

MRI screening for women with a family history of breast cancer but no genetic predisposition

March 21 2012

Adding magnetic resonance imaging (MRI) to standard breast cancer screening approaches is expensive, though it could be cost effective for a group of women who may not have inherited the breast cancer susceptibility genes, but who have a familial risk of developing the disease. This is the conclusion of research presented at the eighth European Breast Cancer Conference (EBCC-8) today.

Women who carry the BRCA1/2 gene mutations are known to be at much higher risk of developing breast cancer, and at an early age; for this reason most [breast cancer screening](#) programmes start examining them with mammography from a younger age than for the general population in order to reduce deaths from the disease in this high-risk group. The use of MRI in addition has been shown to be cost-effective for these [women](#) who carry the BRCA1/2 mutations or who have a 50% (or higher) risk of carrying it. However, until now it has not been clear whether it is cost-effective for women who do not carry the mutations, but who have first and/or second degree relatives with breast cancer, to have MRI examinations as well as standard mammography. These women have a 20% or greater chance of developing breast cancer by the age of 70 due to their familial medical history.

A group of researchers in The Netherlands conducted a cost-effectiveness analysis of 1,597 women enrolled in the Dutch MRI Screening Study between 1999 and 2007, who had an estimated

cumulative lifetime risk of between 15-50% for developing breast cancer before the age of 70. The women were screened by way of a clinical breast examination every six months and an annual mammography and MRI between the ages of 25-70.

The researchers used data on diagnosis, screening and treatment costs of the women with [familial risk](#) to calculate the cost per detected cancer and estimate the life-years gained. Then they used a computer modelling technique called microsimulation to simulate screening programmes with different methods of screening and time intervals.

"We found that it costs approximately three times as much to add MRI to the screening process for every estimated one year of life saved," said Dr Sepideh Saadatmand, who is a physician and PhD student at the Erasmus University Medical Center (Rotterdam, The Netherlands).

"When women were screened using clinical breast examinations, mammography and MRI, the cost per detected cancer was about €103,000. We predicted that screening women between the ages of 35-60 in this way would reduce deaths from breast cancer by 24%, at a cost per year of life gained of €30,000.

However, if these women were screened by annual mammography and clinical breast examination alone, the estimated reduction in deaths was 20%, at a cost per year of life gained of €10,000.

"It is clear from the results of this study that adding MRI to screening programmes for all women with a cumulative life time risk of 15-50% for breast cancer is highly effective, but possibly too expensive. However, it may be cost-effective for a select sub-group."

She continued: "The subgroups we expect to benefit from MRI screening are women with a cumulative lifetime risk above 20% due to their family history, who have very dense breast tissue. Breast density may

strongly influence screening results, since it increases breast cancer incidence significantly and decreases the sensitivity of mammography, but not of MRI. Therefore, for women with high breast density, MRI might be cost-effective. There is a multi-centre randomised controlled trial running in The Netherlands to investigate this."

The randomised controlled trial, with which Dr Saadatmand is involved, is expected to finish in 2015. It is randomising women aged between 30-55 with a family history of breast cancer and a cumulative lifetime risk of over 20% for developing the disease into two groups: 1) annual screening by clinical breast examination and mammography, or 2) annual screening by [breast examination](#) and MRI, with a mammography every other year. Researchers will be looking at the number of tumours detected at screening examinations and in between examinations (interval tumours), and at how advanced the cancer is when diagnosed. They will also be taking into account the varying densities of the women's breasts.

Dr Saadatmand concluded: "The results of the cost-effectiveness study presented today are likely to be of relevance to other countries that have screening programmes similar to The Netherlands, such as the UK and the Scandinavian countries."

Professor David Cameron, from the University of Edinburgh (Edinburgh, UK), and chair of EBCC-8 said: "This study produces an estimate of the cost-benefit of additional MRI in screening high-risk women. It will inform the important ongoing debate about the role of MRI in [screening](#), particularly for younger women who have a higher-than average [lifetime risk](#) of developing [breast cancer](#)."

Provided by ECCO-the European CanCer Organisation

Citation: MRI screening for women with a family history of breast cancer but no genetic predisposition (2012, March 21) retrieved 23 April 2024 from <https://medicalxpress.com/news/2012-03-mri-screening-women-family-history.html>

This document is subject to copyright. Apart from any fair dealing for the purpose of private study or research, no part may be reproduced without the written permission. The content is provided for information purposes only.