Adapting Breast Cancer Screening Strategy Using Personalized Risk Estimation

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II — Clinical Care, Treatment, and Processing
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The Study: Coordinated by the Radboud University Nijmegen Medical Centre in the Netherlands, the Adapting Breast Cancer Screening Strategy Using Personalized Risk Estimation (ASSURE) study is supported by funding from the European Commission’s FP7 Cooperation Program. Utilizing the research capabilities of several EU universities, cooperating with manufacturing partners, the objective of the ASSURE project is to provide an evidence-based, personalized screening protocol to replace the one-size-fits-all approach that is common in nations that have organized mammography screening programs.

The Challenge: Approximately 1-in-8 women will be diagnosed with breast cancer during their lifetime. Mammography screening programs have decreased mortality rates and allowed for less radical treatment options but, unfortunately, not all cancers are detected by conventional screening. Approximately 30% of breast cancers are detected between screening rounds, indicating a need for improved cancer screening.

Unfortunately, the sensitivity of mammography is seriously impaired in women with dense breast tissue. Fibroglandular and stromal tissue look equally bright as tumors on mammograms, causing tumors to remain masked for radiologists and thus undetected.

One task of the project is to estimate personal risk based on breast density, age, genetic mutations, family and/or personal history, etc., and based on this risk, propose an optimal, cost effective, personalized screening strategy.

Another task is to improve the use of MRI and Automatic Breast Ultrasound (ABUS) as additional breast cancer screening modalities, by optimizing protocols, enhancing reading workflow, and by offering better diagnostic performance through new and improved software solutions.

Expectations: A new stratification protocol and new screening tools will result from the ASSURE project. The screening process will be optimized in response to the increasing awareness regarding the sensitivity of current breast cancer screening in women with dense breasts. Our estimates show that a reduction of interval cancers of at least 30% is achievable, assuming the efforts in this project lead to overall sensitivity for dense breasts comparable to that of non-dense breasts.