Using a ferromagnetic detection system before MRI may boost safety, detecting implanted or embedded items that may contraindicate the exam.

A ferromagnetic detection system may detect implanted or embedded items in patients referred for MRI examinations, according to a study published in the *American Journal of Roentgenology*.

Magnetic resonance images are becoming more common, particularly as clinicians try to avoid using CT scans to limit radiation exposure to their patients. However, MRI has its own risks because of ferromagnetic implants or foreign bodies that may be exposed to the powerful magnetic fields. Researchers from University of Southern California and Loyola Marymount University in Los Angeles investigated the feasibility of using a ferromagnetic detection device to screen patients for implants and foreign objects before undergoing MRI.

Volunteers were recruited for screening with a “pillar-type” ferromagnetic detection device. Sixty-seven different implants and other objects were chosen for testing (43 pulse generators, five electronic devices, six stents, three CSF shut-off valves, three orthopedic implants, four bullets, and three “other”). The volunteers were first screened without any ferromagnetic objects on their body. After confirmation of the system’s function, objects were attached to the volunteers’ body in a realistic in situ location.

The tests found 58 true-positive, four true-negative, no false-positive, and five false-negative findings for a sensitivity of 92 percent and specificity of 100 percent. The researchers concluded that this type of screening may be used not only for detection of external ferromagnetic objects, but also for implanted or embedded items. They suggest further research to determine the system’s use in the clinical setting.

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