Letters to the Editor

ACOUSTIC NEUROMA

To the Editor:

As I was reading the article recently published in JAAA entitled “Acoustic Neuroma in an Adolescent without Neurofibromatosis: Case Study” (Sells and Hurley, 1994), I found myself intrigued by this rare and unique case. However, I have some concerns regarding two aspects of the article.

First, consider the auditory brainstem response recording of the right ear in Figure 4. Although waveform morphology can be considered entirely subjective, it remains apparent in this recording that the wave V has been mistakenly identified on the wave VI peak. If we refer to the recording, we can see the classic IV/V complex, where wave V is riding on the down shoulder of wave IV, which leads to a diagnosis of normal rather than abnormal wave V. A variety of normal morphologic variations can be obtained by reading Schwartz and Berry (1985).

Second, there seems to be some confusion with regard to the analysis of acoustic reflex threshold (ART) measurements. As part of the criteria for the current study, the ARTs were analyzed based on the 90th percentile (Silman and Gelfand, 1981). Sells and Hurley (1994) later note that the method for diagnosing ART demonstrates low sensitivity and specificity, 65 percent and 83 percent, respectively. However, Sells and Hurley refer to Fowler et al (1993), who evaluated conventional techniques rather than the 90th percentile, which has proven to have high sensitivity and specificity rates well beyond those described in the poster.

In 1983, Olsen et al evaluated the 90th percentile. Thirty patients with confirmed cerebello-pontine angle tumors were matched with 30 patients with similar cochlear hearing losses not attributed to a tumor. They reported a high sensitivity (83%) and high specificity (97%) rate. Furthermore, Sanders (1984) evaluated several techniques using ART for differential diagnosis. He concluded that the 90th percentile, in combination with reflex decay, had the highest sensitivity (85%) and specificity (89%) over all of the other ART techniques.

This case study proved to be both intriguing and important. It demonstrated that humans and audiology are not always black and white. As audiologists, we will occasionally come across patients whose profile differs from that expected of a given pathology due to their unconventional history and/or results. However, it is detrimental to our science and our character if we do not accurately research and report our findings. We will only be better for it.

My comments by no means take away from the importance of this article.

Mara L. Morr
North Woodmere, New York


Response to Morr

In comments concerning our article “Acoustic Neuroma in an Adolescent without Neurofibromatosis: Case Study” (Sells and Hurley, 1994), Morr makes three assertions. The first is that “it remains apparent in this recording that wave V has been mistakenly identified on the wave VI peak.” The second is that there is “some confusion with regard to the analysis of the acoustic reflex threshold (ART) measurements.” The third is that “it is detrimental to our science and our character if we do not accurately research and report our findings.”

First, with respect to our mislabeling of the auditory brainstem response (ABR) wave V in the nontumor ear, we were guided in our labeling of wave V by the results of good procedures and not textbook illustrations. Replication ABRs were obtained at the same intensity level and at a higher intensity level, which is common for us and others as the procedure generally removes any ambiguity in the ABR interpretation. In Figure 1a (Figure 4 in our article), we compare the labeling of wave V as per Morr’s choice, which is 5.20 msec, and our labeled wave V at 6.16 msec obtained at 75 dB nHL for a click rate of 11.4/sec. We have also included Morr’s wave IV choice, which is 4.98 msec. A wave V with a latency of 5.20 msec is -2.5 to -3.0 standard deviations earlier than most normative ABR data (Hood and Berlin, 1986) but within the -3.0 standard deviation of other normative data (Joseph et al, 1987). Morr’s I–V interval would be 3.54 msec, which is -2.5 standard deviations shorter than the largest normative sample we know (Joseph et al, 1987). Thus, on first review and only considering the ipsilateral ABR recording, there is a small but unlikely possibility that Morr’s V is the true V. However, the contralateral ABR recording does not show the “down-shoulder” effect referred to by Morr but shows prominent peaks at 4.98 and 6.18 msec, although there is a ripple in the downward slope of IV. If Morr’s V was accurate, the contralateral ABR recording should be supportive, which it is not. Further, if our wave V choice is really VI, then the latency of 6.16 msec is greater than -3.0 standard deviations shorter than either of our collective databases for VI.

