Peripheral nerve surgical 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 Competency 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).

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Budden et al. from the University of Alberta Hospital assessed the case volume and self-perceived competence of current mandatory skills in peripheral nerve surgery.

Design: Cross-sectional survey based study examining case volume and self-reported competence in peripheral nerve surgery.

Setting: Canadian Neurosurgery and Plastic Surgery accredited residency programs PARTICIPANTS: All Canadian Neurosurgery and Plastic Surgery senior trainees (PGY 3+) invited to participate RESULTS: Much variability exists in both exposure to cases and perceived senior resident competence for both plastic and neurosurgery residents. Confidence in surgical ability as perceived competency is lower in trainees for more advanced peripheral nerve procedures. Self- reported confidence increased with post-graduate experience.

Conclusions: Overall, the findings in this study highlight the importance of increasing operative experience in complex peripheral nerve surgery among surgical residents [1)].

We examine peripheral nerve surgery 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)].

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Budden C, Platt A, Jack A, Moulton R, Olson J, Mehta V. Peripheral nerve surgical competency in plastic surgery and neurosurgery residents. Clin Neurol Neurosurg. 2022 Mar 22;216:107217. doi: 10.1016/j.clineuro.2022.107217. Epub ahead of print. PMID: 35339861.
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