

Synopsis of the Annual Symposium: American Academy of Medical Infrared Imaging

On April 1-4, the American Academy of Medical Infrared Imaging held its annual scientific symposium in Orlando, Florida. Papers and posters were presented, and the meeting was attended by multidisciplinary clinicians including DCs, MDs, DDS, PHDs, DOs, and a DVM. The following is a brief description and highlight of some papers presented by various speakers, some of which are nationally and internationally renowned.

Michael Stanton Hicks, MD, director Pain Clinic, Cleveland Clinic

Dr. Hicks presented some of his data and work on the utility of thermography in reflex sympathetic dystrophy (RSD) syndromes and sympathetic maintained pains. Thermal infrared imaging is routinely utilized in the Cleveland Clinic as well as the Mayo Clinic for differential diagnosis. Dr. Hicks stated thermography is utilized in his clinic for the following indications: autonomic dysfunction, myofascial pain syndrome, radiculopathy, deafferentation pain, and sympathetic maintained pain syndromes. Dr. Hicks utilizes thermography and his interpretation criteria for RSD includes temperature asymmetry, abnormal cold-pressor test (autonomic challenge), and autonomic dysfunction on the contralateral side. He believes RSD is a CNS disorder secondary to a minor nerve injury with somatic efferent and visceral efferent spread as well. He points out that unimodal approach for care of patients with RSD is ineffective and care must be delivered with an interdisciplinary approach including but not limited to exercise therapy, blocks, manual treatment, pharmacologic treatment, as well as cognitive behavioral intervention.¹ The earlier the intervention (i.e., Stage-I RSD) the more successful the outcome. Thermography by its inherent ability to detect and record sympathetic vasomotor dysfunction is highly sensitive for RSD diagnosis.

William Clewell, PhD, University of Baltimore

Dr. Clewell, a professor in statistics and mathematics, presented the statistical methods utilized in the paper on thermography assessment published in the American Journal of Pain Management.²

Jacob Green, MD, PhD, director, Southeastern Neuroscience Institute

Dr. Green presented the findings of his paper published in Pain Digest, "Efficacy of Neurodiagnostic Studies in Patients with Lumbosacral Single Leg Pain of Sciatic Distribution." In this study of 28 consecutive patients by retrospective review, comparative sensitivity and specificity of EMG, SEP, NCV, MRI, CT and thermography were documented. Thermography was shown to have a 92 percent sensitivity and 85 percent specificity.³ Dr. Green also presented with Dr. Clewell the results of the American Academy of Pain Management's study of thermography assessment by national pain clinics. The study of multidisciplinary pain clinics found that one-third of chronic pain patients had autonomic dysfunction, medical thermography was the most frequently cited test of choice, 80 percent of the clinic directors who used thermography "on-site" found it a valuable tool for patient assessment. Only 34 percent of those who did not use thermography in house believed it to be of value.

Pamela Steed, DDS, MSD, specialist in Oral Medicine/TMJ Dysfunction, Indianapolis, Indiana

Dr. Steed presented her work on the utility of thermal infrared imaging in the diagnosis and management of TMJ syndrome. Dr. Steed finds in acute cases a focal hot spot detectable by thermography over the preauricular region. In chronic cases she finds a focal hot spot over the more recent TMJ area, with hypothermia over the contralateral masseter. She finds a 95 percent sensitivity for thermography in TMJ syndromes.⁴ In another study, Dr. Steed presented her work on 30 asymptomatic subjects and found that all TMJ thermal patterns demonstrated marked thermal symmetry. The temperature differentials were less than 0.2°C in the TMJ and related facial areas. This work was published in the Journal of Orofacial Pain.⁵

Nelson Hendler, MD, psychiatrist, Johns Hopkins Medical Center

Discussed the role of thermography in pain management. Discussed the greater sensitivity of thermography in diagnosing RSD syndrome as compared to EMG/NCV studies.

Robert Ford, MD, neurologist, Alabama

Dr. Ford presented his work on thermography and cephalalgia and finds an 85 percent correlation finding.

