



## **Thermography: What is its role in detecting breast cancer?**

Despite the potential life saving role of screening mammography, it has its limitations. It does miss some early breast cancer, especially in women with dense breasts where the miss rate may approach 30%. Also, the mammogram can be painful and many women are concerned about radiation exposure. One alternative screening method that has been reported to be effective in detecting early cancers is thermography.

Thermography is based on the observation that tumor growth requires new blood vessels to provide the rapidly dividing cells with oxygen and nutrients. This added blood flow can add to surface blood temperature. The thermogram uses "ultra-sensitive medical infrared cameras and sophisticated computers to detect, analyze, and produce high-resolution images of these temperature variations". The proponents of the thermogram suggest that a normal thermogram provides women with added reassurance that they do not have breast cancer and an abnormal thermogram indicates the need for added work-up (i.e. diagnostic mammogram, ultra-sound, and possible biopsy).

Most physicians that specialize in breast cancer care remain skeptical about the value of thermography as part of strategy to detect early breast cancers. A recent study evaluated 180 women who were already scheduled for a breast biopsy and did a pre-biopsy thermogram on each patient. The thermogram missed half of the cancers. Also, half of the biopsies that proved to be benign were categorized as suspicious on the thermogram. Thus, the thermogram has a much higher miss rate (false negatives) than mammography, and may lead to unnecessary biopsies (false positives).

The data clearly indicates that the thermogram is no substitute for mammography, as many of the proponents readily admit. However, it should be noted that the thermogram did pick up half of the cancers, thus suggesting that women who refuse a mammogram should consider having a thermogram.

The big question that has yet to be answered is: Could the thermogram be of value in high risk women with dense breasts as an adjunct to mammographic screening? Although I would prefer to use the MRI as the logical adjunct, the cost of the MRI makes it prohibitive for many patients. The thermogram is a low cost screening study that is painless and does not expose women to radiation. Although I am not ready to order thermograms for my high risk patients, I am willing to keep an open mind on the potential value for thermograms in high risk women as an adjunct to mammography screening.

The bottom line is that early detection of breast cancer saves lives, and screening asymptomatic women is one of the most effective strategies for detecting breast cancers when the potential for cure is greatest. For most women, starting mammography screening at age 40 is enough. However, women at high risk because of a strong family history or dense breast should consider the value of additional approaches to screening, and starting screening before age 40. The MRI has proven effective in this regard, but cost remains a barrier. Fortunately, progress is being made in developing new technologies for breast cancer screening that will be discussed in future issues of "Ask the Doctor."

If you have any questions on thermography or breast cancer, feel free to Ask The Doctor or contact us.