

Treating Carpal Tunnel Syndrome in the Elderly: Too little Too Late?

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Abstract

Carpal tunnel syndrome is the most common peripheral neuropathy presenting to specialist hand and wrist clinics. Surgical decompression of the carpal tunnel considered if non-surgical options have failed. Surgical outcomes may be impaired if damage to the peripheral nerve damage is extensive. Despite conflicting evidence, there is mounting evidence that surgical outcomes for carpal tunnel syndrome are worse in more elderly populations. Indeed, it was found that 50% of patients with bilateral carpal tunnel syndrome aged over 60 have completely absent sensory nerve conduction. More extensive nerve damage in older patient groups may be due to delayed presentation following reduced pain sensitivity with age, reductions in nerve conduction velocities with the normal aging process and reduced axonal regeneration capacity with aging. Whilst more research is required, these findings should influence consenting information given to patients considered for surgery.

Introduction

Carpal tunnel syndrome is the most common peripheral neuropathy presenting to specialist hand and wrist clinics [1]. Guidelines suggest initially trialling wrist splints, but surgical decompression is often considered for patients with insufficient symptom relief [1]. There are divided opinions regarding the impact of age on the efficacy of surgical decompression [2,3], but increasing evidence is mounting that older patients may have a less satisfactory outcome, though may still benefit from a release [4,5]. At the time of initial publishing, the article by Povlsen 'High incidence of absent nerve conduction in older patients with bilateral carpal tunnel syndrome' [6] was, to our knowledge, the first to suggest an explanation based on human patient data.

In this paper, 30 patients with bilateral carpal tunnel syndrome who had not benefited from conservative treatment with night wrist splints (10 aged <40, 20 aged >60) underwent nerve conduction studies. In the group aged >60, 50% of patients had at least one hand with completely absent sensory conduction velocity measurement, where in four cases this was found bilaterally. Furthermore, in this age group 3/20 patients had unilateral absent motor conduction. This was contrasted with the group aged <40 in which there were no cases of absent sensory or motor conduction.

The significance of these findings suggests that by the time that surgical decompression is considered, older patients with carpal tunnel syndrome have more severely damaged median nerves than their younger counterparts, with a higher likelihood that irreversible nerve damage has already been sustained, thus reducing the potential benefit of surgery. Since initial publication, further evidence has emerged that supports both the age-dependency of pre-operative conduction velocities in carpal tunnel syndrome, but also the rate of recovery of motor conduction post-operatively [6]. Explanations for these findings include 1) reduced pain sensitivity with age, thus delaying presentation in elderly patients with carpal tunnel syndrome to a point by which more severe and potentially irreversible nerve damage has already occurred [7] 2) the fact that aging even in healthy individuals reduces peripheral nerve conduction velocities [8] and 3) that aging reduces axonal regeneration capacity and Schwann cell neurotrophic factor production in animal models [9].

It must be noted that there is certainly still evidence of benefit for surgical decompression in elderly patients with carpal tunnel syndrome [2-5]. However, the findings that the extent of nerve damage in these patients may be more extensive, as shown by the nerve conduction study findings, suggest that additional caution may be needed in the risk-benefit analysis when considering surgery in these individuals [10]. Furthermore, patients should be given full information on all treatment options available as well

as information relating to all potential risks that the patient would consider significant, whatever the likelihood to comply with the decision of the UK Supreme Court in *Montgomery v Lanarkshire HB* [11]. This would include the fact that surgical intervention in elderly patients may not be as successful as in younger patients. Going forward, further research is necessary into post-operative outcomes and conduction velocities in patients with absent pre-operative nerve conduction to determine the degree of irreversible neural damage these findings represent and how this might impact clinical practice.

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