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JEROME MEDICAL—RESOLVE TO BE MR SAFE

With more than 20 years experience in halo development and cervical spine immobilization, it is not surprising that the professionals at **Jerome Medical** (Moorestown, NJ), were the first to address safety and imaging issues related to halo use in today's more powerful magnetic resonance imaging (MRI) scanners. The new **ReSolve Halo System** addresses both concerns. Researchers at Jerome Medical have gone a step further in increasing patient safety and imaging with the development of the ReSolve Halo System.

ReSolve Halo Unit

Advances in design and materials include a glass composite halo ring and ceramic-tipped skull pins. "The ReSolve Halo is non-conductive," explains Reese Evans, a Certified Prosthetist Orthotist at Hanger Prosthetics and Orthotics (Phoenix, AZ). "And that's important for use with the powerful magnets used in MR imaging. As the strength of the magnets used increased, we began to see an unacceptable incidence of scan artifact resulting from the metal components of the halo unit. We have much better quality images using the ReSolve Halo than with any other halo unit available. There were also reports of scanned patients experiencing heating and even burns at skull pin sites. ReSolve eliminates that problem as well."

"We apply several hundred halo units each year, and we use Jerome Medical's ReSolve Halo ring exclusively now, whenever a halo is needed," says Mr. Evans, "in cases of trauma; before, during, and after surgery; and for MRI scans."

"We have conducted clinical studies using the ReSolve Halo," says Louis J. Kim, MD, a senior neurological surgery resident, Division of Neurological Surgery, Barrow Neurological Institute, St. Joseph's Hospital and Medical Center (Phoenix, AZ). "In one pilot study, one patient with a traumatic cervical spine injury was placed in the ReSolve Halo with six-point fixation with ceramic pins, and a second patient was immobilized in an MRI-compatible titanium ring with ceramic pins. Both patients underwent MRI scans in a 1.5-tesla scanner" (*1*). Dr. Kim continues: "The patient with the ReSolve Halo and ceramic pins had near-perfect quality MRI scans, while the patient with the titanium ring had significant artifact on MRI, and a CT myelogram was needed for definitive diagnosis."

Two additional patients were immobilized in the glass halo ring with ceramic pins, but did not undergo MRI scans in this study. "We followed all three patients with the ReSolve Halo for two months," says Dr. Kim. "During this time, the ReSolve Halo was well tolerated and mechanically stable for all three patients. We think that the ReSolve Halo has excellent mechanical properties and significantly minimizes the MRI artifact and pin-heating phenomenon associated with titanium rings and pins."

Ceramic-Tipped Halo Pins

In addition to making the ring itself non-conductive, researchers at Jerome Medical have developed non-conductive ceramic-tipped skull pins for fixation of the halo ring. Dr. Kim is involved in an IRB-approved study designed to test the ceramic skull pins (*2*,*3*). Initial results are very encouraging, according to Dr. Kim: "None of the 17 patients who underwent 1.5-tesla MRI scanning experienced signs of pin heating, and the quality of the MRI scans was good."

Non-ferrous ≠ Non-conductive

Historically, the term "MR Compatible" was used to designate a non-ferrous, non-magnetic halo system. Rapid advances in MR technology now make the use of conductive pins and rings questionable. "Jerome Medical has done a remarkable job of making the Resolve Halo unit non-conductive, which minimizes imaging artifact and improves patient safety," says Evans. "We find the Resolve Halo to be superior to all other halo units available today," he concludes.

For more information concerning the ReSolve Halo System, call Jerome Medical at 1-800-257-8440 (United States) or at 1-856-234-8603 (international); fax at 1-800-778-5333 or at 1-856-778-5487 (international); e-mail to jeromemail@jeromemedical.com; or visit the company Web site at www.jeromemedical.com.

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