Technical Overview of Diagnostic Methods for Breast Cancer Detection

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Introduction (14 pt bold)

Breast cancer is one of the most common diseases in our society. In Germany alone, 57000 new cases of breast cancer are diagnosed each year. As part of the Spitzencluster Medical Valley, a project was set up in which an innovative clinical study was enrolled. Most of the promising methods from today's breast cancer diagnostic research are included in this trial.

In this talk, the technical background of the diagnostic methods as well as the underlying morphologic differences between cancer and healthy breast tissue will be discussed.

Methods (14 pt bold)

Today mammography is the gold standard in breast cancer diagnostics. However, sensitivity and specificity do not fit clinical and economic needs. The project "Integrated Breast Care" sets up a trial to further develop the MR, x-ray, ultrasound, PET and in-vitro-diagnostics for dedicated breast diagnostics. As a result of the study's setup, the different modalities can be analysed and compared against each other easily.

Results (14 pt bold)

Due to the wide range of morphologic differences in cancer tissue, it doesn't seem to be realistic in the near future that one single method alone satisfies the needs of high sensitivity and specificity. This is even more so if a good cost to benefit ratio is desired. Instead, individual case-by-case combinations of several methods deliver promising results.