

Study: MRIs safe for people with pacemakers

Researchers say implanted heart devices not harmed by scans

WASHINGTON - Patients with pacemakers, defibrillators and other implanted heart devices can usually safely undergo magnetic scans, researchers said on Monday.

Tests on animals and in the laboratory suggest that the powerful magnets used in magnetic resonance imaging, or MRI scans, will not damage or dislodge the newest devices, the researchers report in the journal *Circulation*.

MRI is used widely to diagnose many forms of cancer, diseases of the brain, head and neck, heart and kidney conditions.

"Our results show that implantable heart devices can be made safe for use in MRI," Dr. Ariel Roguin of Johns Hopkins Medical School in Baltimore, who led the study, said in a statement.

"Our hope is that further research -- through continued device development and human clinical trials -- will produce devices that are prospectively designed to be MRI safe," he added.

"Eventually, we will want all manufacturers to make their implantable heart devices MRI-compatible, so that all patients can benefit from the advantages of both technologies."

More than 2 million Americans have a surgically implanted cardiac device such as a pacemaker or a defibrillator.

"Many people, such as the elderly and patients with arrhythmogenic right ventricular dysplasia, who might benefit from an MRI scan, are currently denied them because they have an implanted, electrical heart device," said Dr. Henry Halperin, a professor of medicine, radiology and biomedical engineering who led the study.

"It is feared that the electromagnetic fields of the MRI may heat up metal components, or pull on and dislodge the device, causing tissue damage, device malfunction or possibly death."

The researchers tested a range of these devices in animals and using models filled with salt water or gel.

They found that devices made with titanium, especially, were not affected by the MRI. And the body develops thick scar tissue when such a device is implanted, which protects it.

"You can do a high-energy scan for a long period of time without doing any long-term damage to select devices," said Halperin.

The study was partly funded by Medtronic, which makes heart and other medical devices.