Clinical Update

Utility of the clinical examination for carpal tunnel syndrome

D'Arcy CA, McGee S. Does this patient have carpal tunnel syndrome? *JAMA* 2000;283:3110-7.

Background

Carpal tunnel syndrome (CTS) is commonly seen in primary care practice.[1] Patients with CTS present with one or more symptoms of pain, numbness or weakness in the hand. Physicians base their diagnosis of CTS on findings from history taking and physical examination, and confirm its presence with electrodiagnostic testing.

Question

Which features of history taking and physical examination are most useful in diagnosing CTS?

Design

The authors conducted a systematic review to ascertain the precision and accuracy of history taking and physical examination for the diagnosis of CTS.[2] Only studies that independently compared findings on clinical evaluation with the results of electrodiagnostic testing were included. The sensitivity, specificity and likelihood ratios were calculated for history-taking items and physical diagnosis manoeuvres.

Results

Twelve studies fulfilled the authors' inclusion criteria. Agreement among physicians for the findings of CTS (precision) was assessed in very few studies. The best sign for ruling in favour of CTS was decreased sensitivity to pain in the median nerve distribution, as assessed by comparing subjects' responses to painful stimuli on the index finger and the ipsilateral little finger (pooled likelihood ratio 3.1; 95% confidence interval [CI] 2.0–5.1). Weakness of thumb abduction and hand diagrams marked by patients to indicate the distribution of their symptoms were also useful. The presence of nocturnal or bilateral symptoms, and many of the physical manoeuvres long associated with CTS, such as Tinel's and Phalen's signs, did not differentiate between those with and those without this condition. As well, the absence of diminished pain sensation in the median nerve distribution did not rule out the possibility of CTS.

Several other lesser-known physical examination manoeuvres showed promise in the diagnosis of CTS but will require further validation. For example, one study found that the "flick sign" (patients flick their wrists and hands in a motion similar to that used when shaking out a thermometer when they are asked "What do you actually do with your hands when the symptoms are at their worst?") was helpful in ruling in and ruling out a diagnosis of CTS (likelihood ratio for positive finding 21.4, 95% CI 10.8–42.1; likelihood ratio for negative or absent finding 0.1, 95% CI 0.0–0.1). This manoeuvre has not been validated in other studies.[3]

Commentary

This is the latest article in the *Journal of the American Medical Association*'s Rational Clinical Examination Series, which appraises the published literature on the accuracy of clinical examination.[4] Most of the studies included in the review drew their subjects from referral-based populations, and thus the subjects may not reflect patients seeking an opinion from a primary care physician. As well, electrodiagnostic studies can be negative in the presence of early carpal tunnel syndrome and may not represent an adequate "gold standard" by which to evaluate the clinical examination in all cases of CTS. Nevertheless, several clinical findings were determined to be helpful in diagnosing CTS in this population of patients.

Practice implications

When examining a patient for the presence of CTS, decreased pain sensation in the median nerve distribution is the most helpful finding in making the diagnosis. Many of the classic manoeuvres taught to physicians are of little use in diagnosing the condition, whereas newer techniques hold promise and should be validated in the primary care setting. — *Kathryn A. Myers*

The Clinical Update section is edited by Dr. Donald Farquhar, head of the Division of Internal Medicine, Queen's University, Kingston, Ont. The updates are written by members of the division.

References

1. Miller RS, Iverson DC, Fried RA, Green LA, Nutting PA. Carpal tunnel syndrome in primary care: a report from Ambulatory Sentinel Practice Network. *J Fam Pract* 1994;38:337-44.
2. D'Arcy CA, McGee S. Does this patient have carpal tunnel syndrome? *JAMA* 2000;283:3110-7.
3. Pryse-Phillips W. Validation of a diagnostic sign in carpal tunnel syndrome. *J Neurol Neurosurg Psychiatry* 1984;47:870-2.
4. Rational Clinical Examination Series. *JAMA*. Available: www.sgim.org/interestgroups/clinexam.html#RCE (accessed 2000 July 31).