## Is common birthing procedure a risk factor for autism?

Early cord clamping, a standard birthing practice, may be one contributor to the current epidemic of autism, hyperactivity, and learning disabilities, according to an obstetrician who strongly opposes the practice.

When delivering babies, doctors typically clamp the umbilical cord immediately, often before the newborn baby takes its first breath. This is done, physicians say, to avoid problems including polycythemia (a potentially dangerous excess of red blood cells) or excess blood viscosity ("stickiness"). However, research indicates that clamping the umbilical cord instantly can result in a temporary lack of oxygen to an infant's brain (asphyxia), which can lead to permanent damage and possibly to autism.

One recent study, by Giovanni Laviola and colleagues, specifically investigated the asphyxia-autism link. Subjecting newborn rats to temporary asphyxia, the researchers observed their later behavior. The test rats, they report, were more inhibited than controls, avoided novelty, and spent less time in grooming and play-soliciting behaviors—all behavioral symptoms consistent with autism.

While Laviola et al. did not focus on the causes of perinatal asphyxia, obstetrician George Morley believes that early cord clamping is a major culprit. "At normal birth," he says, "continuous brain oxygenation is supplied from the placenta until the lungs are oxygenating the brain, at which time the cord vessels close reflexively." Disrupting this process by clamping the cord quickly, he says, produces immediate neonatal asphyxia which lasts until the lungs are able to function. In addition, he says, rapid cord clamping deprives the child of a full supply of iron-rich placental blood, putting the infant at risk for anemia—another risk factor for learning disabilities.

Morley notes that "the incidence of autism has paralleled the incidence of immediate cord clamping," supporting a link between the two practices. He also cites a Japanese study revealing an increased risk for autism in neonatal intensive care babies, particularly those exhibiting meconium staining of the amniotic fluid. "Meconium staining indicates fetal distress/in-utero asphyxia," he says, "and these babies typically have immediate cord clamping for resuscitation." Morley and colleague Nicole Simon say the effects of early cord clamping "deserve to be investigated as extensively as genetics or exposure to toxic substances as an etiological factor for autism."

Another recent study supports Morley's and Simon's arguments, by revealing significant benefits of delayed cord clamping. Judith Mercer and colleagues compared the effects of immediate and delayed cord clamping on preterm infants, and found that the delayed-clamping group had more normal blood pressures following birth and were less likely to be discharged on oxygen. In a separate study, Mercer et al. note that early clamping causes neonatal blood volume to vary 25% to 40%, saying, "Such massive change occurs at no other time in one's life without serious consequences, even death." They conclude, "Early cord clamping may impede a successful transition and contribute to hypovolemic (reduced blood supply) and hypoxic (low oxygen) damage in vulnerable newborns." Mercer also has conducted a large-scale meta-analysis that concludes that "for both term and preterm infants, few, if any risks were associated with delayed cord clamping."

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"Social withdrawal, neophobia, and stereotyped behavior in developing rats exposed to neonatal asphyxia," G. Laviola, W. Adriani, M. Rea, L. Aloe, and E. Alleva, *Psychopharmacology*, February 25, 2004 (epub ahead of print). Address: Giovanni Laviola, Section of Behavioral Pathophysiology, Lab Fisiopatologia OS, Dipartimento Biologia Cellulare e Neuroscienze, Istituto Superiore de Sanita, viale Regina Elena 299, 00161, Roma, Italy.

—and—

"Lost causes and side effects" (letter), George Malcolm Morley, *British Medical Journal*, December 17, 2001; and "Autism: its neuropathology, cause and prevention," presentation to the International Meeting for Autism Research (IMFAR), November 1, 2002. Address for both: George Malcolm Morley, P.O. Box 181, Northport, MI 49670.

