



## MRI in Cervical Spine Clearance



If the diagnosis of a cervical spine injury is missed in patients, it can result in devastating consequences. In some cases, CS injuries cannot be ruled out clinically using the National Emergency X-Radiography Utilisation Study low-risk criteria either because of a neurologic deficit or pain, and there may be a need to use other imaging tools. However, the optimal imaging modality for Cervical Spine (CS) clearance still remains controversial.

Over the years, Computed tomography (CT) of the cervical spine and Magnetic Resonance Imaging (MRI) has been used to evaluate trauma patients with neurologic deficits. MRI has often been employed as an imaging modality in order to exclude C-spine instability but research studies to date provide inconclusive data with respect to the necessity of using MRI for CS clearance.

A prospective observational study that was conducted from January 1, 2010 to May 31, 2011 at a level 1 trauma centre was to investigate the accuracy of CT and MRI for CS clearance. The study included 830 adults who were alert and awake and had experienced blunt trauma with resultant midline CS tenderness and/or neurologic deficits. Study patients were undergoing CT of the CS. Researchers recorded every patient's CS imaging results, interventions and final diagnosis. The criterion standard was based on the sensitivity and specificity calculations for the final diagnosis of CS injury at the time of discharge.

During the study, 164 CS injuries were diagnosed and 23 of these were found to be clinically significant. For the purpose of this study, clinically significant CS injuries were defined as injuries requiring surgical stabilization or halo placement. CT was able to detect all clinically significant injuries.

Out of the 681 patients, 15 patients with a normal CT scan had a newly identified finding on MRI. However, none of these injuries required any surgical intervention or halo placement. There was no specific need to change patient management on the basis of MRI findings. As far as sensitivity and specificity of CT for detecting CS injury is concerned, the results showed 99.9% and 100% accuracy. Both sensitivity and specificity was 100% for clinically significant CS injuries.

Based on the findings of this study, CT is effective in detecting clinically significant CS injuries in adults who were deemed eligible for evaluation due to neurologic deficit or CS pain. However, the study proved that MRI did not provide any additional clinically relevant information. It is unlikely that an MRI will uncover any unstable CS injuries in patients who have already been evaluated with CT.

[Source: JAMA](#)

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