

The Perinatal Gazette

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ABO Incompatibility: Phototherapy, Exchange Transfusion, and IVG?

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Neonatal hyperbilirubinemia is a very common disorder affecting as many as 60 percent of term neonates and the vast majority of preterm neonates. Hyperbilirubinemia is caused by increased bilirubin production, decreased hepatic uptake, impaired bilirubin conjugation and increased enterohepatic circulation. ABO incompatibility is one of several risk factors that increase the risk of developing neonatal hyperbilirubinemia. If born to mothers with group O blood types, neonates with group A or B erythrocytes may develop hyperbilirubinemia, hemolysis and positive Coombs' tests. In this condition, transfer of maternal anti-A or anti-B antibodies into the fetal circulation occurs, causing hemolysis and hyperbilirubinemia. This disorder is usually milder and of shorter duration than Rh erythroblastosis. However, it may cause severe hemolysis, jaundice and kernicterus.¹

Monitoring for neonatal hyperbilirubinemia remains a pressing issue. Cases of neonatal jaundice have risen steadily since the mid-1990's.² Bilirubin encephalopathy presents with a wide clinical spectrum, including permanent motor dysfunction, verbal impairment, hearing loss and kernicterus, a pathologic diagnosis made at autopsy. Management of hyperbilirubinemia includes hydration, phototherapy, exchange transfusion, drugs to increase conjugation, inhibition of reabsorption (binding in the gut) and inhibition of bilirubin production.

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Vaginal Birth After Previous Cesarean Delivery

Howard Blanchette, MD, Professor & Chair, New York Medical College

Between 1970 and 2007, the cesarean delivery rate in the United States increased dramatically from 5% to more than 31%. This increase in cesarean delivery rate was in part due to the dictum "once a cesarean, always a cesarean." However, data began accumulating in the late 1970's and early 1980's suggesting that a vaginal birth after cesarean section (VBAC) was associated with minimal maternal or perinatal morbidity, and with success rates of 65-85%. The VBAC success rate, which was 5% in 1985, increased to a high of 28.3% in 1996. During this time the total cesarean delivery rate in the United States decreased to approximately 20% by 1996. As the number of women pursuing Trial of Labor After Cesarean (TOLAC) increased, so did the number of reports of uterine rupture and other complications. As a result there was a reversal of Trials of Labor After Cesarean, and an increase in the total cesarean delivery rate. By 2006, the VBAC rate had decreased to 8% and the total cesarean delivery rate had increased to 31.1%.

The National Institutes of Health's Consensus Development Conference on Vaginal Birth after Cesarean held March 8-10, 2010, in Bethesda, Maryland reviewed the increase in cesarean births in the United States, and the dramatic decrease in trials of labor after previous cesarean births. A review of all of the current evidence available in the literature yielded the conclusion that TOLAC is a reasonable option for many pregnant women with one prior low transverse uterine incision. Also concluded was that when a Trial of Labor and an elective repeat cesarean delivery are medically equivalent options, a shared decision making process should be adopted, and whenever possible the woman's preference should be honored. In addition; given the low level of evidence for the requirements for "immediately available surgical and anesthesia personnel", it was recommended that the American College of Obstetricians and Gynecologists, and the American Society of Anesthesiologists, reassess this requirement with specific reference to other obstetric complications of comparable risk, risk stratification and in light of limited physician and nursing resources. Another recommendation is that hospitals, maternity care providers, healthcare and professional liability insurers, consumers, and policy makers, collaborate on the development of integrated services that could mitigate or even eliminate current barriers to Trial of Labor After Cesarean.

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Traditional therapies for severe hyperbilirubinemia include hydration, phototherapy and exchange transfusion. A double-volume exchange transfusion is indicated for hyperbilirubinemic neonates not responding to phototherapy who are at risk for kernicterus. Adverse effects of exchange transfusion include apnea, bradycardia, electrolyte abnormalities, thrombocytopenia, catheter-related events, necrotizing enterocolitis (NEC) and death. Drugs to inhibit heme oxygenase are used to treat hyperbilirubinemia and prevent the need for exchange transfusion. Metalloporphyrins are synthetically derived pharmacologic compounds that resemble heme but have a substitution of the central metal ion and some side chains of the porphyrin ring. Tin-Mesoporphyrin has been shown to prevent the need for phototherapy in full-term neonates.³ If FDA approved, this drug may be useful in preventing the need for exchange transfusion in neonates not responding to phototherapy. The Regional NICU at Maria Fareri Children's Hospital is currently participating in a Phase 2b, multicenter, single-dose, blinded, randomized, placebo-controlled, dose-escalation, safety and efficacy trial of Stansoporphin (Stanate®) in neonates with hyperbilirubinemia.

