

Persson LCG, Carlsson C-A, Carlsson JY. Long-Lasting Cervical Radicular Pain Managed With Surgery, Physiotherapy, or a Cervical Collar. Spine 1997;22:751-8.

Design: Randomized Controlled Trial

Population/sample size/setting:

- 110 patients (mean age 48) with cervicobrachial pain more than 3 months referred to outpatient neurosurgical clinic in Sweden
- Exclusion criteria were whiplash, other traumatic injuries, serious somatic or psychiatric disease, and inability to communicate in Swedish
- 3 groups were differentiated on the basis of clinical and imaging: #1 with clinical & x-ray findings of spinal cord compression with or without nerve root compression (n=10), #2 with clinical & x-ray findings of nerve root compression without spinal cord compression (n=81), #3 with clinical but no x-ray findings of nerve root compression (n=19)
- Group #2 was randomized to single level anterior decompression & fusion (ACDF, n=27), physiotherapy with individualized modalities & exercises (n=27), or rigid daytime cervical collar (n=27); groups #1 and #3 not further studied
 - o Pt was done in 15 sessions over 3 months and was decided by the physical therapist according to preferences and symptoms
 - o Cervical collar group tried out the most comfortable, shoulder-resting rigid collar for use during daytime for 3 months; a soft collar was optional for nighttime use

Main outcome measures:

- Self-assessment scales for pain on visual analog scale (VAS), sickness impact profile (SIP), and mood adjective check list (MACL) at baseline, 14-16 weeks after start of treatment, and 12 months after start of treatment
- VAS, SIP, MACL, and demographics similar in 3 groups at baseline
- All 3 groups improved from baseline to followup, but the surgical group had greater pain relief at 14 weeks than the PT and collar groups
 - o At 14 weeks, the ACDF group had decreased the mean VAS by 27 points, while the PT group had improved by 9 points and the collar group by only 1 point
- At 12 months, the group differences in mean VAS improvement from baseline was no longer statistically significant (17 points for ACDF, 12 points for PT, and 14 points for the collar)
- SIP slightly better in surgery & PT than in collar group at 14 weeks, but all groups equal at 12 months; MACL equal at all measurements in the 3 groups
- Patients' overall assessment of better/unchanged/worse similar in all 3 groups at end of 12 months
- Some crossovers and additional treatments occurred during the study
 - o 8 of the ACDF group had second operations; 6 were for adjacent level symptoms, 1 was for infection of the bone graft, and 1 was for brachial plexus exploration

- 11 patients in the surgery group and 12 in the collar group had PT for treatment of pain
- 1 patient in the PT group and 5 in the collar group had surgery because of unsatisfactory results of conservative treatment
- The patients who crossed over or received additional surgery did not differ at the end of the study with one another or with the groups to which they were randomized initially

Authors' conclusions:

- Surgery, PT, and collar yield similar 1 year outcomes in cervicobrachial pain with evidence of DJD on x-ray
- Symptoms may decrease with time in untreated subjects, making improvements difficult to interpret
- The ACDF group had an unusually high rate of reoperation compared to those in previously published studies of ACDF

Comments:

- The analysis by intention to treat is appropriate, but is expected to yield estimates of treatment differences which could underestimate the effectiveness of ACDF compared to the hard collar, due to the fact that 5 of the 27 patients randomized to the collar crossed over to surgery
- Power to detect effect size not reported, but 27 subjects per group would be enough to detect only very large population differences
- The high rate of reoperation in the ACDF group is remarked upon but not explained; it is not clear whether the operation precipitated adjacent level pain or only unmasked it after there was symptom relief at the operated level
- The small sample size and the presence of crossovers jointly weaken any conclusion that a cervical collar for radicular pain is as effective as ACDF

Assessment: Inadequate for evidence comparing the effectiveness of ACDF, PT, and a hard cervical collar on cervical radicular pain lasting longer than 3 months