Progress Report

Use of Tomosynthesis in Breast Screening

There is a growing body of evidence suggesting potential benefits of using tomosynthesis in breast screening. Recently a large multicentre study from the US demonstrated a reduction in recall rate of 16 per 1000 screens, when tomosynthesis was added to conventional mammography. [1] An interim report of the Oslo Tomosynthesis Screening Trial demonstrated an increase in recall rate of 7 per 1000 screens, which could be attributed to an increase in cancer detection, despite a decrease in false positives.[2] Studies on the use of tomosynthesis for the screening population in the UK have focused on its use for women recalled to assessment clinics.[3] [4] Our study assesses the use of tomosynthesis for screening women in the prevalent round, where it is hypothesised that it might be a particularly useful tool, given the higher proportion of clients with denser breasts.

Recruitment for this study has completed. Approximately 90% of the studies have been read, and an interim analysis of 796 cases has been completed.
These results were presented at Symposium Mammographicum earlier this year. We anticipate that remaining studies will be read by the end of October. We expect that the data analysis will be completed by the end of the year, and plan to submit a paper for publication in early 2015.

There have been no withdrawals from the study to date. There are no adverse events to report. A technical issue with the Quantra breast density data is currently under investigation. We are awaiting a final response from Hologic and MIS regarding this data.

The interim analysis has shown that with the addition of tomosynthesis to conventional mammography, recall rate decreased from 17.4% to 12.0% ($p=0.0001$). Confidence increased from 7/10 to 8/10 ($p<0.0001$). Given the sample size and the p values, we feel it is very unlikely that there will a sizeable change in these results when the full dataset is analysed. If the results of the full dataset do remain similar, we will suggest in our conclusion that this clinically meaningful reduction in recall rate supports the addition of tomosynthesis studies in the prevalent screen round.

1. Friedewald SM, Rafferty EA, Rose SL, et al. Breast cancer screening using tomosynthesis in combination with digital mammography. JAMA. 2014; 311(24):2499-2507.
2. Skaane P, Bandos AI, Gullien R, Eben EB, Ekseth U, Haakenaasen U, et al. Comparison of Digital Mammography Alone and Digital Mammography Plus Tomosynthesis in a Population-based Screening Program. Radiology. 2013.
3. Michell MJ, Iqbal A, Wasan RK, Evans DR, Peacock C, Lawinski CP, et al. A comparison of the accuracy of film-screen mammography, full-field digital mammography, and digital breast tomosynthesis. Clinical Radiology. 2012; 67(10):976-981.
4. Gilbert FJ, Gillan MGC, Michell MJ, Young KC, Dobson HM, Cooke J, et al. TOMMY Trial (a comparison of tomosynthesis with digital mammography in the UK NHS breast screening programme) setting up a multicentre imaging trial. Breast Cancer Res. 2011; 13(1):1-13.

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