

NEW YORK-PRESBYTERIAN EAR, NOSE, & THROAT

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Spring 2007

Early Screening Improves Speech, Language

A gathering tide of clinical and epidemiologic research is bolstering support for legally mandated screening of neonates for hearing loss. New authoritative guidelines from the US Preventative Service Task Force (USPSTF) are expected to revise the guidelines that, when introduced in 2001, gave only guarded support for universal screening.

The number of children affected by hearing loss at birth is not large—1 to 3 per 1,000 newborns—but the developmental deficits that can be addressed by early screening and identification are serious and lifelong. The delay in a toddler's acquisition of expressive speech and language as a result of reduced attention to auditory signals may compromise the grasp of linguistic subtleties and, more generally, impede cognitive, psychosocial, and educational development.

"In the past, before infant screening, the average age at which hearing deficits were recognized was about 24 months," said Joseph Montano, EdD. "By that time, the child has already lost a critical period for hearing and speech development." According to Montano, when children are fitted with amplification devices by 6 months, for example, the impact of a specific hearing deficit may be significantly reduced.

Implementation of universal early

see Newborn Screening, page 3



Orbital Decompression Brings Relief To Patients With Graves' Disease

Drawing on their combined expertise and taking advantage of new technology, 2 surgeons at NewYork-Presbyterian Hospital/Columbia University Medical Center have designed and performed customized orbital decompression procedures, providing excellent cosmetic results with reduced risk to the patient.

Many patients with Graves' disease experience embarrassment and interpersonal problems because of changes in their appearance. In the most severe cases, the only treatment for the ocular manifestations of the disease is a risky orbital decompression procedure. Orbital decompression is a surgical procedure wherein a surgeon removes 1 or more walls of the eye socket to allow orbital tissue to herniate into the surrounding spaces, relieving pressure on the optic nerve and reducing proptosis.

"In a patient with Graves' orbitopathy, the eyeball is protruding from the eye socket, and you want to get the eye back into its normal position," said Lanny Garth Close, MD. "There are 2 options. You can reduce the amount of soft tissue in that confined space, which is what is done with fat decompression procedures, or you can make the space inside the orbit larger, which is what we do with the orbital bone decompression procedure."

Orbital decompression is a risky procedure. About 6 years ago, Michael Kazim, MD, invited Dr. Close to help him develop a management approach to reduce the risks associated with the orbital decompression procedure. The resulting process has Dr. Kazim seeing patients first for evaluation and discussion of medical and less invasive surgical options for managing their symptoms. If an orbital decompression is required, he determines the extent to which the socket needs to be opened.

see Graves' Disease, page 4



In lateral orbital decompression, doctors remove the lateral wall of the eye socket using an endoscopic transnasal approach.

Photo courtesy of Michael Kazim, MD.

INSIDE

New State-of-the-Art Center

2 The Weill Cornell ENT Department finds a new home at the Weill Greenberg Center.

The 12th Max Abramson Memorial Lectureship

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UPDATES

New Ambulatory Care Center Enhances Patient Comfort, Physician Efficiency

The idea of patient-centered care has found elaborate expression in the Weill Greenberg Center, the new ambulatory care and medical education building at Weill Cornell Medical College. The Department of Otorhinolaryngology at the College, which is affiliated with NewYork-Presbyterian Hospital, moved into the new Center shortly before its formal dedication on January 26.

The Department has taken advantage of the new space and will be offering an even wider range of tests and treatments than had previously been available. "We have allergy testing and treatment right here in the office," said Michael G. Stewart, MD, MPH. "We have hearing testing and hearing aid dispensing here. We have voice and speech services in the office. It's an expansion of services.

"Now that we have more room for everyone, we've been able to bring in some more practitioners to join the full-time faculty," he continued. "We still have a little bit of space, and we are doing more recruiting. There's a separate office for the residents and students. We also have a nice new conference room which will enable us to have conferences in departmental space, instead of having to have our Grand Rounds, for example, in one of the medical school conference rooms." In addition, the examination rooms have been carefully designed for patient comfort, and are well stocked with state-of-the-art equipment. "Each exam room is completely supplied with microscopes and flexible fiberoptic scopes," added Dr. Stewart. "We're all using electronic patient records. The whole building is completely digital."

