Thermography

Its Relation to Pathologic Characteristics, Vascularity, Proliferation Rate, and Survival of Patients with Invasive Ductal Carcinoma of the Breast

We were very surprised to see that Sterns et al. had results that contradicted those presented by our group which demonstrated an association between three growth rate–related prognostic indicators for breast carcinoma and findings from infrared imaging. Careful review of the Sterns et al. article showed that they performed the infrared imaging with a different and outdated technology, did not quantitate actual growth rate with serial measurements from mammography, and looked at only one of the three growth rate–related parameters reported by our group to be associated with abnormalities found in infrared images of the breast.

In reviewing the two articles by Sterns et al. on contact thermography, we noted that they reported that 56% of the breast carcinoma patients from the initial 214 patients who were scanned with thermography had an abnormal breast thermogram, whereas only 19% had abnormal breast thermography when 420 women were enrolled in the study. This inconsistency is due to the fact that in the initial study the patients with equivocal thermal patterns were considered abnormal, whereas in the recent expanded study equivocal patients were considered normal. This clearly demonstrates that the authors are not sure what level of abnormality is really significant when attempting to relate infrared images to growth rate and growth rate–related parameters. In our study, in which telethermography was used, 65% of the breast carcinoma patients had abnormal thermograms (including both the small number of patients with slightly abnormal thermograms and all the patients with definitely abnormal thermograms), and Isard et al. found that 54% of their patients had either PF2- or PF3-level abnormalities. In both of these studies, the presence of an abnormal breast thermogram had a significant impact on survival.

It is not appropriate to compare contact thermography results, produced by a technology that is over 20 years old and was not used in either our study or that of Isard et al., with the results from infrared telethermography (a newer, more sensitive technology with much better image quality). It appears that the superior image quality of infrared telethermography may be necessary to demonstrate that abnormal infrared images of the breast (asymmetric hot spots, global...