Kuijper B, Tans J, et al. Cervical collar or physiotherapy versus wait and see policy for recent onset cervical radiculopathy: randomised trial. BMJ 2009;339:b3883

Design: Randomized clinical trial

Population/sample size/setting:

- 205 patients (104 men, 101 women, mean age 47) treated for cervical radiculopathy at 3 hospitals in the Netherlands
- Eligibility criteria were age 18-75, and a clinical diagnosis of cervical radiculopathy lasting less than one month
    - Diagnosis based on arm pain at least 40 on a 100 mm scale, radiation distal to the elbow, and at least one of these: provocation by neck movements, sensory changes in one or more adjacent dermatomes, diminished deep tendon reflexes, or muscle weakness in one or more adjacent myotomes
- Exclusion criteria were clinical signs of spinal cord compression, previous treatment with physiotherapy or with a cervical collar, and insufficient understanding of Dutch or English

Main outcome measures:

- Randomized to one of three groups: cervical collar (n=69), physical therapy (n=70), or wait-and-see (n=66)
- Cervical collar was semi-hard design; patients were instructed to try it for six weeks
    - For the first three weeks, they were to wear it during the day and to take as much rest as possible
    - Over the following three weeks, they were to wean from the collar and were to discontinue it at the end of the 6 week trial period
- PT was focused on mobilization and stabilization of the cervical spine
    - Standardized session were given twice a week for 6 weeks and consisted of graded activity exercises to strengthen the superficial and deep neck muscles; home exercises were also taught
- Wait-and-see group was advised to continue daily activities as far as possible, and to keep diaries recording what parts of the day they were able to continue with these activities
- Primary outcome measure were neck pain and arm pain on a 100 mm scale, and the neck disability index (NDI) normalized to a 100 mm scale
- Groups were similar at baseline, except that the group with the cervical collar had right arm pain more often than the other groups
- All three groups improved on the main outcomes over the six week trial period, but the improvements were not equal for all groups
    - Wait-and-see group improved arm pain score by 19 mm in six weeks, but the collar and PT groups improved by 31 points in the same time period, an extra pain reduction of 12 mm
    - Similarly, wait-and-see group improved neck pain scores by an estimated 0.9 mm/week, while the collar group improved by an

additional 2.8 mm/week and the PT group improved by an additional 2.4 mm/week in comparison with the wait-and-see group
    - Wait-and-see group improved its NDI by an estimated 1.4 mm/week; the collar group's improvement was 0.9 mm/week greater than the wait-and see group
- After six months, most patients had limited or no pain, and there were no longer any differences between the three groups of patients

Authors' conclusions:

- The semi-hard collar group had a statistically significant and clinically meaningful reduction in arm and neck, pain compared to the wait-and-see group
- Neck disability similarly improved more in the collar than in the wait-and-see group
- The collar and the PT groups both had greater improvement than the wait-and-see group; both were efficacious in the six week period of treatment
- Further interventions after six weeks with either collar or PT are not likely to benefit patients
- The average duration of symptoms at the start of the study was three weeks; the results apply to recent onset cervical radiculopathy
- A semi-hard collar may have advantages over a hard collar, which can be uncomfortable to wear, and over a soft collar, which provides insufficient support
- Prolonged immobilization is probably not advisable with any collar
- The cost of a collar is less than that of 6 weeks of PT; since the collar was slightly better than PT, the collar can be recommended for recent onset cervical radiculopathy

Comments:

- The authors acknowledge that the study could not be blinded, but also that the PT group, which received more attention from health professionals than any other group, did not do better than the group with the collar
- The authors controlled other sources of bias as well as practicable even though blinding was not feasible
- The mechanism of action proposed by the authors, that the collar may reduce foraminal compression, is a plausible reason to see the results as credible
- The schedule of wearing the collar for three weeks during waking hours, followed by three weeks of weaning, probably protects the patient from the potential disadvantages of prolonged immobilization

Assessment: Adequate for evidence that a semi-hard cervical collar, worn during the day for three weeks and then weaned for three weeks, may hasten the resolution of symptoms of recent onset cervical radiculopathy