Biomedical and Education Update:

Making surgery easier for autistic children

Noting that "autistic children are a neglected group in pediatric anesthetic practice," Australian anesthesiologists L. Rainey and J. H. van der Walt suggest that their colleagues implement special procedures to minimize the stress of surgery for autistic children and their parents.

The physicians say that to ensure that autistic children's surgical procedures are safe and as stress-free as possible, hospitals should establish a plan to identify these children ahead of time. This will allow, they say, for "pre-anesthetic consultation and careful planning, including timing and place of admission, the need for and type of pre-medication, technique of induction and maintenance and importantly where and how they are recovered."

Among the procedures that Rainey and van der Walt follow:

—All autistic children are entered into a "pediatric anesthetic problem register," which automatically alerts the anesthesiologists that an autistic child is scheduled for surgery.

—The anesthesiologists consult with the families of autistic children prior to admission, to identify the child's behavior problems. "Parents, and often other siblings, have a fine understanding of the child's fetishes and phobias," they say, adding, "We have actively sought and tried to implement" family members' suggestions.

—Parents are given an opportunity to complete all paperwork prior to admission. In addition, parents can give an initial oral sedative at home on the day of the surgery. When oral medications are given at the hospital, they are mixed with flavored beverages of the children's liking (for instance, cola or apple juice). (The anesthesiologists note that pre-medication is often of limited success in sedating autistic children. They have found that oral ketamine is the most reliable oral medication for autistic children, and its effects appear to be more predictable than the commonly used midazolam.)

—Special parking arrangements are made, so that parents have easy access to the operating room area.

—A "quiet room" is set aside for autistic children and their parents waiting for surgery. After surgery, a side room is set aside for recovery when possible.

Rainey and van der Walt say that implementing such procedures is far preferable to the typical system of dealing with autistic children without any special preparations. Currently, the doctors say, "it appears that [most anesthetists'] management ranges from simple oral pre-medication with unpredictable results to the use of force and restraint, which is distressing to patients, family, hospital staff and anesthetists."

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"The anaesthetic management of autistic children," L. Rainey and J. H. van der Walt, *Anaesthesia and Intensive Care*, Vol. 26, No. 6, December 1998, pp. 682-686. Address: J. H. van der Walt, Department of Paediatric Anaesthesia, Women's and Children's Hospital, 72 King William Road, North Adelaide, South Australia 5006.

More on gene defects

British researchers who have identified eight females with small deletions of the short arm of the X chromosome say that three of their subjects are autistic. N. Simon Thomas et al. say, "This is the first report of an association between autism and a deletion of Xp, although autism has previously been reported in two patients with structural abnormalities involving this region."

U.S. researchers, meanwhile, have identified two more autistic children with a deletion of the distal portion of the long arm of chromosome 2 (2q37). This brings the total number of retarded and/or autistic children diagnosed with this genetic abnormality to approximately 30 (see ARRI 12/1). Mohammad Ghaziuddin and Margit Burmeister say the 2q37 deletion may represent "a distinct though a rare subtype of autism."

The researchers note that the two children they identified with 2q37 deletions exhibited physical characteristics also seen in earlier reports, including frontal "bossing," deep-set eyes with dark circles underneath, a depressed nasal bridge, and long eyelashes. "From a clinical point of view," they say, "this suggests that autistic persons with dysmorphic features such as bulging forehead should be carefully screened for chromosome deletions."

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"Xp deletions associated with autism in three females," N. Simon Thomas, Andrew J. Sharp, Caroline E. Browne, David Skuse, Chris Hardie, and Nicholas R. Dennis, *Human Genetics*, Vol. 104, pp. 43-48. Address: N. Simon Thomas, Salisbury Health Care NHS Trust, Salisbury District Hospital, Salisbury, Wiltshire SP2 8BJ, UK.

—and—

"Deletion of chromosome 2q37 and autism: a distinct subtype?" M. Ghaziuddin and M. Burmeister, *Journal of Autism and Developmental Disorders*, Vol. 29, No. 3, June 1999, pp. 259-263. Address: Mohammad Ghaziuddin, Taubman Center, Box 0390, University of Michigan Medical Center, 1500 East Medical Center Drive, Ann Arbor, Michigan 48109-0390.

AIT: behavioral, brain changes seen

In auditory integration therapy (AIT), participants listen through headphones to electronically filtered and modulated music for 20 half-hour sessions. A new study supports earlier research showing that AIT can be effective in reducing behavior problems in autistic individuals, and also indicates that AIT may improve the brain's ability to process stimuli.

Stephen M. Edelson and colleagues divided 19 children and adults into two groups, one which received AIT, and another which listened to unmodified music through headphones. Both study participants and evaluators were blind as to which children were receiving the real treatment.

The researchers asked parents to evaluate their children's behavior prior to and for three consecutive months after receiving the therapy. (Previous research indicates that gains from AIT appear three months after the therapy). Parents were asked not to begin any new therapies during the three-month period following the intervention.

"A significant decrease in Aberrant Behavior Checklist scores was observed in the experimental group at the three-month follow-up assessment," Edelson et al. say. Two other behavioral checklists did not show significant changes.

Of the study participants, three who received AIT and two in the placebo group were able to participate in a brainwave measurement test called the P300 ERP (Event Related Potential), which is used to evaluate the brain's ability to process stimuli. Prior to the beginning of the study, all five of these participants had abnormal P300 ERPs. "Three months following AIT, all three treated participants showed a dramatic improvement in their auditory P300 ERP," the researchers say, "whereas none of the participants in the placebo group showed change."

Edelson and colleagues note that AIT, originally believed to benefit only sound-sensitive autistic individuals, appears to be beneficial for many who are not sound-sensitive as well.

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"Auditory Integration Training: A double-blind study of behavioral and electrophysiological effects in people with autism," Stephen M. Edelson, Deborah Arin, Margaret Bauman, Scott E. Lukas, Jane H. Rudy, Michelle Sholar, and Bernard Rimland, *Focus on Autism and Other Developmental Disabilities*, Vol. 14, No. 2, Summer 1999, pp. 73-81. Address: Stephen M. Edelson, Autism Research Institute, 4182 Adams Avenue, San Diego, CA 92116.