

Ringling in New Tinnitus Treatments

Pain management techniques can help tinnitus patients

By Jeff Lindholm

Dinnertime conversation between two UVA health care professionals led to innovations in multidisciplinary treatment for people with tinnitus. Roger Ruth, Ph.D., professor in the Department of Otolaryngology—Head and Neck Surgery and director of UVA's Tinnitus Clinic, often discussed the types of tinnitus-related problems he saw in his patients, such as anxiety, sleep disturbances, withdrawal and depression. His wife, Robin Hamill-Ruth, M.D., associate professor of anesthesiology and director of UVA's Pain Management Center, realized that his patients shared many similarities with her patients.

The constant buzzing in the ears from tinnitus can lead to reactions similar to that of being in ongoing pain. "People with tinnitus often have anxiety difficulties," Hamill-Ruth says. "They have sleep disturbance and depression. At parties or restaurants, it's difficult for them to understand conversations. They might have associated hyperacusis, which is painful sensitivity to noise. Like pain patients, they tend to start avoiding social situations. Poor sleep, depression and anxiety are all also seen in people with chronic pain."

Tinnitus may not result in actual pain, but like pain, it's unique to each person's subjective understanding. It can't be measured outwardly. "If you look at the definition of pain, it's the discomfort or distress brought on by actual or supposed damage to some neural structure," says Ruth. "You substitute



Roger Ruth, Ph.D., adjusts a noise generator that directs white noise into a patient's ear. The noise competes with the constant buzz of tinnitus. Over time, a patient's brain gets accustomed to both sounds and doesn't register either signal.

the definition of tinnitus and it's really the same thing."

Between 40 and 50 million people in the United States have tinnitus, but it's not a significant problem for about 75 percent of them—it's not loud enough to bother them. However, for the other 25 percent, it's bad enough to interfere with their everyday life—job and social activities and their ability to communicate. The high-pitched buzzing becomes very bothersome, and the fraudulent signal can interfere with hearing other sounds as well, especially if people have any hearing loss on top of that.

These are people who've been to multiple specialists," says Hamill-Ruth, "and are told almost universally, some-

Robin Hamill-Ruth, M.D., checks medical student and patient Chris Wright for arthritis and muscle spasm of the neck. Tinnitus sufferers often have co-existing neck or head pain. Coordination of tinnitus therapies with treatment for pain, depression and sleep disturbances is one of the advantages of UVa's multidisciplinary approach.

Andrew Cook, Ph.D., assistant professor and clinical psychologist, demonstrates training in biofeedback skills for management of tinnitus with Dania Chastain, Ph.D., associate professor and clinical psychologist.

Biofeedback helps patients learn to manage the physiological arousal associated with tinnitus, as well as secondary tension, stress and anxiety that can both aggravate the condition and make it harder for patients to cope.



William Faust

where down the line that they are going to have to learn to live with it." While no one knows how to eliminate the signal to the brain that causes tinnitus, there are ways to lessen its effects and to help patients cope with the constant buzz. Working together, UVa audiologists and pain management specialists offer help.

The UVa Tinnitus Clinic offers a form of acoustic sound therapy, designed by Dr. Pawel Jastreboff of the Emory University Tinnitus and Hyperacusis Center. Patients wear a noise generator, which is smaller than a hearing aid. The generator sends "white noise" into their ears eight hours or more a day. Over time, their brains adjust

to both the white noise and tinnitus and don't pay attention to either signal.

"The trick is to condition the brain to ignore or squelch the tinnitus sound," says Ruth. The process can take up to two years, but some patients experience improvement in a half-year or less. The generators don't block or cut off hearing.

On the pain management end, "our approach has been to look at the associated symptoms," says Hamill-Ruth. "These are the same things we do with the chronic pain patients. If they're sleep deprived, then their tolerance for anything is going to be down, so one of the first things we go after is to normalize their sleep patterns. We also

look at addressing depression." Other modalities employed include meditation or guided imagery to decrease tension levels and regular exercise to dissipate anxiety.

Treatment also focuses on secondary pain complaints. A study done at UVa of people with headache and facial pain showed a correlation between the severity of people's pain and their tinnitus or hyperacusis. "The aggravation leads to muscle tension, especially for those with hyperacusis who tense in anticipation of loud sounds," says Hamill-Ruth. "If we can decrease the overall level of distress by addressing some of the painful complaints, it allows them to cope better. We usually use a combination of medications, injections, physical therapy and TENS units, which use low-level electrical stimulation to interfere with the pain message and deliver electricity to relax muscles."

UVa's treatment team is coordinated by an audiologist. Otolologists perform medical evaluations to rule out or treat associated medical conditions, including middle ear disorders or Meniere's disease. Pain management physicians check for related head and neck pain complaints, such as temporomandibular joint dysfunction, myofascial neck and shoulder complaints or cervical spine disease. They also address sleep disorders. Pain management psychologists assist in the patient's emotional, cognitive and behavioral health, focusing on "wellness" rather than illness.

"I think the biggest thing for audiology specialists—and the pain people have recognized this relationship for several decades—is to finally acknowledge that there's a brain attached to the ear," acknowledges Ruth. "You can't just focus on the ear. You have to put the whole package together. If there are other symptoms, you can't ignore those or you won't get anywhere."

"I've had patients who just don't respond until we start treating them together with the pain symptoms. Then we've seen much more rapid improvement," says Ruth. "It's been even more successful than we'd expected." ●



William Faust

For more information:

Roger A. Ruth, Ph.D.
Department of Otolaryngology—
Head and Neck Surgery
(434) 924-2050
E-mail: rar6k@virginia.edu