

Abstract #772.docx

ABNORMAL MAGNETIC RESONANCE IMAGE'S AND RADIOGRAPHIC FINDINGS OF THE CERVICAL SPINE IN OVER 1200 ASYMPTOMATIC SUBJECTS. –A PROSPECTIVE INVESTIGATION–

Introduction

To determine the importance of abnormalities on magnetic resonance image (MRI), we must take into account (1) frequency and (2) spectrum of structural abnormalities which may not cause symptoms. There are no large-scale studies regarding abnormal findings of cervical spine on MRI in asymptomatic subjects. The purpose of this study was to reveal the frequency and details of abnormal findings in cervical spine MRI images of asymptomatic subjects over 1200.

Materials and Methods

1,211 healthy volunteers were enrolled in this study. Exclusion criteria included a history of brain or spinal surgery, neurologic disease such as cerebral infarction and neuropathy, symptoms related to sensory or motor disorders. At least 100 men and 100 women of each decade between ages 20 and 70 were included in this study. MRI scans were performed with a 1.5-Tesla superconductive magnet. All the participants underwent both MRI and neurological examinations by two spinal surgeons. Abnormal findings such as spinal cord compression, signal changes in the spinal cord and disc bulging ($> 1\text{mm}$) were recorded. To study the effect of aging on the prevalence of abnormal images, we compared the frequency of unusual MRI findings in adults below and above 40 years old.

Results

Compression of the spinal cord was found in 64 (5.3%) patients. Of those, 0.5% and 7.7% are < 40 and > 40 years respectively. High signal intensity changes in T2 sagittal images were found in 28 (2.3%). 0.2% of these patients were < 40 , while 3.3% are > 40 years old. 1061 patients (87.6%) had disc bulging. Within this population, 78.8% and 91.8% were less and greater than 40 years old. Prevalence of spinal cord compression, signal changes on MRI and disc bulging were significantly higher in subjects greater than 40 years old ($p < 0.05$).

Conclusions

As a consequence of aging, prevalence of abnormal MRI findings related to degenerative change such as spinal cord compression, high signal intensity changes and disc bulging increased. These data emphasize on the dangers of predicating operative decisions on diagnostic tests without precisely correlating MRI findings with clinical signs and symptoms.