Mammography screening for breast cancer—the UK Age trial

We agree with other analyses of the UK Age trial[1] on the effect on breast cancer mortality of mammographic screening from age 40 years, including observations on the small absolute risk of dying from breast cancer for women aged between 40 and 50 years, and the high rate of false-positive results (which might have caused unnecessary anxiety and distress for women with these results).[2] The report by Stephen Duffy and colleagues found that women in the intervention group (who were offered yearly screening from the age of 40 years) were less likely to die from breast cancers diagnosed between age 40 and 48 years than women in the control group, but only if deaths were restricted to those that occurred within the first 10 years of follow-up. The analysis of less than 10 years of follow-up (rather than up to and including 10 years) does not appear to have been clearly prespecified.[3] An earlier report on the trial, where mean follow-up was 10·7 years, did not find a significant difference in breast cancer mortality between groups,[4] and there was no breast cancer mortality benefit in the trial overall (after a median follow up 22·8 years).[1]

From the cumulative incidence data presented, it appears that the increased cancer detection observed during the intervention period (14·2 additional cancers detected per 10 000 women screened after 10 years) was mainly due to increased detection of in-situ cancers (11·5 additional cancers detected per 10 000 women) rather than invasive cancers (2·5 additional cancers detected per 10 000 women; appendix).

Extending the study period to include cancers detected up to and including at the first National Health Service Breast Screening Programme (NHSBSP) screen (at approximately age 50 years), there was no significant difference in cancer detection between groups (1·2 fewer cancers detected per 10 000 women after 10 years in the intervention group: 8·6 fewer invasive cancers and 7·2 more in-situ cancers detected per 10 000 women screened). The additional invasive cancers detected in the control group by the first NHSBSP screen is likely to represent later detection of cancers that would be detected earlier in the intervention group. This implies that detection and treatment of the remaining 5·6 additional cancers detected per 10 000 women screened during the intervention period (14·2 – 8·6=5·6) accounts for the 5·1 fewer breast cancer deaths per 10 000 women after 10 years of follow-up. The apparent reduction in breast cancer mortality for women aged 40–48 years would need to be attributed almost entirely to earlier detection and treatment of in-situ breast cancers, rather than detection of invasive cancers. This is at odds with evidence on the natural history of in-situ breast cancer detected by mammography screening, which suggests that most ductal carcinoma in-situ do not progress to invasive cancer.[5]

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See Online for appendix