Is surgical resident education safe? Cohort study on complication rates and postoperative outcome after anterior cervical discectomy

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Objective:
Previously, we were able to demonstrate that the early introduction of residents to microscopic lumbar disc surgery within a structured training program did neither harm the patient nor lead to worse 1-year health-related quality of life and pain outcomes, compared to those of experienced board-certified faculty neurosurgeons (BCFN) (1). It was our aim to analyze whether surgical education of residents was also safe for anterior cervical discectomy with or without fusion (ACD(F)).

Methods:
Retrospective single-centre cohort study on patients with full available data undergoing ACD(F)-surgery at the neurosurgical department of the Kantonsspital St. Gallen between 01/2011 – 08/2013. Study groups were built according to the status of the primary surgeon of the index surgery being either resident or BCFN. 203 patients were included, of which 55 (27.1%) were resident- and 148 (72.9%) were BCFN cases.

Key findings:
- Intraoperative complications (1.81% (residents) vs. 1.35% (BCFN); p=1.00) were equally low.
- Resident surgeries were significantly longer (mean 130 vs. 93 min; p<0.0001) and associated with higher estimated blood loss (80.1 vs. 57.6 ml; p=0.0019).
- Radiological outcome was appropriate in 100% of patients from both groups (as determined by an independent radiologist on postoperative posteroanterior and lateral x-ray). There was no misplacement of prosthesis and screws.
- Inpatient complication rates were similar and the length of hospitalization was equal (4.8 vs. 4.9 days; p=0.932).
- After 4 weeks, 90.9% and 93.2% of patients had benefitted from the operation (subjective improvement as compared to preoperative vs. unchanged/worse; p=0.764), while more patients in the resident group reported persistent dysphagia at this time (25.5% vs. 10.8%; p=0.013).
- After a mean of 3 months, 85.5% and 89.2% of patients had benefitted from the operation (subjective improvement as compared to preoperative vs. unchanged/worse; p=0.626)
- 7.3% and 4.1% of patients had to undergo reoperation until the final follow-up for various reasons (mostly adjacent segment disease; p=0.464)

Conclusions:
Our results indicate that while resident surgeries under supervision by BCNF take longer and are associated with slightly higher blood loss, complication rates and postoperative outcomes after ACD(F) are equal as compared to BCNF surgeries.

References:

- keywords
  Surgical education; resident training; resident education; outcome; complication; cervical spine; surgery; cervical discectomy

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