Researchers at IISc develop new imaging methods to diagnose cancer

6 Aug 2010, 0412 hrs IST, Peerzada Abrar, ET Bureau

Researchers at the Indian Institute of Science (IISc) in Bangalore have developed new imaging methods to diagnose cancers affecting breast, lung, ovary and skin. The findings released this week is the result of a collaborative project with technology major Apple to develop a near infrared imaging solution for fast and flexible cancer diagnosis and prognosis. “Near infrared light is a promising way to assess the physiology of tumours in tissue, and to monitor responses to treatment,” says Dr Phaneendra Yalavarthy, assistant professor of Supercomputer Education and Research Centre, IISc, who led the research.

Typically, imaging data available at present can identify a tumour, but cannot reveal its physiology. Equipment used now is too unwieldy and ionising for monitoring the patient in the clinic has side effects. IISc hopes to change that picture along with Apple.

“The big breakthrough is a three-dimensional image reconstruction. We aim to develop computational algorithms so that three-dimensional near infrared images can be reconstructed real-time in the doctor’s clinic. Our solution is ideal for viewing, processing and segmenting large datasets of medical images, to help us achieve that aim,” said Dr Yalavarthy.

When people are being treated with chemotherapy and other therapies, it is almost impossible for them to report accurately on the effects on their bodies. Three-dimensional near infrared imaging can help assess those effects as well. The innovation, which uses core component from Apple, also includes OsiriX, an open source medical image processing software.

This technology can also be used to monitor other changing conditions such as arthritis and brain diseases. Dr Yalavarthy, who has stored over one million images on an 8 terabyte server, said that they are looking to develop a solution that will automatically scan millions of images and detect not only different cancers but other diseases such as diabetes as well.