—and—

"Immediate and delayed cord clamping in infants born between 24 and 32 weeks," J.S. Mercer et al., *Journal of Perinatology*, Vol. 23, No. 6, September 2003, 466-72; and "Neonatal transitional physiology: a new paradigm," J.S. Mercer et al., *Journal of Perinatal and Neonatal Nursing*, Vol. 15, No. 4, March 2002, 56-75; and "Current best evidence: a review of the literature on umbilical cord clamping," J. S. Mercer, *Journal of Midwifery and Women's Health*, Vol. 46, No. 6, Nov.-Dec. 2001, 402-14. Address for all: Judith Mercer, College of Nursing, University of Rhode Island, White Hall, 2 Heathman Road, Kingston, RI 02881-2021.

## Ziprazidone: less risky than other antipsychotics?

The antipsychotic drug ziprasidone (Geodon) may be at least somewhat safer than risperidone (Risperdal) and other atypical antipsychotics, according to a recent study.

Seth Cohen et al. found that for patients who exhibited elevated cholesterol or triglyceride levels or excessive weight gain while taking other antipsychotics, a switch to ziprasidone often led to weight loss and a reduction in cholesterol and triglyceride levels.

However, ziprasidone itself is associated with significant side effects, which can include prolonged QT interval (a heart irregularity that can cause sudden death), tardive dyskinesia, and neuroleptic malignant syndrome (an uncontrollable "overheating" of the body that can be fatal). Additional side effects include indigestion, nausea, abdominal pain, dizziness, and insomnia.

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"The effect of a switch to ziprasidone in an adult population with autistic disorder: chart review of naturalistic, open-label treatment," S. A. Cohen, B. J. Fitzgerald, S. R. Khan, and A. Khan, *Journal of Clinical Psychiatry*, Vol. 65, No. 1, January 2004, 110-3. Address not listed.

## *Briefly....*

### Autism again linked to autoimmune disorder

Growing evidence points to autoimmune processes, in which the body attacks its own cells, as a factor in autism. Among the findings is a new study by Vijendra Singh and Wyatt Rivas, who evaluated 68 autistic children and 30 controls and found that the autistic children but not the controls had antibodies to caudate nucleus, cerebral cortex, and cerebellum.

"Since a significant number of autistic children had antibodies to caudate nucleus," they say, "we propose that an autoimmune reaction to this brain region may cause neurological impairments in autistic children. Thus, the caudate nucleus might be involved in the neurobiology of autism."

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"Prevalence of serum antibodies to caudate nucleus in autistic children," Vijendra K. Singh and Wyatt H. Rivas, *Neuroscience Letters*, Vol. 355, 2004, 53-6. Address: Vijendra Singh, singhvk@cc.usu.edu.

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### Thimerosal causes autoimmune reaction

A new study from Sweden shows that the vaccine preservative thimerosal can provoke an autoimmune response.

S. Havarinasab and colleagues exposed genetically vulnerable mice to drinking water contaminated with thimerosal for 70 days. They found that "thimerosal induces in genetically susceptible mice a systemic autoimmune syndrome very similar to that seen after treatment with inorganic mercury," although a larger dose of thimerosal than methylmercury is needed to trigger this effect.

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"Dose-response study of thimerosal-induced murine systemic autoimmunity," S. Havarinasab, L. Lambertsson, J. Qvarnström, and P. Hultman, *Toxicology and Applied Pharmacology*, Vol. 194, 2004, 169-79. Address: P. Hultman, perhu@imk.liu.se.

### DAN! Pioneer Awarded Medal

Congratulations to Karl Reichelt, M.D., Ph.D., upon being awarded a gold medal by the King of Norway for his outstanding scientific research. Dr. Reichelt, who was one of the 30 participants invited to the first DAN! think tank in January 1995, speaks frequently at DAN! conferences. His laboratory at the University of Oslo has, since 1981, conducted pioneering work on the effects of diet on the neurochemistry of autism. Abstracts of many of his studies may be found at www.autismndi.com/studies.

We are all proud of you, Dr. Reichelt!

*Your donations to ARI have helped support Dr. Reichelt's research.*