

Causality Bulletin

MRI vs. CT Scan

Which is BEST for Connective Tissue Injuries?

Trauma Series #167



Often after a traumatic injury there are questions pertaining to what medical tests are most appropriate to objectify a victim's injuries. There are many different modalities to choose from depending on what information needs to be obtained. One of the most common questions is whether a victim of trauma should have a CT scan or an MRI. There are important differences on HOW each of those specialized tests works, but for today we will focus on WHAT they are used FOR.

A study by Holmes et al, (2002) published in the Journal of Trauma and Acute Care Surgery discussed those very differences. The authors stated, "Evaluation and treatment of patients with potential cervical spine injury can be complex and often involves multiple steps. Radiologic imaging plays a central role in the evaluation of these patients. Although plain cervical spine radiography is the initial screening test used in such patients, **plain radiography may be initially interpreted as normal in 7% of patients with injury and may miss from 20% to 40% of cervical spine fractures.**" [page 524]

A thorough diagnosis, prognosis and treatment plan is critical to the proper management and documentation of bodily injury. The authors continued by stating, "The current multicenter study was designed to assess the overall clinical performance of CT and MRI among a wide variety of institutions, including both university- and community-based facilities, trauma and non-trauma centers, and teaching and nonteaching environments." [pg 524]

It is important to work with clinicians that understand the nuances of specialized tests and order the proper test at the appropriate time. Improper diagnosis can lead to further injury, improper documentation and poor medical-legal outcomes. The paper concludes by presenting, "In summary, most patients with cervical spine injury will have additional studies performed in addition to standard cervical spine radiography. Such imaging frequently detects injuries that were not visualized by plain radiographs. Cervical spine CT is more commonly used than MRI for assessing injury status and appears to be superior in identifying osseous injuries. MRI appears to offer an advantage in identifying soft tissue injury and direct visualization of spinal cord lesions." [page 528]

Reference:

Holmes, J. F., Mirvis, S. E., Panacek, E. A., Hoffman, J. R., Mower, W. R., & NEXUS Group. (2002). Variability in computed tomography and magnetic resonance imaging in patients with cervical spine injuries. *Journal of Trauma and Acute Care Surgery*, 53(3), 524-530.