Peripheral nerve surgery

Degeneration – Peripheral nerve injury – regeneration

Nerve Repair (direct, graft, etc.)

Nerve Transfer

Nerve Decompression

Brachial Plexus

Supraclavicular and infraclavicular access – plexus dissection – Nerve transfer for upper plexus lesions.

Radial nerve.

Median nerve: Carpal tunnel decompression

Ulnar nerve: Ulnar nerve decompression

Anterior interosseus nerve: Anterior interosseus nerve decompression

---

Sciatic nerve – tibial nerve- superficial and deep peroneal nerve, sural nerve – microneurololysis – end to end suture after transection lesion – sural nerve graft.

Peroneal nerve- Peroneal nerve exploration, nerve anastomosis.

Tibial nerve

Meralgia Paresthetica – Mortons metatarsalgia – Tarsal tunnel syndrome.

Thoracic outlet syndrome.

Upper plexus – scalenotomy – cervical rib.

Nerve Transfers

Brachial Plexus Injury

Nerve grafts.

Fascicular dissection– interfascicular nerve graft, nerve grafting for complete plexus lesions.

Shoulder

Arm and Elbow

Forearm and Wrist

Hand

Lower Leg and Ankle

Adjunct Procedures

Nerve Graft Harvests

Tendon Transfers

Free Muscle Transfers

Books

Manual of Peripheral Nerve Surgery: From the Basics to Complex Procedures [1].

Competency

Identifying peripheral nerve surgery (PNS) competencies is crucial to ensure adequate resident training exposure. No systematic evaluation currently exits for technical aspects of neurosurgical training in the US, and only recently has a Competence by Design (CBD) curriculum been implemented in Canada. We examine PNS training at neurosurgical centers in the US and Canada to compare resident-reported competency with PNS exposure. Reported competency results are also compared to resident technical abilities in performing 3 peripheral nerve coaptations (PNC).

Self-reported competency and exposure were evaluated by questionnaire completion at a large, academic, US neurosurgical center, as well as across Canada. Exposure and competency were correlated with procedure-based skills from three PNC using small (2-3mm), cadaveric specimens: direct-nerve (DS), connector-assisted (CA), and connector-only (CO) repair. Variables collected included: time-to-completion, sutures required, and nerve-handling from video-analysis, blinded visual-analog-grading by 3 judges, and training level. ANOVA/2-way ANOVA (parametric) and Kruskal-Wallis/Mann-Whitney (non-parametric) analyses with post-hoc testing were completed. Statistical significance was set at $P<0.05$.

Results:

Training level and PNS exposure were significantly correlated ($P<0.01$); senior residents report more exposure to cubital-tunnel release ($P<0.01$), brachial-plexus surgery ($P=0.01$), direct-nerve-repair ($P=0.03$), and nerve-transfer ($P=0.02$).

No difference was observed between training level and PNC grading ($p=0.41$), although a between-group difference was seen for the type of PNC: DS and CA (median quality for both: fair) repairs scored better than CO (median: poor) ($p=0.02$ and $p<0.01$, respectively).

A discrepancy was observed between trainee self-reported PNS competency and PNS exposure that increased upon training level stratification.

Conclusion:

Despite more exposure and a higher perceived PNS-related competency in senior residents, no difference was seen between senior/junior residents in PNC quality. A discrepancy in PNS-case exposure and perceived competency exists. This information will provide insight into the direction of PNS training, and its role in the implementation of a CBD curriculum [2)]

1)
Dibble CF, Ray WZ. Book Review: Manual of Peripheral Nerve Surgery: From the Basics to Complex Procedures. Neurosurgery. 2018 Mar 29. doi: 10.1093/neuros/nyy103. [Epub ahead of print] PubMed PMID: 29618133.
2)
https://www.aans.org/meetings//Online-Program/Eposter?eventid=49140&itemid=EPOSTER&propid=53290