In Figure 1b, we provide an additional run at 75 dB nHL where wave IV and V are clearly (no bump on the down shoulder of IV) at 4.92 msec and at 6.06 msec, respectively. Thus, the down-shoulder effect in the first ABR recording is not replicated. In Figure 1c, we provide another ABR recording at 85 dB nHL where waves IV and V are clearly at 4.92 msec and at 6.06 msec, respectively. In comparing the ABR obtained at 75 dB nHL to the ABR obtained at 85 dB nHL, we see the expected shortening in wave V latency. It does not follow that an increment in presentation level of 10 dB would remove Morr’s down-shoulder V but it does follow that our wave V would shorten by 0.10 msec. Finally, in Figure 1d (Fig. 7 in our article), we provide a postoperative ABR where waves IV and V are at 4.96 msec and 5.96 msec, respectively. Note the similarity in ABR morphology between the preoperative ABRs and the postoperative ABR. Additionally, the postoperative ABR reflects the removal of the contralateral tumor’s compression effect that has been documented by Nodar and Kinney (1980) when the tumor was larger than 2 cm.

Second, Morr speaks of our “confusion” over our analyses of the acoustic reflexes (ARs). On page 350 of our article, we state that “normal ipsilateral acoustic reflexes (ARs) and crossed ARs [are] consistent with the hearing levels in the right ear (Silman and Gelfand, 1981) and absent ipsilateral and crossed ARs for the left ear.” This refers to our assessment of the presented patient. On page 353, we state that “even though conventional AR threshold measures have a low ‘hit’ rate (65%) and a high ‘false alarm’ rate (17%) for the identification of acoustic
neuromas (Fowler et al, 1993), absent ARs cannot be ignored." This refers to "conventional AR threshold measures" and not to the Silman and Gelfand (1981) 90th percentile criterion. The message here is in the phrase "absent ARs cannot be ignored." To ensure that we had not missed either Morr’s point or our intended purpose in the statements, we had several of our colleagues read both Morr’s comments and our original statements within context. After review, it was decided that the confusion is not ours.

Last, to Morr’s statement that “it is detrimental to our science and our character if we do not accurately research and report our findings,” we reply, “Hear! Hear! That is exactly what we have done!”

Janet P. Sells
Newport, Rhode Island
Raymond M. Hurley
New Orleans, Louisiana


NEONATAL VENTILATION AND SENSORINEURAL HEARING LOSS

To the Editor

In recent JAAA letters to the editor, Fowler (1994) and Konkle and Knightly (1994) suggested the need to study a possible relationship between hyperventilation and/or high-frequency jet ventilation and sensorineural hearing loss (SNHL). I was quite surprised that neither of these letters mentioned several previous studies that already implicate high-technology respiration in SNHL. Most noteworthy is the study by Marron et al (1992), which reports on the management and outcome of 27 newborns with severe persistent pulmonary hypertension of the newborn (PPHN). All were managed with conservative mechanical respiration, without hyperventilation or jet ventilation, in which Paco2 rose for extended periods above 50 mm Hg. None were found with SNHL. This finding is in sharp contrast to previous studies that found SNHL in as many as 50 percent of PPHN infants (Hendricks-Munoz and Walton, 1988).

Clinical audiologists are encouraged to stay abreast of the medical literature and help initiate data-based primary prevention practices in their work settings.

Tom Mahoney
Salt Lake City, Utah


Response to Dr. Mahoney

I am aware of medical literature that addresses conservative mechanical respiration, persistent pulmonary hypertension, and sensorineural hearing loss. I am directly questioning the existence of literature that deals specifically with high-frequency jet ventilation or hyperventilation and its relationship to hearing loss. The study Dr. Mahoney cites does not deal with this type of ventilation.

Bridgette Fowler
Richmond, Virginia