Breast cancer tumors grow faster in younger women

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A new approach to estimating tumour growth based on breast screening results from almost 400,000 women is published today BioMed Central's open access journal, *Breast Cancer Research*. This new model can also estimate the proportion of breast cancers which are detected at screening (screen test sensitivity). It provides a new approach to simultaneously estimating the growth rate of breast cancer and the ability of mammography screening to detect tumours.

The results of the study show that tumour growth rates vary considerably among patients, with generally slower growth rates with increasing age at diagnosis. Understanding how tumours grow is important in the planning and evaluation of screening programs, clinical trials, and epidemiological studies.

However, studies of tumour growth rates in people have so far been based mainly on small and selected samples. Now, Harald Weedon-Fekjær of the Department of Etiological Research, Cancer Registry of Norway and colleagues have developed a new estimating procedure to follow tumour growth in a very large population of breast cancer patients included in the Norwegian Breast Cancer Screening Program.

The researchers applied their model to cancer incidence and tumour measurement data from 395,188 women aged between 50 and 69 years old. They found that tumour growth varies considerably between subjects. About one in twenty tumours double in size in just over a month from 10 to 20mm, while similar numbers took more than six

years to grow to this size. They estimated the mean time for a tumour to double in size from 10 to 20 mm in diameter is 1.7 years.

“There are enormous implications for the sensitivity of breast cancer screening programs” Weedon-Fekjær explains. “We found that mammography screen test sensitivity (STS) increases sharply with increased tumour size, as one might expect. Detection rates are just 26% for a 5 mm tumour but increase to 91% once a tumour is 10 mm in size.” The team compared their model with the previously used Markov model for tumour progression, and found its predictive power to be almost twice as accurate as the Markov model, in addition to providing new estimates directly linked to tumour size.

Source: BioMed Central