BioSpectrum the business of Bio & Health Sciences

Indigenous non-invasive solution for breast cancer detection

22 July 2015 | News | By BioSpectrum Bureau

Indigenous non-invasive solution for breast cancer detection

The rising breast cancer incidence among women is a cause for concern. However, technology has not advanced enough to ensure early detection and treatment. The most prevalent way to detect breast cancer is mammography of the affected area. Unfortunately, mammograms available are all based on X-ray, ultrasound, magnetic-resonance or nuclear isotopes-based image correlation. All these methods of mammography use contrast or nuclear dyes or probes which are invasive. In addition, they affect patient morale, are expensive, and in many cases, don't detect the problem early enough.

To address this issue, the Paterson Cancer Center, Indian Institute of Technology, Madras and National Institute of Electronics and Information Technology, Chennai have collaborated to develop an indigenous IR Mammographic Unit for noninvasive, thermal image screening for early breast cancer detection. A memorandum of understanding was signed between the three institutions on July 21st, 2015 at the Paterson Cancer Center, Chennai and the IR Mammographic Unit was inaugurated to carry forward the research.

Under this MOU, IIT Madras is responsible for developing the technology (thermal imager and diagnosis software), the Patterson Institute will handle all the clinical issues. National Institute of Electronics and Information Technology will provide all the cameras and computers needed for the success of the project.

"The cost of x-ray mammogram through a good quality mammographic device is around 2,000 rupees which would be 7 rupees of the earning per day by a women labor if the checkup needs to be done on a yearly basis. The digitized ultrasound mammogram is not only expensive, it is also inconclusive. This project aims to create a trial of a full-fledged solution to develop a homegrown thermal imaging camera (and associated software) and a mass breast cancer screening program that will bring down the cost of cancer screening from Rs 2,000 to Rs 200 and would be of immense benefit to the society," said Dr S Vijayaraghavan, chief clinical oncologist, Paterson Cancer Center.

Prof. Kamakoti Veezhinathan, RISE lab, Department of Computer Science and Engineering, IIT Madras, said, "Our group will focus on developing software and hardware infrastructure that can enable accurate mass screening for breast cancer

detection. Our thermo mammogram is noninvasive and records the temperature difference that takes place inside the breast due to increased blood supply, metabolic activities as well as a high glycolysis that are associated with the tumor cell multiplication."

Thermal imaging techniques have proven to be useful in screening all kinds of cancer and as a diagnostic tool for arthritic conditions and vascular diseases. Using thermal image techniques can help in detecting changes in the underlying metabolic activity and vascular circulation at the onset of cancerous tumors; this can be done even before the tumors are large enough to be detected by physical examination, mammography or other types of imaging.

Commenting on the association, Mr V Krishnamurthy, directo-In-charge, NIELTT Chennai said, "Research shows that you begin learning from small things, for us in NIELIT it is a new beginning of learning to do research and product development and a feather in our cap. This triparty agreement in research will take us to new heights especially with the support of IIT Madras, Chennai and Paterson cancer Center for doing things for Make In India."