

I. Authority and Purpose

Pursuant to Act 1281 of 2001, an additional section, Arkansas Code Annotated 11-9-117, has been added to empower the Arkansas Workers' Compensation Commission, in accordance with its rule-making authority, to enact medical diagnostic and treatment guidelines regarding occupational carpal tunnel syndrome. These guidelines are based upon the joint recommendation of the Arkansas AFL-CIO and the Arkansas State Chamber of Commerce.

II. Applicability and Effective Date

This rule and the guidelines set forth herein shall be applicable to all claims for workers' compensation benefits regarding occupational carpal tunnel syndrome filed with the commission on or after September 20, 2001.

III. Introduction

Carpal tunnel syndrome (CTS) is caused by compression of the median nerve at the wrist. Occupational CTS (OCTS) assumes a work-relatedness. Compared to non-occupational CTS, OCTS patients are younger and have generally less severe changes on nerve conduction studies (NCS), and are about equally male or female. Diabetes, pregnancy, hypothyroidism, and rheumatoid and other inflammatory arthritides are health problems occasionally associated with CTS.

IV. Diagnosis

A. Initially, patients may have mild, intermittent symptoms usually of a few weeks duration without objective signs of median nerve dysfunction. The intermittent symptoms include numbness, tingling or pain in the hand that occur with use of the hand and at night. Patients with persistent CTS have objective findings on examination or symptoms that fail to improve with conservative treatment, usually within four weeks.

B. Clinical Findings

1. Symptoms

a. Paresthesias in the hand – usually the first three digits of the hand. However, patients often don't discriminate between some or all of the digits. Symptoms appropriate to the median nerve distribution are sensitive (0.93 or 7% false negative) but also have low specificity (0.25 or 75% false positives).

b. Pain in the hand, forearm, upper arm.

c. A feeling of weakness or clumsiness of the hand.

2. Signs or objective findings

a. Decreased sensation in the median nerve distribution (two-point discrimination has a sensitivity of 0.23 but a specificity of 0.82).

b. Weakness is usually difficult to demonstrate in mild CTS. Thenar

- atrophy indicates more severe CTS.
- c. Tinel's sign (sensitivity = 0.62, specificity = 0.66).
 - d. Phalen's sign (sensitivity = 0.73, specificity = 0.36).
 - e. Abnormal nerve conduction studies.
 - f. Even in patients with NCS-established OCTS, the exam may be normal.
3. If the NCS changes are mild to moderate, conservative management with splinting, medication, and job modification could be continued for four to eight weeks.
 4. Surgical decompression of the carpal tunnel (carpal tunnel release) is considered if there is:
 - a. Failure to improve with conservative management and there are corroborative NCS findings, or
 - b. Progression of symptoms during conservative management and there are corroborative NCS findings, or
 - c. Atrophy or significant NCS abnormality.
 5. In general, if a patient has symptoms that are thought to be from OCTS but has no objective verification of OCTS, including no abnormality on NCS, then that patient has likely reached maximum medical improvement at no longer than eight weeks of conservative management under the care of a medical or osteopathic physician.

V. Nerve Conduction Studies

A. Nerve conduction studies are the recognized standard for the diagnosis of CTS. The following recommended criteria are adapted from those of the State of Washington Department of Labor & Industry. Other criteria may be utilized as long as such criteria have a sound basis in the peer-reviewed literature.

1. Median palmar latencies (palm to wrist at 8 cm.)
Abnormal latency > 2.2 msecs.
Median minus ulnar palmar latency abnormal > 0.3 msecs.
2. Median motor latency (wrist to APB at 8 cm.)
Abnormal latency > 4.5 msecs.
Median minus ulnar motor distal latency abnormal > 1.8 msecs.
3. Median sensory distal latency (wrist to digit at 14 cm.)
Abnormal latency > 3.5 msecs.
4. Fourth digit sensory distal latency (wrist to digit at 14 cm.)
Median minus ulnar sensory latency difference abnormal > 0.5 msecs.

B. In general, a complete study would include median and ulnar palmar latencies and median and ulnar motor nerve conduction studies, with hand skin temperature > 30 degrees C. No more than 10% of CTS patients will have normal standard NCS. These patients likely have mild median nerve impingement that may occur only with

use of the hand. EMG is rarely needed for the diagnosis of CTS. If there is prominent concern for cervical radiculopathy, structural studies might be indicated.

VI. Work-relatedness

A. Carpal tunnel syndrome occurs both from intrinsic or patient factors (e.g. small carpal tunnel from arthritis or congenitally, metabolic derangement, etc.) and extrinsic factors, which for Occupational CTS would be job activities. That is, if the predominant cause of the CTS is from job activity, then the CTS is work-related.

B. Job activity that regularly requires extensive use of the hands may be an appropriate exposure. Such activity involves repetitive hand use, especially:

1. for prolonged periods;
2. against force;
3. with strongly vibrating equipment;
4. with repeated wrist flexion, extension, deviation, forearm rotation, or constant firm gripping;
5. or, with awkward hand or wrist positions.

VII. Management

A. Initial Management

1. Wrist splinting to maintain the wrist in a neutral position at night and when the hand is engaged in substantial activity.
2. Medication—usually an NSAID.
3. Job modification.
4. Steroid injection into the carpal tunnel may offer short-term improvement, but only 22% maintain the improvement (in a non-occupational CTS setting). A short, tapering course of oral corticosteroid has been shown to offer significant symptomatic improvement in patients with mild to moderate CTS. (Neurology, 1988, 51:390-393).

B. Progress

If there is failure to improve with initial management, or if there is a more severe presentation of pain, swelling, weakness, or numbness, then more aggressive measures may be needed, including nerve conduction studies.

Nerve conduction studies (NCS) or specialist referral are obtained when there is:

1. Failure to have improvement of symptoms after four weeks of conservative management, or
2. Progression of symptoms during treatment, or
3. Significant abnormality on examination, especially atrophy, or
4. Time loss on the job.

The NCS are likely to be more sensitive if performed when the patient is still

engaged in his usual occupation under normal working conditions.
(Approved August 29, 2001; effective September 20, 2001.)