MRI Compatibility of x-series transponders

Patients with a Dangerous Things x-series microtransponder may undergo conditional MRI diagnostics in cylindrical systems up to 3-Tesla.

INSTRUCTIONS FOR PATIENTS UNDERGOING MRI:

- The patient should be monitored continuously throughout the MRI procedure using visual and audio means (e.g., video monitor with intercom link).

- Instruct the patient to alert the MR system operator of any unusual sensations or problems so that, if necessary, the MR system operator can immediately terminate the procedure.

- Provide the patient with a means to alert the MR system operator of any unusual sensations or problems.

- Do not perform MRI if the patient is sedated, anesthetized, confused or otherwise unable to communicate with the MR system operator.

- The presence of metal elements in the device are likely to cause artefacts in the images acquired, so if the device is close to the region being imaged, the diagnosis may be compromised. Removal of the device will be required if artefacts affect diagnostics.

CLINICAL TRIALS AND STUDIES:

The ability to read patient identification microchips relies on the use of radiofrequency pulses. Since radiofrequency pulses also form an integral part of the magnetic resonance imaging (MRI) process, the possibility of loss of microchip function during MRI scanning is of concern. Previous clinical trials have shown microchip function to be unaffected by MR imaging using a field strength of 1 Tesla and 1.5. As veterinary MRI scanners range widely in field strength, a study[1] was devised to determine whether exposure to lower or higher field strengths than 1 Tesla would affect the function of different types of microchip. In this phantom study, a total of 300 International Standards Organization (ISO)-approved microchips (100 each of three different types: ISO FDX-B 1.4 × 9 mm, ISO FDX-B 2.12 × 12 mm, ISO HDX 3.8 × 23 mm) were tested in a low field (0.5) and a high field scanner (3.0 Tesla). A total of 50 microchips of each type were tested in each scanner. The phantom was composed of a fluid-filled freezer pack onto which a plastic pillow and a cardboard strip with affixed microchips were positioned. Following an MRI scan protocol simulating a head study, all of the microchips were accurately readable. Neither 0.5 nor 3 Tesla imaging affected microchip function in this study.

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References

1. *Functionality of implanted microchips following magnetic resonance imaging.*
Haifley KA, Hecht S.J Am Vet Med Assoc. 2012 Mar 1; 240(5):577-9.