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Protocols and Standards for Thermography Imaging, Part II

The Academy of Neuromuscular Thermography/American Academy of Thermology Guidelines and Indications for Neuromuscular Thermography

By David BenEliyahu

"On September 22, 1988, the Executive Committee of the Academy of Neuromuscular Thermography (ANMT) approved the guidelines and indications for neuromuscular thermographic exams as set forth below." (Since then the ANMT has merged with the American Academy of Thermology.)

"The indications below are intended as guidelines for the physicians contemplating ordering a neuromuscular thermogram. It should be clearly understood that the physician should obtain the thermogram as he deems necessary if prudent clinical judgment, based on history, physical examination, and clinical course, so indicate.

"Follow-up or repeat thermograms on the same patient should only be done for good clinical reasons, i.e., persistent treatment failure, or to monitor the effects of treatment when tangible benefit can be expected from the examination.

"The following are uses of neuromuscular thermography when anatomic tests (CT, myelogram, and/or MRI) have not been performed, or are negative:

1. To evaluate sensory/autonomic peripheral nerve injury
2. To evaluate for the possibility of reflex sympathetic dystrophy or other autonomic dystrophy and to follow the treatment of same.

3. To evaluate and monitor soft tissue injury, e.g., tendinitis, trigger points, compartment syndromes, etc.
4. Early diagnosis of possible extremity stress fracture.
5. Differentiate, document, and monitor any injury that does not respond to clinical treatment.
6. To identify occult soft tissue conditions or symptom magnification.
7. To evaluate facial pain when other tests are unrevealing.

If the tests of neurophysiology (thermogram and EKG) have been done first, and are negative, the need for anatomic testing may be reconsidered.

"The following are uses of neuromuscular thermography when anatomic tests (CT, Myelogram, and/or MRI) have been performed and are positive:

1. To evaluate the significance of positive findings when the physical exam or history do not concur, i.e., a lesion may be present anatomically, but have no significance physiologically.
2. To look for hidden or missed lesions. Examples:
 - a. The CT may be abnormal at one level, but the thermogram may show abnormality at this and an adjacent level, leading the physician to order another test, such as a myelogram or MRI, which may uncover a second lesion.
 - b. The patient may have nerve root dysfunction and reflex sympathetic dystrophy, with only one set of presenting symptoms.

c. The patient may have both nerve problems (disc), and trigger points or facet joint problems, with overlapping or masking of symptoms. Under these circumstances, history and/or symptoms can be masked by the predominant lesion.

3. To evaluate the significance of equivocal or mild disc bulges or herniations on myelograms, CT or MRI scans if clinically indicated.

4. To evaluate for the possibility of reflex sympathetic dystrophy, and to follow treatment of same if clinically indicated.

5. Differentiate, document, and monitor any injury that does not respond to clinical treatment."

The ICA has recently formed their own council on diagnostic imaging, but has not yet published standards and protocols from their college of thermography.

In an article published by Dr. Susan Vlasuk in the ACA Council on Diagnostic Imaging journal, the overall value of thermography was clearly presented. Indications for the use of this imaging test included:

1. Evaluation for reflex sympathetic dysfunction.
2. Differentiation between neurologic and myofascial causation of persistent pain.
3. Differentiation between neurological and vascular involvement.
4. Differentiation between radicular compartment and peripheral neuropathy.
5. Evaluation for myofascial trigger points.
6. Evaluation for thoracic outlet syndrome.
7. Evaluation of physiological significance of minor anatomic findings noted on CT or MRI.
8. Evaluation in cases of clinically suspected radiculopathy when CT or MRI is negative.
9. Chronic pain of undetermined origin particularly when the clinical picture has few or no positive orthopedic or neurologic findings.

10. Evaluation of chronic or severe headache.
11. Differentiation between primary joint dysfunction (sprain capsulitis, arthritis) and neurologic or myofascial disorders.
12. Evaluation of chronic non-responsive pain.
13. Evaluation for reflex sympathetic dystrophy.
14. Evaluation of sports injuries.
15. Differentiation of vascular headache, posttraumatic cephalgia, and TMJ syndrome.

Dr. Vlasuk's paper also pointed out that thermography is:

1. A window to the autonomic/sympathetic nervous system.
2. Risk free.
3. Cost effective.
4. Scientifically valid.
5. A monitoring device for treatment efficacy and case management.
6. A test of physiology requiring medical necessity to:
 - a. formulate/confirm a diagnosis

b. determine type, frequency duration or end of care

c. determine impairment

d. determine prognosis

In the recently published book by Herbert Vear, D.C., *Chiropractic Standards of Practice and Quality Care*, Dr. Susan Vlasuk wrote a chapter detailing indications, standards, timing and protocols for infrared imaging.

She lists under "Timing for Thermographic Evaluation" that scanning may be done immediately or shortly after injury when there is clinical suspicion of:

1. Reflex sympathetic dysfunction/causalgia or sympathetic maintained pain.

2. Vascular injury.

Thermal imaging may be necessary shortly after injury for evaluation of clinically suspicious segmental or peripheral neuropathy if the treating doctor believes case management is dependent on results. Full protocol thermograms may not be routinely necessary shortly after injury, and should be done after a course of care when the patient is slowly or poorly responsive.

Conclusion

Infrared thermography or high resolution infrared imaging has proven itself over and over again to be a reliable, sensitive tool for documenting pathoneurophysiology and autonomic/sympathetic dysfunction associated with neuromusculoskeletal disease. It is a useful differential diagnostic technique, treatment assessment tool, and prognostic tool. A doctor utilizing thermography in practice should have adequate training in both technique and interpretation and should follow the strict protocols outlined within.

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