

# Combination of thermographic and ultrasound methods for the diagnosis of female breast cancer

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*Summary:* The experiment leads to the formulation of a non-invasive and highly efficient method for the detection of the female breast cancer. The proposed method is a combination of the results of ultrasound and thermography tests of the breast. The study is expected to produce the principles of test results analysis offering a 90% success rate in detecting breast cancer.

*Key words:* Breast cancer; Thermography; Sonography.

## INTRODUCTION

The growing incidence rate of female breast cancer requires the development of new, efficient diagnostic methods that could be used to examine large numbers of patients. The efficient methods available today are not always sufficiently non-invasive. Conversely, they consist in the application of X rays (mammography) or direct intervention (puncture). Neither the thermographic nor the ultrasound method ensure sufficient success rate (respectively, 60 and 70%) but they are certainly non-invasive which is an important advantage in cases of pregnant women and young people.

## MATERIALS AND METHODS

The thermographic method consists in the analysis of temperature differences on the surface of the patient's body. The surface temperature reflects the temperature of tissues under the skin<sup>(1,2)</sup> growing locally when a malignant change occurs<sup>(1,2)</sup>. This can be observed as patches emitting higher heat in the affected area owing to which an analysis of temperature differences permits the localization of the lesion. However, a locally increased temperature is not always a symptom of malignancy. It is often connected with conditions of other nature.

## RESULTS

The ultrasound machine detects different densities of the tissue. Lower density may, for example, suggest a pathological condition like cancer. But