NewYork-Presbyterian Hospital/Weill Cornell Medical Center is conveniently located directly across the street, making it easy for physicians to schedule outpatient appointments in the free times between surgeries or hospital rounds. A

waterfall and reflecting pools provide an atmosphere of healing, serenity, and peace. Two entrances and separate patient check-in and check-out areas help to maintain good patient flow, reducing wait times and helping patients to feel well looked after from start to finish.

The healthcare floors, designed by Ballinger of Philadelphia, have been carefully arranged to provide dramatic improvements in physician efficiency. "Each floor is organized into modules, or halls with centralized work stations with multiple rooms," Dr. Stewart said. "The academic faculty offices are on the same floor and very close to the patient care areas, but they're separated a little bit, so doctors can go back to their offices briefly between patients if they want to, and they don't have to go to a separate floor."



ENT patient examination rooms at the Weill Greenberg Center are complete with flexible fiber optic scopes.

The Myra Mahon Patient Resource Center, located on the second floor of the new building, serves as a patient welcome area as well as a library. Between appointments, patients and their families may avail themselves of digital and paper information resources, learning more about the procedures they're about to undergo or the latest options for treatment. The intent is to reduce anxiety by encouraging patients to educate themselves and to ask well-informed questions



of their doctors. The Patient Resource Center also includes several rooms where physicians and patients can meet in comfortable privacy.

In addition to the departmental spaces and patient care facilities, the 13-story building is home to the Clinical Skills Center, where medical students can practice their newly learned skills on actor-patients. The Skills Center includes examination rooms designed to allow doctors to observe the students as they perform mock examinations. This is a marked improvement over the previous arrangement, where the actor-patient would take mental notes and then report to the supervising doctor after the exam was done. With direct observation, the doctors can notice small errors that even a trained and experienced actor-patient might miss, and can also observe a student's habits over a series of examination sessions. The result is better education for the students, specifically tailored to their strengths and weaknesses, which will help them to provide better care for patients in turn.

The building, designed by Polshek Partnership of New York City, has been awarded a Best of 2006 Award of Merit for healthcare centers and hospitals from New York Construction, which called it "elegant" and "innovative." Further awards seem likely to be forthcoming. In the meantime, Dr. Stewart said it is getting plenty of kudos from both patients and physicians. "It's very attractive," he said. "It's very modern, but it still fits nicely into the neighborhood. We all really appreciate that."

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Newborn Screening

continued from page 1

hearing detection and intervention dates to a consensus statement developed in the 1990s by the Joint Committee on Infant Hearing (JCIH), the National Institutes of Health, and the National Institute on Deafness and Other Communications Disorders. Although profoundly deaf infants may be diagnosed relatively early, the JCIH noted that children with moderate hearing loss might not be identified until school age.

poor job but because we needed more longitudinal studies and not enough time had passed to conduct those types of studies.”

Although USPSTF recommendations surprised and even disturbed some at the time, with hindsight they raised valid concerns and helped to clarify the issues. They spurred continuing examination of the prevalence of congenital hearing loss, the accuracy of newborn screening methods, and efficiency of early detection programs. They also

low birthweight, hyperbilirubinemia, hydrocephalus, and other complications of prematurity.

Infants who do not respond adequately to the initial OAE or AABR will be further tested with other evaluation tools and receive a more comprehensive measurement of the brainstem’s response to auditory stimulus.

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“In the past, before infant screening, the average age at which hearing deficits were recognized was about 24 months. By that time, the child has already lost a critical period for hearing and speech development.”

—Joseph Montano, EdD

From 1995 to 2000, Columbia researchers at Morgan Stanley Children’s Hospital of NewYork-Presbyterian and colleagues at NewYork-Presbyterian Hospital/Weill Cornell Medical Center participated in the original project that spearheaded a legal mandate. In conjunction with 6 other regional perinatal centers, results of some 70,000 tests were pooled over the course of 3 years. The results included approximately 85 infants with hearing impairments and were influential in the installation, in 2001, of a newborn screening law in New York State. Today, a neonatal hearing screen is required by 38 states and the District of Columbia.

