Controversies surrounding the diagnosis and treatment of carpal tunnel syndrome

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Are nerve conduction tests necessary?
Referral patterns for nerve conduction studies (NCSs) to confirm the diagnosis of carpal tunnel syndrome (CTS) vary between different practitioners [1,2]. The combination of symptoms and confirmatory NCSs is used to diagnose this disorder in trials but, in everyday practice, doctors commonly make the diagnosis on clinical grounds alone. The tests may not be easily accessible, are costly and may not detect all cases. The original diagnostic studies, conducted in referral centers, had a higher proportion of severe cases; thus, in a primary care setting among patients with milder forms of the disorder, the predictive value of NCS may be lower. Neurophysiological tests may be normal in cases where:

- Symptoms are due to the disorder of small unmyelinated fibers that are not tested on routine nerve conduction
- Nerve compression causes intermittent nerve ischemia without permanent demyelination

In addition, the ‘normal’ range listed in laboratories is generally set as mean ± 2 standard deviations, but distal motor latencies, sensory nerve and motor amplitudes do not follow a Gaussian distribution [3,4]. Applying these cut-off points to skewed data may result in misclassification.

Experienced surgeons operating on patients without confirmed NCS report high success rates and, indeed, surgeons claim good results following surgical release in patients with normal, ‘false-negative’ NCS.

What is the best form of initial treatment?
With the exception of oral steroids, oral treatments for idiopathic CTS have not been subjected to high quality randomized clinical trial evaluation and, understandably, there is a reluctance to prescribe these for what is considered a ‘benign’ condition. Yoga, therapeutic ultrasound and hand exercises are evidenced based and have their advocates but are not widely used. Therefore, the mainstay of treatment is surgery or local steroid injection. Learmonth performed the first transverse carpal ligament release to treat median nerve compression at the wrist in 1933 [12] and Phalen demonstrated the effectiveness of local steroid injections half a century ago [13]. Which of these should be the initial treatments for idiopathic CTS remains uncertain. Generally, conservative therapies, such as rest, splinting and local steroid injections, are offered unless there is atrophy of the...
thenar muscles or electrophysiologically severe CTS. This procedure has become one of the most frequently performed operations in the developed world. In the USA, more than 350,000 carpal tunnel release procedures are performed annually [101]. No official record exists for the number of injections or the number of splints prescribed for CTS but one would imagine that they far outnumber that of surgical release. We are unsure whether higher doses produce better results or if additional injections are beneficial in the long term. Physicians commonly offer repeat injections to patients whose symptoms recur, although this is not based on convincing trial data. As the disorder is more severe in the elderly and the success rate of surgery is reduced in severe cases [14], conservative treatment may just delay definitive treatment with surgery. Some have argued that surgical release should be the first treatment of choice [15]. Recent data suggest that surgery is superior to splinting in relieving symptoms and is more cost-effective [16,17]. Numerous centers have reported that the vast majority of patients given local steroid injections (with or without splinting) relapse after 1 year and most eventually require surgery [18,19]. However, it is clear that not every single patient requires surgery and many do well with conservative treatment. There is also debate on the natural history of the disease, with one long-term observational study showing that remissions occur in approximately a third of all CTS sufferers [20]. Should injections or surgery be recommended for patients? Two recent trials comparing these two modalities in newly diagnosed patients with CTS have produced conflicting results. In the first study, local steroid injections were more efficacious in relieving symptoms compared with surgical release at 3 months; although both groups showed improvement at 6 and 12 months, there were no statistical differences between groups [21]. In the second study, surgical decompression was superior to local steroid injection at the end of 20 weeks [22].

As the disorder is more severe in the elderly and the success rate of surgery is reduced in severe cases, conservative treatment may just delay definitive treatment with surgery.

Given the prevalence and functional impact of this common disorder, it is surprising that there is still debate on the relative merits of the two main forms of therapy. Further, well-conducted trials into the predictors of outcome would help to provide a tailored approach to patients with CTS.

Bibliography


**Website**