Predictors of Diagnosis and Development of Cervical Spondylotic Myelopathy: Results of a Systematic Review

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Introduction

Cervical spondylotic myelopathy (CSM) is a common cause of spinal cord dysfunction that may be asymptomatic or may present with severe symptoms. Since CSM has an insidious manifestation, identification of risk factors associated with this condition may aid clinicians in monitoring high-risk patients and implementing appropriate management strategies.

Methods

A systematic review of the literature was performed using PubMed, the National Guideline Clearinghouse Databases, and bibliographies of key articles to assess risk factors associated with CSM. Articles were reviewed by two independent reviewers based on predetermined inclusion and exclusion criteria. Each article was evaluated using a predefined quality-rating scheme.

Results

From 486 citations, eight articles met all inclusion and exclusion criteria. Larger vertebral body and smaller spinal canal and Torg/Pavlov ratio were associated with CSM diagnosis, while gender was not associated with a CSM diagnosis across multiple studies. There were inconsistent reports with respect to increased age as a risk factor for CSM diagnosis.

Conclusions

The limited data available suggests that inherent anatomical features that may contribute to congenital cervical stenosis may be associated with CSM. This systematic review is limited by the small number of high-quality studies evaluating prognostic factors for CSM. The overall strength of evidence for all risk factors evaluated is low.

Learning Objectives

1. To assess sociodemographic, clinical, radiographic, and genetic risk factors associated with presence of CSM in patients 18 years or older.

2. The major finding from this review was that a congenitally narrow spinal canal is a fundamental risk factor for the development of CSM.

3. Few single studies reported specific genetic factors that may be linked with the presence of CSM. A genetic linkage study found an increased risk of CSM between both near and distant relatives.

4. The independent influence of age on the development of CSM should be addressed in future studies.

5. The overall strength of evidence for various potential risk factors is very low (figure 1).

6. There is minimal evidence to suggest specific significant risk factors for CSM, future research using populations with similar disease/ case definitions and methodologically rigorous study designs should be used to evaluate potential risk factors for the development of CSM.

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