Does Training Impact on Patient Outcome and Complications in Anterior Cervical Discetomy and Fusion (ACDF)?

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AIM

1. To determine whether ACDF surgery performed by neurosurgical trainees adversely affects outcome compared to specialists.

Methods

- Prospective study design

- Cohort of all patients undergoing ACDF from July 2011 to December 2015

- Expert = board certified neurosurgeon or specialist spine surgeon

- Trainee = Neurosurgeon in training

- **Primary end-point** ⟶ Core Outcome Measures Index (COMI): a validated questionnaire to measure patient outcome pre-operatively and 3 and 12 months post-operatively

- **Secondary end-point** ⟶ Patient and surgeon-reported complications

Outcome Measures

- Change in COMI (patient-rated outcome)

  > Arm Pain
  > Neck Pain
  > Quality of Life
  > Symptom Specific Wellbeing
  > Social Disability
  > Work Disability

- Complications

Patient > Recorded via COMI questionnaire at 3 and 12 months follow-up
Surgeon > Recorded via Spine Tango questionnaire

Results

- 569 patients
- 432 patients met inclusion criteria of having undergone ACDF and completed at least one post-op COMI questionnaire
- 305 patients in consultant group
- 127 patients in trainee group
- Mean age = 51 years (22 – 86 years)
- 53% females, 47% males

Effect of Training Grade on Patient-Rated Outcome

Group	Variable	n	Mean	SD
Consultant	Change in COMI	305	2.9	3.2
	Change in Arm Pain	305	2.8	3.6
	Change in Neck Pain	305	2.3	2.8
Trainee	Change in COMI	127	2.9	3.3
	Change in Arm Pain	127	3.1	3.7
	Change in Neck Pain	127	2.0	3.0

NOTE: No difference between the two groups in change in COMI ($p = 0.9$), arm pain ($p = 0.39$) or neck pain ($p = 0.59$) following ACDF

Effect of Training Grade on Patient-Reported Complications

Group	Patient-Reported Complications	Percentage
Consultant	101/305	33.1%
Trainee	44/127	34.6%

NOTE: No difference in patient-reported complications between the two groups (p = 0.76) following ACDF

Effect of Training Grade on Surgery Related Complications

Group	Surgery Related Complications	Percentage
Consultant	23/305	7.54%
Trainee	4/127	3.15%

NOTE: There was no significant difference in surgical complications between the two groups ($p = 0.09$)

New Findings and Implications

- There is no significant difference in patient rated outcome, patient-reported complications or surgery-related complications between trainers or trainees in ACDF surgery

- Trainees can safely perform ACDF during training under expert supervision

- There may be differences between experts and trainees in other parameters. For example: duration of operation, rate of re-operation, length of stay or blood loss.

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