

Perinatal Factors Foreshadow Neurologic Deficits in TTTS

BY DIANA MAHONEY
New England Bureau

SAN FRANCISCO — Long-term neurologic impairment among twin-to-twin transfusion syndrome survivors is mediated by perinatal factors but not by mode of treatment, reported Dr. Lisa Ortqvist at the annual meeting of the Society for Maternal-Fetal Medicine.

Gestational age at delivery, 1-minute Apgar score, and Quintero staging each independently predicted severe neurologic abnormalities over time in a cohort of twin-to-twin-transfusion syndrome (TTTS) survivors treated with either endoscopic laser surgery or serial amnioreduction, said Dr. Ortqvist of Paris-Ouest University (France). Neither treatment modality independently predicted neurologic outcome over time, she said.

The population for this study included 135 children born to mothers who had been enrolled in the randomized Eurofetus trial, which compared aggressive serial amnioreduction for severe TTTS with fetoscopic laser ablation therapy (N. Engl. J. Med. 2004;351:136-44).

The Eurofetus trial results demonstrated a survival advantage associated with fetoscopic laser surgery with a lower risk of brain injury. The current investigation sought to evaluate the long-term neurodevelopmental outcome of children who survived beyond 6 months in both study arms, Dr. Ortqvist explained.

The study included 80 children from the laser therapy arm (29 donors, 51 recipients) and 55 children in the amnioreduction arm (29 donors, 26 recipients) followed for a median 5.3 years. Outcome data included physician-reported results from an-

nual physical examinations and standardized neuroevaluations, parent-completed Ages and Stages Questionnaires yearly from ages 2 through 5 years, and cognitive evaluation at age 6 years using the Wechsler Intelligence Scale for Children.

Using the clinical data, the investigators classified the children into one of three groups based on degree of neurologic impairment. Group 1 included children with normal physical and neurologic examinations; group 2 included children with minor neurologic abnormalities, such as strabismus or mildly delayed motor/speech development; and group 3 included children with major neurologic abnormalities, such as cerebral palsy, hemiparesis, or spastic quadriplegia. Of the initial cohort, 11.5% were classified as having major neurologic problems, not including the children lost to follow-up, said Dr. Ortqvist.

In univariate analysis, Quintero staging, gestational age at delivery, female gender, and 1- and 5-minute Apgar scores were predictive of major neurologic problems. In multivariate analysis, Quintero staging, gestational age at delivery, female gender, and 1- and 5-minute Apgar scores were predictive of major neurologic problems, while procedure type, donor/recipient status, birth weight, and arterial pH values were not, Dr. Ortqvist reported.

In the multivariate analysis, "if we considered that the children lost to follow-up did not have major neurologic problems, only Quintero staging, gestational age at delivery, and 1-minute Apgar scores demonstrated a significant association with major neurodevelopmental problems," she said.

Although there was no significant difference in neurologic impairment between laser treatment and amnioreduction, "Endoscopic laser surgery is associated with increased survival overall, and as such is associated with improved survival without long-term neurological impairment," Dr. Ortqvist concluded.

Quintero staging, gestational age at delivery, female gender, and 1- and 5-minute Apgar scores were predictive of major neurologic problems.

Second-Twin Mortality Risk Doubles at Term

BY SHERRY BOSCHERT
San Francisco Bureau

SAN FRANCISCO — Delivery-related perinatal death rates aren't higher for second twins overall, but they more than double in twins delivered at term, British study results suggest.

Gestational age and birth order of twins made a statistically significant difference in an analysis of data from national registries in England, Northern Ireland, and Wales; the data were collected between 1994 and 2003.

The study included 1,501 cases of intrapartum stillbirth or neonatal death of the second twin but not the first, Dr. Gordon C. Smith reported at the annual meeting of the Society for Maternal-Fetal Medicine.

The risk of death due to intrapartum anoxia or trauma in second twins was three- to four-fold higher at term (at least 36 weeks' gestation), compared with earlier deliveries.

Similarly, risk was found to be fivefold higher in second twins delivered vaginally at term, compared with babies delivered earlier.

No statistically significant increase in risk was seen with cesarean deliveries at term, said Dr. Smith of the University of Cambridge, England.

"Occasionally, the risk of

death may be reduced by planned cesarean section" of twins, he said.

One physician in the audience bemoaned the widespread use of cesarean section for delivery of fetuses in breech position and for many other indications.

