The Effect of NeuroGen® Nerve Support Supplement on Pillar Pain after Endoscopic Carpal Tunnel Release

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ABSTRACT

61 patients with clinically diagnosed and electromyographically confirmed carpal tunnel syndrome were enrolled in a prospective study to evaluate the effectiveness of a nerve supplement on pillar pain after carpal tunnel surgery. All of the patients underwent endoscopic carpal tunnel release. 15 of the patients also took the nerve support supplement NeuroGen® as part of their perioperative treatment. The supplement group demonstrated a significantly lower amount of pillar pain (VAS) at initial follow up compared to the control group (1.13 and 4.05 respectively). 46% (7/15) of the supplement group were completely free of pillar pain compared to only 9% (4/46) of the control group at the first follow up. 53% (8/15) of the NeuroGen® group did not require any pain medications compared to 35% (16/46) of the control group. The Nerve supplement NeuroGen® significantly reduces pain after carpal tunnel surgery.

KEYWORDS

Carpal Tunnel; Endoscopic; ECTR; Nerve Supplement; Nerve; Supplement

1. Introduction

Pillar pain is one of the most common complications after carpal tunnel surgery and has an occurrence from 7% - 61% [1-8]. This pain is located in the palm and can limit strength and delay return to daily activities and work. Endoscopic carpal tunnel release (ECTR) has demonstrated less pain than the traditional open procedures, however some authors have reported rates of pillar pain up to 50% with the endoscopic technique [3,6]. The true incidence of pillar pain is difficult to report due to the lack of a standardized assessment or grading system. Several authors have used numerical (0 - 4) or nominal (nil, mild, moderate, etc.) scales to grade the severity.

The etiology of pillar pain remains elusive, however, four main theories are well described by Ludlow et al. [9] These include ligamentous or muscular, altered structure of the carpal arch, neurogenic causes and edematous causes. The ligamentous and muscular theory includes detachment of the hypothenar and thenar muscles from the fascia, pulling on forming scar tissue from these muscles and the raw edge of the slightly migrated ligament as possible causes. This theory proposes that the reason why endoscopic release causes less pillar pain is the intact palmar aponeurosis, which is cut during open procedures. Release of the transverse carpal ligament alters the structures in the carpal arch. The increased volume may cause pillar pain and open techniques often cause slightly more widening which may account for the increased pain compared to the endoscopic release. The altered forces over the pisotriquetral joint may cause hypothenar pain and authors have suggested excision of the pisiform as treatment for persistent pain. The neurogenic theory suggests that pain develops when many small transverse subcutaneous nerve branches are cut during the procedure and the pain is more likely with the traditional single incision open procedure. The edematous theory suggests that it is the swelling at the base of the palm responsible for the pain, which resolves when the swelling is reduced.

NeuroGen® is a nerve support supplement which con-
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NeuroGen® contains ingredients that have demonstrated a significant improvement in nerve regeneration, decreased nerve pain and less inflammation after surgical procedures. The goal of this study was to evaluate the effectiveness of the nerve supplement NeuroGen® to improve recovery and decrease pillar pain after carpal tunnel surgery.

2. Methods

Patients who had nerve conduction studies, history and an exam consistent with carpal tunnel syndrome and wished to proceed with surgical intervention were enrolled in the study. A single surgeon who performed the same technique for carpal tunnel release (ECTR) treated all patients. The ECTR was a 2 portal release without a post-operative splint and allowed patients full activity at 7 days. 15 patients who underwent an endoscopic carpal tunnel procedure took the nerve support supplement NeuroGen®. The supplement was started 5 days before surgery and continued for 3 weeks after surgery. The amount of pillar pain was assessed with a visual analogue scale pain measurement at the follow up visit. The pillar pain of those in the NeuroGen® group was compared to a control group of patients who underwent endoscopic carpal tunnel surgery the previous month without taking the supplement.

3. Results

All 61 patients underwent the same endoscopic carpal tunnel release surgery. None of the patients required conversion to an open procedure or had any intraoperative complications. 15 patients also took the NeuroGen® nerve support supplement beginning 5 days before surgery and continued for 3 weeks after surgery. The follow up evaluation was an average of 14 days after surgery for the NeuroGen® group and 12 days for the control group. 46% of the NeuroGen® group were completely free of pillar pain compared to only 9% of the control group (Figure 1). The NeuroGen® group had a statistically significant lower pain score (VAS) than the control group 1.13 vs. 4.05 respectively (p < 0.005). 53% (8/15) of the NeuroGen® group did not require any pain medications compared to 35% (16/46) of the control group.

4. Discussion

Pillar pain remains on of the most common complications of carpal tunnel surgery. The discomfort in the palm is often the limiting factor in the patient’s ability to resume normal activity and work. The endoscopic technique has demonstrated less pain than the traditional open method [2,6,10-17]. Despite these improved results with the endoscopic technique, patients still have some degree of palm pain after surgery limiting return to activity. The patients in this study all had the same procedure performed (ECTR) by a single surgeon, which decreased the likelihood of any variation in technique.

NeuroGen® is a unique patent pending nerve supplement formula designed to enhance nerve recovery and minimize post-operative inflammation and pain. The ingredients have demonstrated significant improvement in nerve regeneration, decreased nerve pain, improved neural mitochondrial function, neuroprotection and decreased inflammatory response. Methylcobalamin, Acetyl-L-Carnitine, N-Acetyl Cysteine, Vitamin D, and Curcumin improve nerve regeneration in a number of conditions including nerve injuries (crush), nerve repair after transection and neuropathic conditions such as diabetes [18-55]. Curcumin, Bromelain, and Serratopeptidase decrease the inflammatory response and have demonstrated improved recovery after surgery with less pain and earlier return to activity [56-68].

5. Conclusions

This is the first study to evaluate the effectiveness of a nerve supplement with specific actions on nerve recovery and inflammation to reduce the pillar pain experienced after carpal tunnel surgery. The endoscopic carpal tunnel release typically has a lower post-operative pain level than the traditional open technique, however, the supplement group reduced this pain level even further to a minimal amount. We did not evaluate the effectiveness of the supplement on patients who had an open procedure but suspect that the difference would be even greater given the higher post-operative pain reported in the literature with the open technique compared to the endoscopic release.

NeuroGen® minimizes some of the factors thought to cause pillar pain. The neurogenic theory suggests that the division of small subcutaneous nerve branches causes pillar pain. The improved nerve recovery and reduced nerve pain demonstrated by NeuroGen® will eliminate or significantly reduce this particular factor. The anti-inflammatory effect of the supplement reduces the edematous theory as potential cause for pillar pain and is
well documented to enhance the recovery from trauma and various surgeries. The ligamentous or muscular theory suggests some aspect of muscular pull on forming scar as a possible role in pillar pain. Several of the ingredients minimize the scar tissue formation and have been used in plastic surgery cases for this specific effect.

The NeuroGen® nerve supplement significantly improves the recovery following carpal tunnel surgery by decreasing the amount of pillar pain. This decrease in pain results in less post-operative medication required and an earlier return to activity. Further studies will evaluate the effectiveness of the supplement on nerve regeneration after surgical decompression.

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