

*Infrared Technology Has Advanced Greatly Since the 1970s*

## Time to Reassess Value of Infrared Breast Imaging?

■ MONTREAL—A group of Canadian physicians hope to spark renewed interest in the use of infrared breast imaging as a complement to mammography.

This technology lost favor some 20 years ago, but with new ultrasensitive high-resolution digital infrared devices, efficacy is much improved, and the Canadian researchers believe that infrared exams could prove a simpler and less expensive complement to mammography than some of the other newer imaging methods.

Researchers from the Ville Marie Breast Center examined infrared imaging in 100 women with noninvasive stage I and II breast cancer. In this study, the 84% sensitivity rate of mammography alone was increased to 95% when infrared imaging was added, John R. Keyserlingk, MD, a surgical oncologist at Ville Marie, said in his presentation of the findings at the recent American Society of Clinical Oncology annual meeting.

Mammography and ultrasound depend primarily on structural distinction

and anatomical variation of the tumor from the surrounding breast tissue, Dr. Keyserlingk said. Infrared imaging detects minute temperature variations related to vascular flow and can demonstrate abnormal vascular patterns

**Infrared  
detects small  
variations in  
temperature**

associated with the initiation and progression of tumors (see figures on pages 1 and 7).

The new generation of diagnostic infrared technology, Dr. Keyserlingk said, owes much to a decade of military research and development. "In July 1995, we installed a fully integrated high-resolution infrared station," he told ONCOLOGY NEWS INTERNATIONAL. The software allows high-precision pixel temperature measurements.

In their study, Dr. Keyserlingk and his colleagues, Paul Ahlgren, MD, a medical oncologist, and Edward Yu, MD, a radiation oncologist, reviewed 100 successive patients referred to the Ville Marie Breast Center between August 1995 and December 1996 who were subsequently found to have histologically proven noninvasive ductal carcinoma in situ (four patients) or stage I or II invasive breast cancer (96 patients).

All patients had undergone preoperative clinical examination, mammo-

graphy, and infrared imaging. (See page 7 for information on the infrared imaging protocol.)

Clinical examination alone was positive in 61% of the study patients. Mammography was highly suspicious in 65% of patients with an additional 19% having contributory but nonspecific (intermediate) mammography findings. Infrared imaging was considered abnormal in 83% of patients.

Of the 39 patients with negative clinical examinations, 31 had at least one major abnormal infrared sign, and infrared was the major indication of a potential abnormality in 15 of these patients who also had a negative or intermediate mammogram.

The 16 patients with a noncontributory mammogram were on average of six years younger than the overall group (mean age, 47 years versus 53 years). Among these patients, 11 had an abnormal infrared image, and in eight of these women, who also had negative clinical exams, infrared was the main indicator of a possible abnormality.

"This suggests that when done concomitantly with mammography, infrared imaging can add valuable information, particularly in those patients with nonspecific clinical and mammographic findings," Dr. Keyserlingk said.

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