Carpal tunnel pressure is correlated with electrophysiological parameters but not the three-month surgical outcome

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Introduction

Although tunnel pressure (TP) has been linked to carpal tunnel syndrome (CTS), the clinical significance of tunnel pressure is still under investigation.

Methods

The present study included 58 hands that were diagnosed as idiopathic CTS by nerve conduction velocity (NCV) and received divisions of the flexor retinaculum through a mini-open procedure. The preoperative and postoperative TP was measured segmentally, and surgical outcome was assessed by the Boston symptom severity score for CTS before the operation and three months after the operation.

Results

We detected significantly increased TP in CTS patients at 1.5 to 2.5 cm distal to the distal wrist crest (DWC), and the highest value was observed at 2 cm. Interestingly, there were still seven hands with a TP of more than 30 mmHg at 3 cm distal to the DWC. The highest mean TP decreased from 52.7 to 7.8 mmHg after the operation. None of the patients had a pressure of more than 15 mmHg proximal to the DWC. The mean Boston symptom severity score decreased from 3.1 to 1.8 at the three-month follow-up. Though the highest preoperative TP was correlated with the NCV parameters, it could not predict the three-month outcome.

Conclusions

The correlations between the electrophysiological parameters and the highest TP in our series were stronger than previous reports; however, NCV is still a better tool to predict the three-month surgical outcome than TP.

Learning Objectives

By the conclusion of this session, participants should be able to: 1) Describe the clinical significance of carpal tunnel pressure. 2) Discuss, in small groups,about the relationship between tunnel pressure disease severity, and prognosis 3) Identify an effective surgical method to guide CTS surgery

References

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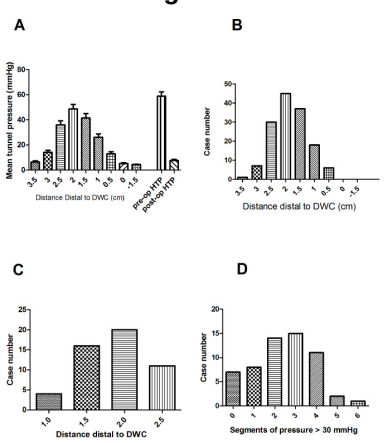
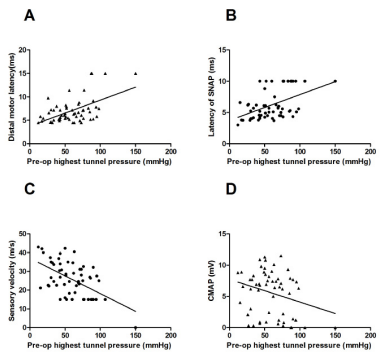
Figure 1



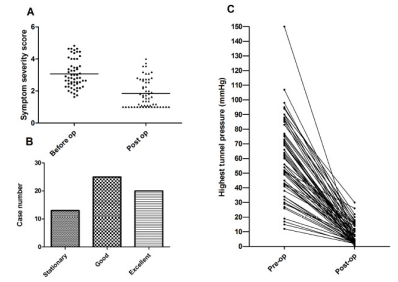
The profile of the recorded segmental tunnel pressures.

Figure 2



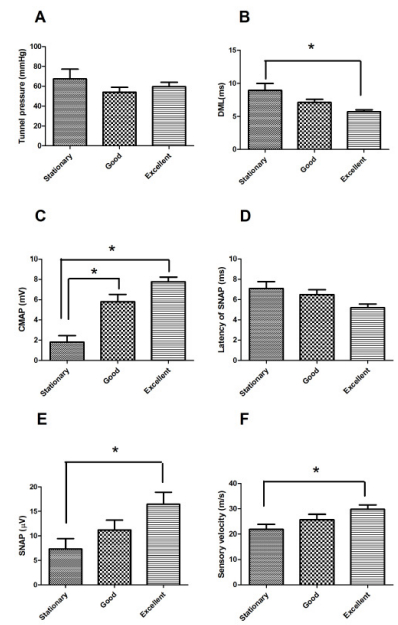
The correlations between the highest TP and the electrophysiological parameters.

Figure 3



The surgical outcome was assessed by a set of questionnaires designed for CTS and the pressure difference before and after the operation.

Figure 4



The influence of the TP and the electrophysiological parameters on the three-month outcome.