"Now every second twin at term? Where are we going to stop?" he asked.

Dr. Smith suggested that physicians should try to balance the risks of cesarean section with the potential benefits for each patient in their counseling and management of pregnant women.

It has been well known that vaginal delivery of a second twin carries increased risks because of a number of specific complications like cord prolapse or placental abruption, but data have been mixed on whether the risk of neonatal death increases.

British studies in 2002 and 2005 found an increased risk of perinatal death for the second twin, but a U.S. analysis of 300,000 twin births found no association between birth order and risk of neonatal death.

The previous studies all had fundamental flaws in their analytical approaches that undermined their conclusions, Dr. Smith said.

The present study excluded perinatal deaths due to congenital anomalies.

Placental Cord Insertion Site Predicts Twins' Outcome

BY DIANA MAHONEY
New England Bureau

SAN FRANCISCO — Ultrasound identification of placental cord insertion sites in monochorionic diamniotic twin gestations can identify pregnancies at higher risk for preterm delivery, twin-to-twin transfusion syndrome, and growth discordance, according to the findings of a retrospective study.

This information can be used to counsel patients with monochorionic diamniotic twin gestations regarding the potential fetal and neonatal morbidity and mortality risks, Dr. John Allbert reported in a poster presentation at the annual meeting of the Society for Maternal-Fetal Medicine.

A cohort of 35 twin pregnancies referred by a single perinatologist for targeted ultrasound evaluation between November 2001 and November 2005 was included in the analysis. All of the

pregnancies were monochorionic diamniotic and were at less than 22 weeks' gestation at the time of ultrasound. Additionally, at the time of evaluation, both fetuses in all of the pregnancies were anatomically normal and did not meet the criteria for diagnosis of twin-to-twin transfusion syndrome (TTTS), said Dr. Allbert.

Real-time ultrasound was used to locate the placental cord insertions (PCI), and the results were confirmed with color Doppler. The insertions were then categorized as velamentous, marginal (if less than 2 cm from the placental edge), or central (2 cm or more from the edge).

On the basis of the twin pair PCIs, the pregnancies were classified into one of three groups. In group 1, the twin pair PCIs were both central. In group 2, the PCIs were either central and marginal or both marginal, and in group 3, the twin pair PCIs were central

and velamentous, Dr. Allbert explained.

Of the 35 pregnancies, 11 were classified into group 1, 17 into group 2, and 7 into group 3. The groups were compared using x2 analysis or Fisher exact test for the following outcome variables: gestational age at delivery, discordant growth, TTTS, need for amnioreduction, selective laser photocoagulation therapy, preterm labor, premature rupture of membranes, perinatal mortality, preeclampsia, and chorioamnionitis.

According to the results, "both marginal and velamentous cord insertions were significantly associated with growth discordance, earlier gestational age at delivery, and a higher incidence of twin-to-twin transfusion syndrome," said Dr. Allbert.

Specifically, the mean gestational age at delivery in group 1 was 36.4 weeks, compared with 33.6 weeks and 31.6 weeks, in

groups 2 and 3, respectively. Growth discordance of at least 20% was not observed in group 1, but did occur in 29.4% and 71.4% of groups 2 and 3, respectively.

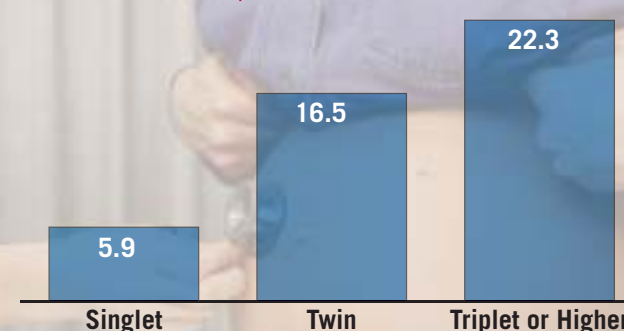
Similarly, TTTS did not occur in group 1, but did occur in 35.3% of group 2 pregnancies

and in 57.1% of group 3 pregnancies.

For group 1 pregnancies, in which both cord insertion sites were at least 2 cm from the placental edge, "the pregnancy risks appeared to be similar to those of dichorionic twins," Dr. Allbert concluded.

DATA WATCH

Fetal Mortality Rises With Fetal Count (rate per 1,000 live births)



Source: 2003 data, Centers for Disease Control and Prevention