From the Editor

MRIs – The Noise Inside the Tube

by Barbara Tabachnick Sanders, ATA Executive Director, Editor, Tinnitus Today

Seventeen years ago, I was as dizzy as a person could be. No one knew why, examinations were inconclusive, and drugs didn't help. Finally, after eight weeks of unrelenting vertigo, my physician ordered an MRI (magnetic resonance imaging) scan to search for a suspected tumor.

I'll fast forward to the results: No tumor was found, and the dizziness relented weeks later. But the MRI experience has stuck with me to this day. I needed to be sedated to go headfirst into that long, metal MRI tunnel, which was nerve-wrackingly close to my face. I was very relieved when the Valium kicked in. No headphones or earplugs were given to me, but then none were needed. The sound inside the tube was highly unremarkable. Those were the days.

MRI technology is quite a bit different today. First, the magnetic field strength of today’s MRI machines is five to ten times more powerful than that of their 1980s predecessors, having increased from 0.3 tesla to 1.5 — 3 tesla. With the additional power comes more imaging precision, and, unfortunately, more noise. Today’s MRIs have been described as jack hammer-like noise machines by many sound-sensitive patients who’ve been in them. Do they cause tinnitus and hearing loss? Some people have said yes.

The dilemma for patients with tinnitus is that an MRI is often recommended as a diagnostic tool by their physicians to find or rule out conditions that could be causing the tinnitus. The greater irony is that these big, miserably loud machines actually save lives. Without one drop of radiation or surgical probing, they find tumors and malformations that, if seen early or at all, can be removed or corrected. MRI technology is the gold standard of diagnostic testing, and has transformed medical care the world over.

An MRI scan is really a series of tests that run back-to-back, each test lasting several minutes. Some of these tests are quieter to a patient’s ears than others, “quieter” being a relative term. Estimates are that the volume of a test in a closed MRI machine can reach 115 decibels. Open MRI machines are less claustrophobic, but rarely less noisy. With that kind of decibel output, hearing protection should be mandatory, but isn't always. However, many imaging centers do routinely give patients headphones, earplugs, or both before the testing begins.

Can little foam earplugs really make a difference in an MRI experience? If they're properly inserted, maybe a big difference. Dr. Jennifer Melcher, who is using functional MRIs to test human subjects in her newest ATA-funded research study, says that people should insist on having proper hearing protection. “This goes for anyone, not just people with tinnitus. By using earmuffs or earplugs, the noise will probably be about 80 decibels, based on the measurements we've made. This is no greater than what people experience every day.”

Another important thing, she says, is that “earplugs need to be properly inserted. If they are only minimally inserted in the ear canal, they are of little value. E•A•R sells a plug [the Superfit™] with different colors on it. If it's properly inserted, you don't see one of the colors.” She suggests that people bring their own foam earplugs to the imaging center just in case, and practice inserting them properly beforehand.

Melcher adds that patients in her study are free to ask for the imaging to stop at any time if they become uncomfortable, since they are not having sensitive medical testing done. Her test subjects are also given a recorded version of the MRI sound ahead of time to prepare them. It's interesting and true that some people with tinnitus are not overly bothered by loud sound.
To me, this still begs the question: Do MRI machines have to be that loud? Researchers at Toshiba didn’t think so. They decided to enter the MRI market a few years ago with a business plan and a great notion. They wanted to make a state-of-the-art, high-powered MRI machine that catered to creature comforts: one that was wider, shorter, and quieter. Their result was the Vantage™ MRI scanner. Toshiba MRI specialist Kevin Friedrich explains that they were able to reduce the sound inside the MRI tube by isolating the gradient coil (the source of the noise) in a vacuum chamber. “This makes it much quieter than most MRIs,” he states, “without sacrificing image quality or speed of acquisition.” Currently there are 110 of these quiet Toshiba MRI scanners in medical centers across the United States. But why so few, I asked, when tens of thousands of MRI machines are being used? Friedrich believes it’s just a matter of time before quiet imaging technology takes off. “It’s a recently introduced product,” he says, adding that people are becoming more vocal about their healthcare, and want more control over it. “They want a patient-friendly MRI experience and the best scan possible. Other vendors are sitting up and taking notice.” Siemens is one that noticed. They entered the quiet MRI market just last year with their new product, the MAGNETOM™ Avanto.

To find a Toshiba Vantage MRI near you, call 800-421-1968. Or to find a Siemens MAGNETOM™ Avanto MRI, call 800-736-8003. Then call your doctor who will tell you if the scope and power of these scanners is a good fit for your medical needs. Who knows? If you need to have an MRI, this could be the light at the end of the tunnel.

Resource

Committee Volunteers Wanted

The American Tinnitus Association’s Board of Directors is looking for volunteers to participate on a Board Committee for one year, beginning Aug. 1, 2006. Committee volunteers assist the Board by recommending policies in specific areas of responsibility and expertise. These committees meet by telephone monthly or bi-monthly (maximum of nine times per year). We have openings on the following committees:

Board/Volunteer Development Committee
Recommend policies for orienting, training, and recognizing Board members, volunteers, and staff.

Business Committee
Assist in oversight of ATA’s financial and business operations as well as monitor investments in accordance with ATA Investment Policies.

Legal and Advocacy Committee
Provide advice on legal issues. Also devise advocacy activities for ATA, its members, and the public.

Marketing & Communications Committee
Develop creative strategies for promoting ATA and inspiring ways to market ATA broadly.

Program Committee
Strengthen ATA programs, create new programs, and evaluate existing programs for patient and professional education, advocacy, research, and support.

Revenue Development Committee
Develop and implement fundraising and membership projects, and analyze results of these activities.

If you are interested in being an ATA Board Committee Volunteer, please complete an application online (www.ata.org/about_ata/board_app.html) or contact Robin Jennings at 800-634-8978 ext. 212. Completed applications must be received by ATA no later than May 15, 2006 for consideration. Thank you!