reduce health-care costs and patient anxiety.

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