Neck Pain AUC

Literature Review of the literature on different diagnostic criteria for cervical spondylotic myelopathy (CSM)


Purpose

To determine best criteria for postoperative subgroup cervical fusion to be applied to current clinical practice and ongoing future research aiming fusion to standardize assessment and improve comparability.

Methods

Included studies assessed C2 to C7 or upper or anterior/posterior approach, at 24 weeks or more postoperative, with any graft or implant. An initial 50 relevant citations were identified. A total of 22 studies met all criteria for inclusion.

Overall body of evidence with respect to 3 post hoc questions was determined using Grading of Recommendations Assessment, Development and Evaluation (GRADE) for Agency for Healthcare Research and Quality precepts.

Results

Of 24 radiographic modalities, the most predictive characteristics that influence surgical outcomes were those that used T2-weighted MRI. In summary, the results of this meta-analysis showed that the postoperative JOA RR was poor in patients with both intramedullary signal changes on T2-weighted MRI of the cervical cord, especially when the signal changes were segmental and had a well-defined border and T2 intramedullary signal changes compared with those without intramedullary signal changes.

Recommendations

1. The authors suggest that when clinically feasible, postoperative MRI imaging in predicting postoperative recovery in cervical spondylosis myelopathy patients.

Limitations

There are several limitations in the present meta-analysis. First, the best evidence consists of a meta-analysis of numerous randomized controlled trials with high quality, but 30 articles included in this study were non-randomized. Second, heterogeneity was detected among the studies when we pooled the outcomes. This heterogeneity could be explained by the various study qualities, study designs and patient baseline characteristics. There is a need to improve comparability of results across studies.


Purpose

To determine best criteria for postoperative subgroup cervical fusion to be applied to current clinical practice and ongoing future research aiming fusion to standardize assessment and improve comparability.

Methods

In total, 429 cervical spondylotic myelopathy patients with (+) or without (-) intramedullary signal changes on their T2-weighted images were evaluated. The search strategy identified 450 potential studies. In total, 413 papers were excluded according to inclusion criteria; 16 articles were ultimately included.

Methods

Weighted mean differences (WMDs) and 95% confidence intervals (CIs) were used to summarize the data. The level of significance was set at p ≤ 0.05. The p test and the I² test were used to calculate heterogeneity. The results were presented as a forest plot. The statistic heterogeneity was significant and a random-effect model was applied when the heterogeneity was not significant. Funnel plots were employed to assess the potential publication bias.

Results

- Patients with focal and border changes in the intramedullary signal on T2 magnetic resonance imaging had similar Japanese Orthopaedic Association recovery rates as those with spinal cord lesion (p = 0.56). The p test and I² test were not significant in the statistical heterogeneity was significant and a random-effect model was applied when the heterogeneity was not significant.
- Funnel plots were employed to assess the potential publication bias.

Recommendation 1. The authors suggest that when clinically feasible, postoperative MRI imaging in predicting postoperative recovery in cervical spondylosis myelopathy patients.

Limitations

There are several limitations in the present meta-analysis. First, the best evidence consists of a meta-analysis of numerous randomized controlled trials with high quality, but 30 articles included in this study were non-randomized. Second, heterogeneity was detected among the studies when we pooled the outcomes. This heterogeneity could be explained by the various study qualities, study designs and patient baseline characteristics. There is a need to improve comparability of results across studies.


Purpose

To conduct a thorough systematic review and meta-analysis of MRI signal intensity changes in diagnostic criteria for CSM to determine progression and severity of the disease.

Methods

Patients with cervical myelopathy secondary to spinal cord injury, disc herniation, ORL, congenital anomaly, and subdural degenerative cervical myelopathy (ICG 1, 2, 3).

Patients with thoracic spinal cord injury, thoracic myelopathy, tumor, infection, radiculopathy, or other degenerative myelopathy (ICGs 1-3).

Age range: 45 to 70

A systematic search was conducted using PubMed and the Cochrane Collaboration Library for articles published between January 1, 1956, and November 20, 2012. The overall body of evidence with respect to each clinical question was determined on the basis of precepts outlined by the Grading of Recommendation Assessment, Development and Evaluation Working Group and recommendations made by the Agency for Healthcare Research and Quality. Only studies on humans, written in English and containing abstracts were considered for inclusion, but no limits were placed on the search. We limited study selection to those that used multivariate analysis that controlled for at least 2 of the following 3 covariates: age, duration of symptoms, and severity of myelopathy. We also limited our search to cohort studies with at least 10 patients in each comparison group. Case reports, meeting abstracts, editorials, white papers, and articles that did not meet criteria were also excluded.

Results

On the basis of the review and in low-quality evidence, The authors have identified 3 important negative predictors of surgical outcome: number of high SI segments on T2WI, combined T1/T2 signal change, and 0 ratio.

Evidence-Based Clinical Recommendations.

Recommendation 5. The authors suggest that when clinically feasible, cervical myelopathy patients should undergo T2WI imaging in predicting postoperative recovery in cervical spondylosis myelopathy patients.

Recommendation 2. T2 signal may be a useful prognostic indicator when used in combination with low SI change on T2WI, or as a ratio comparing compressed with non-compressed segments, or as a ratio of T2 compared with T1WI. The authors suggest that if surgeons use MRI signal intensity to estimate the risk of a poor outcome after surgery, they use high SI change on T2WI in combination with other signal intensity parameters, and not in isolation.