Finetech Medical

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STIMuSTEP® Dropped Foot System
MRI Guidance Information

MRI Information for STIMuSTEP® Dropped Foot System

Risk Assessment: *Experience shows that MRI scanning of patients with Finetech-Brindley (Vocare) Sacral Anterior Root Stimulator implants is harmless if a 1.0 or 1.5 Tesla scanner is used. A 0.5 Tesla scanner is very probably harmless. Scanners of 0.2 Tesla are known by experience to be slightly unsafe. Several Stoke Mandeville (UK) spinal centre patients have been scanned in such a scanner, and toe movements and mild autonomic dysreflexia were reported. This was not surprising, as the radio frequency of a 0.2 Tesla scanner is 8.4MHz, very close to the frequency to which the Finetech-Brindley receivers are most sensitive. The frequency of the pulsed radio field in a MRI scanner in MHz is 42 times the magnetic field in Tesla. The greater action of low-magnetic field scanners than high-magnetic field ones is to be expected from theory.*
The implanted receivers of the Finetech Medical STIMuSTEP® system would be sensitive to interference at levels nearly 4 times lower than the Finetech-Brindley, therefore a 0.2 Tesla scanner is very probably harmless.

Before Scanning:

- The function of each electrode should be tested prior to MRI scanning. Imaging a patient with a broken implanted lead may result in excessive heating around the break in the lead. This potential risk of scanning a patient with a broken implanted lead would have to be considered on a case-by-case basis against the benefits of scanning.

MRI Scanning Conditions - MRI scanning can be performed on individuals implanted with the STIMuSTEP® Dropped foot System only under the following conditions:

- A 1.5T (Tesla) scanner with a spatial gradient of 450 gauss/cm or less can be used (this covers the majority of MRI scanners used today).
- Scanners between 1.0T and 1.5T (Tesla) level can be used.
- The imaging mode used must not load the patient with an average Specific Absorption Rate (SAR) of more than 1.1 W/kg for a scan of 30 minutes duration.
- Unconventional or non-standard MRI modes must not be used.
- The use of Transmit Coils other than the scanner's Body Coil or a Head Coil is prohibited.

During MRI Scanning:

- Patients must be closely monitored during scanning and asked to report any unusual sensations or muscle activity.

MRI Quality:

- MRI quality may be compromised if the area of interest is in the same area or relatively close to the position of the Implantable Receiver-Stimulator.

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Document History				
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14/07/2008	001	New MRI Guidance Instruction Document	N/A	J Spensley
10/04/2012	002	Update to new template	N/A	A Cruickshank
31/07/2013	00C	Corrected scanner Tesla levels	N/A	H Finn