

## News in Thermology

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### MIRA Seminar in Bad Beversen

MIRA (Medical InfraRed Academy) and the German Society of Thermography and Regulation-Medicine organised another Infrared Seminar in cooperation with Cardiovascular Centre Bad Beversen, on April 12, 2006. This event provided instruction and training for users of infrared imaging in the fields of human and veterinary medicine. The Physicians Chamber of Niedersachsen credited this course with 10 points for continuous medical education.

Ass.Prof Dr C Kugler, head of the department for angiology in Bad Beversen was one of the lecturers of this meeting. He started last year an scientific investigation focusing the utility of infrared imaging in vascular disorders in comparison with plethysmography and oszillometry. Preliminary results indicate that infrared thermography can obtain similar informations as the established techniques mentioned above.

### Discussion on breast thermography in US

The American Academy of Thermology had to face a partly public discussion on breast thermography driven by people who provide services of complementary medicine. These people claim that thermography can objectively differentiate between healthy and diseased tissue of the female breast. In addition, preventive modalities of unproven utility should be monitored by thermal imaging.

This proposal is in complete contrast to existing guidelines (1) and recommendations (2, 3). The guideline of the American Cancer Society (1) says that clinical evidence indicates that thermal imaging is ineffective as a screening tool. However, the technique received FDA approval for general clinical use. A recent health technology assessment document (4) from New Zealand came to the conclusion that the evidence that is currently available does not provide enough support for the role of infrared thermography for either population screening or adjuvant diagnostic testing of breast cancer. The major gaps in knowledge at this time can only be addressed by large-scale, prospective randomised trials. More robust research on the effectiveness and costs of technologically advanced infrared thermography devices for population screening and diagnostic testing of breast cancer is needed.

Nevertheless, chiropractors (5), homeopaths (6) and acupuncturists promote (7) the use of thermal imaging as an alternative screening test instead of mammography. These activities might end for thermography in a similar disaster as experienced in the past, when hundreds of physicians in France and Germany ceased to use of this technique in the late nineteen-eighties, because the diagnostic promises of thermography could not be fulfilled and both the health

system and the insurance companies had stopped to pay reimbursement for thermographic breast testing. As a consequence, the thermographic societies in France and Germany lost many members with the result that the French society ceased the existence and the German Society of Thermology shrank in size to 20% of original member numbers.

A recent report from the Cleveland Clinic in ABCs "Good Morning America" (8) where Dr David Weng examines patients with chemotherapy for breast cancer in weekly intervals with thermography, shows at least that there is a place for thermal imaging in evidence based medicine, but does not yet give evidence for the utility of thermal imaging for monitoring the course and treatment of malignant breast disease. At least, breast thermology has received a large national forum,

Peter Plassmann from the University of Glamorgan, UK, proposed to counteract the development "where crooks dominating the field" by going public. He suggested a publication such as "IR Imaging for the Screening of Breast Cancer: A State-of-the-Art Joint Position Paper". This paper should be short, written in very simple and unambiguous terms and clearly define what is proven fact, what is hypothetical and what belongs to the domain of quack. It should be jointly written and endorsed as a position paper by all relevant 'IR in Medicine' societies and groups. It should then be circulated widely to the relevant government departments, health authorities, charities, web sites, etc.

### References:

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### Audit of the Italian Health Ministry on indications for thermal imaging in medicine

Dr. Giorgio Dalla Volta, neurologist in Brescia and president of the Italian Association of Thermology, had to meet

a high challenge in the end of March, when he had to defend the utility of thermal imaging in medicine in an audit raised by CUD, a commission of the Italian Ministry of Health. The unfavourable starting point for thermography was a report from 2004, which did not support the clinical evidence for using thermography based on a literature search in medline spanning the last 10 years. This report found only 16 papers related to the clinical evidence of diagnostic value of infrared imaging. The methodological quality of these papers was classified as poor because of small populations and the lack of controls.

This document, which seems to be the basic for the intended audit, refers also to the policy manual of the Regecy Insurance Group in the US. This assessment came to the conclusion that there is insufficient evidence in the peer-reviewed published literature to reach conclusions concerning the effects of thermography on health outcomes for any indication. The scientific literature is inadequate to validate the clinical role of thermography; no published studies demonstrate how the results of thermography can be used to enhance patient management and improve patient health outcomes. However, this paper is the combined assessment of contact thermography and advanced digital infrared thermal imaging. In addition, it misses some of the more recent papers as most of the printed quotation were published between 1964 and 1990. The technique was at least classified as a technique for research.

An other argument against thermal imaging in this report of the Italian Health Ministry is the fact, that recommenda-

tions for thermography as diagnostic procedure are missing in many guidelines edited by medical societies. However, these statement is based on a not comprehensive literature search.

This journal publishes an annual literature review on thermography and temperature measurement since 1991. Cumulating the number of papers dedicated to the diagnostic value (i.e. sensitivity and specificity) of temperature measurements from 2001 onwards, found in total 91 papers. Therefore, it seems to be a sign of poor search strategy that all the papers mentioned above could not find more than 25 papers to find evidence in favour or against the diagnostic value of thermal imaging. Also the recent chapter on infrared imaging in volume 3 "Medical Devices and Systems" of the Biomedical Engineering Handbook, Third Edition (3) supports ongoing research and standards achieved in thermal imaging.

The outcome of Dr DallaVolta's endeavour to defend the diagnostic value of infrared imaging against the miss-classification by public and govermental institutions is not yet known. But, information about this matter will be continued..

#### References

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