AT 511

Citation: Hansen PA, Micklesen P, Robinson LR. Clinical Utility of the Flick Maneuver in Diagnosing Carpal Tunnel Syndrome. *Am. J. Phys. Med. Rehabil.* 2004;83:363-67.

The purpose of this study was to discover whether the flick maneuver was effective in diagnosing carpal tunnel syndrome. The problem is that the evaluative tests for carpal tunnel syndrome are not very reliable, therefore, determining the clinical efficacy of the flick maneuver may be beneficial in enhancing the battery of tests available for diagnosis.

There were 142 subjects included in this study; they were recruited after having been referred to an electrodiagnostic clinic for evaluation between March 2000 and 2002. Three tests were used in an attempt to diagnose carpal tunnel syndrome. These tests were: the flick maneuver, Tinel's, and Phalen's. Results of the clinical tests were recorded and then electrodiagnostic testing was performed to either confirm or dismiss the findings of the clinical exam. Both sensory and motor tests were done and these measurements were used to confirm cases of carpal tunnel syndrome.

According to the electrodiagnostic testing, 67% of the subjects had carpal tunnel syndrome. The sensitivity of the flick maneuver was 37% compared with 34% for Phalen's and 27% for Tinel's. This is not a highly significant number. Even when the tests were combined sensitivity did not increase enough in order to increase confidence in the battery of tests. The positive predictive value recorded for the flick maneuver was 74%, meaning that if the test is positive, 74% of the time the clinician may believe that the patient has the condition. The overall finding was that the sensitivity and specificity of the flick maneuver was not high enough to be considered a good test for diagnosing carpal tunnel syndrome. The authors conclude that the best way to diagnose carpal tunnel syndrome is to have the patient have electrodiagnostic testing performed.

The AAOS Level of evidence is: Level 1 due to the fact that this diagnostic test has been tested previously and is referenced with a gold standard.

The relevance of this information to athletic trainers may not be significant. This condition tends to occur in a different population that we work with. Many times one won't see an athlete with carpal tunnel syndrome. If our scope of practice changes in terms of the types of people that we work with, this information might be more relevant. Either way, as athletic trainers we should know that the tests that are available for assessing carpal tunnel syndrome are not highly reliable and the patient will most likely have to be referred for further evaluation and electrodiagnostic testing.

With the results acquired from this study, we can educate the patient about what the condition of carpal tunnel implies for them. The only really reliable way to diagnose this condition is by an electrodiagnostic study. When those results are obtained a proper treatment course will be given by the treating physician. This treatment may include a brace and therapeutic exercise or even surgery to release the pressure placed on the median nerve depending on the severity of the symptoms.

User's Guide to Medical Literature: Diagnosis Worksheet

Are the results in the study valid?

1. **Was there an independent, blind comparison with a reference standard?** "Clinical testing was essentially blinded by the fact that results were recorded before electrodiagnostic testing was performed." (p. 364). A reference standard of electrodiagnostic testing was used.
2. **Did the patient sample include an appropriate spectrum of patients to whom the diagnostic test will be applied in clinical practice?** Yes the patients were already being referred for diagnostic testing if carpal tunnel syndrome was included in the differential diagnosis of the referring physician.
3. **Did the results of the test being evaluated influence the decision to perform the reference standard?** No, the electrodiagnostic testing would have occurred regardless of the result of the reference standard.
4. **Were the methods for performing the test described in sufficient detail to permit replication?** Yes, the flick test was described in detail in the introduction of the article.

What are the results?

1. **Are likelihood ratios for the test results presented or data necessary for their calculation included?**Likelihood ratios are not presented. Sensitivity and specificity are given so the likelihood ratios could be calculated.

Will the results help me in caring for my patients?

1. **Will the reproducibility of the test result and its interpretation be satisfactory in my setting?** No, this wouldn't really help athletic trainers because we don't normally assess many patients with carpal tunnel syndrome. The likelihood that we would get accurate results if we were to evaluate an athlete with CTS using the flick maneuver is not very good.
2. **Are the results applicable to my patient?** If the patient has CTS then yes, the test may slightly support your diagnosis but the best way to see if the patient has CTS is to undergo electrodiagnostic testing because the clinical tests aren't reliable.
3. **Will the results change my management?** No, most likely not.
4. **Will patients be better off as a result of the test?** No, due to the fact that electrodiagnostic testing will most likely be used anyway.