Emil Zuckerman, MD, neurologist, Brooklyn, New York

Dr. Zuckerman utilizes thermography in his neurologic practice. Dr. Zuckerman demonstrated the utility of thermography for posttraumatic headache syndromes and cerebral vasomotor disorders with nitroglycerin provocation.

Bernard Filner, MD, anesthesiologist, Maryland

Dr. Filner presented his work on the utility of thermal imaging in the diagnosis and management of myofascial trigger points and their association with RSD. Dr. Filner believes that chronic myofascial trigger points can lead to chronic pain and sometimes RSD due to chronic sympathetic efferent discharge.

Timothy Conwell, DC, DABCO, RSD Multidisciplinary Clinic/Spalding Rehab Hospital, Colorado

Dr. Conwell presented a fabulous study on the utility of thermography in a multidisciplinary RSD/Pain Clinic. Their thermography criteria for probable RSD included three out of four of the following: 0.65 - 1.0°C delta T, clear demarcation in the extremities thermal pattern, abnormal gradient, abnormal autonomic challenge/stress testing. Thermographic criteria for possible RSD was 0.5°C - 0.65°C, clear thermal demarcation abnormal gradient and abnormal stress test. Dr. Conwell pointed out that RSD has a centralizing phenomena with crossover to the uninvolved side due to intermuncial-pool cross talk, abnormal longitudinal thermal gradients, and positive cold-stressor test (15.0°C) displaying paroxysmal vasomotor instability. Dr. Conwell found specificity/sensitivity/positive and negative predictive value to all be around 90 percent. Dr. Conwell also displayed his use of "Dynamic Subtraction Imaging" with Bates Thermographic Unit in the diagnosis of RSD. This was an excellent paper that we look forward to being published.

Matthew Lee, MD, DPM & R, director, Rusk Institute of Physical Medicine, NYU, Medical Center

Dr. Lee presented his work on the utility of thermography in the diagnosis of Raynaud's disease

and chronic pain. He utilizes thermography to document the affects of acupuncture on such autonomic disorders as Raynaud's and RSD.

Dr. Purohit, DVM, director of Veterinary Medicine, University of Alabama

Dr. Purohit discussed the utility of thermography in veterinary medicine practice in the diagnosis of RSD, nerve injuries, and testicular function. Since animals cannot verbalize pain and dysfunction, thermography is a useful diagnostic tool. Dr. Purohit also discusses the unimpeded acceptance of thermography in his veterinary practice, since there are no third-party problems or bias.

William Hobbins, MD, director, Madison Pain Clinic

Dr. Hobbins, one of the present-day "patriarchs" in thermographic science, presented a basic study on an anatomical and neurophysiologic basis of infrared imaging. Dr. Hobbins who directs a pain clinic in Wisconsin also extensively taught thermology to many doctors in both the USA and internationally. Dr. Hobbins' dedication to the field of thermography is undying and like a "candle" has lit countless other "candles" without losing any of his bright light.

Harold Farris, DC

Dr. Farris presented a paper on the future of infrared thermal imaging in clinical chiropractic practice.

Tom Brozovich, DC

Dr. Brozovich presented a paper on the high correlation of patient pain diagrams and thermographic abnormalities.

James Christiansen, PhD, physiology professor at National College of Chiropractic

Dr. Christiansen presented a paper on the importance of quantitative data display on thermal images and the importance of investigating all presenting patterns (i.e., neurologic and myofascial).

Debbie Fraliker, DC

Dr. Fraliker presented a case report on the utility of thermography in imaging the sympathetic dysfunction associated with cervical facet dysfunction and the abolition of the aberrant thermal pattern postmanipulation.

David J. BenEliyahu, DC

I presented papers on the utility of thermography in cases of lumbar disc disease, cervical disc disease, and the utility of thermography as a treatment assessment/outcome tool. Thermography measures "autonomic" patterns of referred pain in the peripheral extremities due to sympathetic neural network which are not confluent with dermatomes. In patients with cervical and lumbar disc herniation (MRI documented) multiple areas of thermal asymmetry reverted to normal postchiropractic treatment.^{6,7,8}

References

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