However, in 2001, the USPSTF reviewed existing studies and decided that evidence was insufficient to positively recommend universal newborn hearing screening. Writing that “the balance of benefits and harms cannot be determined,” the Task Force proposed that further population-based research, including time-series studies and longitudinal data, would be necessary to empirically establish real benefit.

“The research on the benefits from the results of early identification and intervention had not really been addressed adequately,” said Abbey L. Berg, PhD, “not because we had done a

enabled further clarification of the consequences of neonatal hearing loss, and the benefits and cost efficiency of early intervention.

Data published in the intervening 6 years, added Dr. Berg, now includes epidemiologic studies and research examining the clinical benefit of early use of cochlear implants. The results are unambiguous. “Longitudinal data has been collected and earlier identification leads to better speech and language development by age 3 years,” said Dr. Berg.

Auditory exams are essentially noninvasive and take a few minutes to administer. Full-term infants are frequently tested in the nursery soon after birth, with parents present.

At Morgan Stanley Children’s Hospital, a 2-stage screening protocol has been implemented. Babies admitted to the well-baby nursery first receive otoacoustic emission (OAE) testing and, if they do not pass, are tested with the more sensitive automated auditory brainstem response (AABR). In the neonatal intensive care unit, however, the AABR is administered first and if the infant does not pass, then the OAE is administered. Infants admitted to the intensive care unit are at greater risk for hearing loss and other types of auditory dysfunction because of illness, such as

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Graves' Disease

continued from page 1

Drs. Close and Kazim then use computed tomography and before-disease photographs to assess the extent of surgery a patient requires. They then develop a personalized surgical plan and customize each portion of the surgery, according to Dr. Kazim.

"We grade the decompression surgery to the needs of the individual patient in order to restore their normal globe-to-eye socket dimensions," said Dr. Kazim. "Some patients need more decompressive effect, others need less. There are some patients in whom the eye muscles enlarge, while in other patients, it's the orbital fatty tissue that expands."

For the most severe cases, he and Dr. Close perform the operation in tandem. "We have developed a coordinated procedure," he said, "by which Dr. Close, through an endoscopic transnasal approach, can remove the medial wall of the eye socket and a portion of the floor of the eye socket. At the same procedure, I remove the lateral wall of the eye socket and, if it's appropriate, will remove some of the expanded orbital fatty tissue to further decrease the intraorbital volume while increasing the dimensions of the eye socket. This produces an immediate improvement in globe position and relief of optic nerve compression if it exists."

When this combined approach is used, the eye moves back into the head about 1

"Preserving the mucosa means preserving the normal sinus function while we take care of the Graves' orbitopathy."

—Lanny Garth Close, MD

to 1.5 mm farther than after standard procedures, said Dr. Close. He cited statistics from 45 patients: All those with vision loss, visual field defects, or reduced visual acuity experienced symptom relief after the procedure. Often, patients require additional procedures to correct diplopia or eyelid retraction after they have recovered from the decompression.

Dr. Close noted that technical innovations have helped them to refine the procedure considerably. "We use a 3D navigation system. I can identify the medial rectus muscle on the scan, and I can make the incision along the long axis of the orbit, just above and below that muscle so it's not injured," said Dr. Close. Before the imaging system was available, they had to apply tension to the medial rectus muscle to identify it. Dr. Kazim also uses a special orthopedic blade that makes a well-defined cut.

Another benefit of the imaging system is that Dr. Close can use a transnasal approach, which eliminates external scarring and protects the sinuses. The herniation of orbital fatty tissue into the sinus cavity generally leads to sinus problems following decompression surgery, and although some patients are willing to accept sinus blockage and infections in trade for relief of their orbitopathy, Dr. Close prefers to avoid forcing such an unpleasant choice. "What I try to do is open up the sinus but preserve the very delicate respiratory epithelium that lines it," he said. "It's a tricky maneuver, and it requires a microdebrider. Preserving the mucosa means preserving the normal sinus function while we take care of the Graves' orbitopathy. With that combination of success for the eyes and avoidance of compromised sinus function, I think we have a really excellent procedure."

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Important news from the Ear, Nose, and Throat Centers of NewYork-Presbyterian Hospital—current research projects, clinical trials, and advances in the diagnosis, treatment, and rehabilitation of ear, nose, and throat disorders.

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