Medical Xpress

New technology could let women skip annual mammograms

April 27 2015

Technology developing at The University of Texas at El Paso (UTEP) is on track to predict if and when breast cancer will appear.

"We're creating a breast cancer risk analysis system," said electrical engineer Wei Qian, Ph.D., who runs UTEP's Medical Imaging Informatics Lab. "It will be able to inform doctors about the patient's risk of developing cancer within a few years."

Although not yet complete, the computer-aided detection system has proved successful in early studies. In a paper published in the journal Computerized Medical Imaging and Graphics, the team's system had an accuracy of 70 percent when it came to predicting which women would develop breast cancer by their next mammogram and which women would not.

The research is expected to save some women from getting unnecessary annual mammograms, according to the team.

"For low risk populations, it would be better to increase the interval between their screenings," said Wenqing Sun, a doctoral student in electrical engineering at UTEP. "Mammograms frequently generate false positives and can be an unnecessary mental burden."

In a real-life scenario, the risk analysis process would begin with a woman receiving a regular mammogram. The X-ray images would then run through the system, which analyzes multiple features, including

texture and breast density.

Breast density is an important factor in predicting the risk of breast cancer. Studies have shown that women with extremely dense breasts are five times more likely to get breast cancer than those with low breast densities.

The technology would calculate overall density and highlight any suspicious areas that are extremely dense. It also would alert the doctor about any differences between the two breasts.

"Breasts are naturally symmetrical," Qian said. "But if there's a loss of balance between the two, that could signify a high possibility that a change is occurring."

For women who show signs of high risk, the computer would suggest they be screened more aggressively. That might mean getting a mammogram again in the next six months instead of a year. Those who have a low risk for developing cancer in the next one or two years could be advised to return for a mammogram two or three years later.

By separating patients into positive (high-risk) and negative (low-risk) groups, the UTEP engineers believe breast cancer screenings could become more efficient and cost-effective and less worrisome, and save lives.

Provided by University of Texas at El Paso