The immunomodulator IVIG (Intravenous Immunoglobulin) could be indicated in the treatment of neonatal hemolytic jaundice.⁴ Pooled immunoglobulins competitively inhibit the maternal antibodies present in the fetal circulation in ABO incompatibility and other hemolytic conditions. A recently published series of cases reported healthy breastfed term neonates who developed NEC after receiving IVIG therapy for refractory hyperbilirubinemia.⁵ A subsequent retrospective chart review of late preterm and term infants with severe isoimmune hemolytic jaundice also revealed that the use of high-dose IVIG was associated with a higher incidence of NEC.⁶ A recent review article found that IVIG, when used as soon as possible in newborn infants over 32 weeks gestation afflicted with Rh or ABO hemolytic disease, brings about, with no undesirable side effects, a significant decrease in the need for exchange transfusion as well as a significant reduction in the length of phototherapy and hospitalization.⁷ However, we cautioned in a letter to the editor that there could be significant side effects with the use of IVIG for this purpose.⁸ A recent *Neoreviews* article from our institution and the University of Valencia in Spain summarized the indications for IVIG and iterated that it must be used with caution in the neonatal period.⁹

AAP Guidelines published in 2004 urge continued vigilance in screening for neonatal jaundice, and treatment when indicated with phototherapy or exchange transfusion.⁴ In conclusion, neonatal hyperbilirubinemia, associated with ABO incompatibility and other potential risk factors, remains a problem in the neonatal period. When hemolytic jaundice and hyperbilirubinemia are refractory to phototherapy, referral to a tertiary care center for therapies such as exchange transfusion and IVIG are recommended.

Our Regional NICU at Maria Fareri Children's Hospital offers exchange transfusion, IVIG and experimental use of metalloporphyrins to treat neonates with this disorder.

For more information, email:
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¹ Fanaroff and Martin's *Neonatal-Perinatal Medicine: Diseases of the Fetus and Infant*. Eighth edition. Edited by Martin RJ, Fanaroff AA, Walsh MC. Published by Elsevier Mosby, 2006.

Midwife Reform Bill Passes Assembly

Licensed professional midwives would be able to practice independently under a bill that passed the Assembly Monday, June 28, with bi-partisan support. "This is an important step forward for women's health," said Assembly Health Committee chair Richard N. Gottfried, author of the bill, A. 8117-B. The Senate bill, S. 5007-A, is sponsored by Senator Thomas K. Duane and is on the Senate floor awaiting a vote.

Professional midwives have been licensed in New York State for decades. They provide prenatal care, deliveries, and primary gynecological care. However, they are required to have a "written practice agreement" with an obstetrician or a hospital that provides obstetric services. The bill would repeal the requirement for a written practice agreement.

"The 1,300 licensed midwives in New York perform about 15% of the non-Caesarean deliveries, with exceptionally high rates of successful outcomes and patient satisfaction," Gottfried said. "The written practice agreement is an unnecessary restriction that blocks many midwives from serving the community."

When a pregnancy or delivery develops complications or becomes high risk, a midwife refers the patient to a physician. While some people associate the word "midwife" with home birth, the vast majority of midwives deliver babies exclusively in a hospital.

"Every physician commonly has to refer a patient to a specialist or a hospital, but the law doesn't bar them from practicing without a written practice agreement with specialists or hospitals," said Gottfried. Midwives currently practice in 15 states (AK, AZ, CT, DC, ID, IA, ME, MN, MT, NH, NM, OR, RI, WA, WY) without signed practice agreements.

"Too often, the written practice agreement requirement is an obstacle to midwifery care," Senator Duane said. "In some rural communities, there are no physicians available and willing to sign an agreement. The written practice agreement requirement can be an obstacle even in urban areas. When St. Vincent's Hospital closed in April in my area in Manhattan, midwives affiliated with the hospital or the hospital's physicians had to scramble for new arrangements."

In New York City, St. Vincent's was one of the only hospitals that provided written practice agreements for midwives who do home births. Hundreds of their pregnant patients were left without care when St. Vincent's closed. "Many of the home birth midwives remain without written practice agreements, causing upheaval for families who had chosen home birth in the expectation of a peaceful birth experience without medical intervention," Gottfried added.

The bill is supported by the New York State Association of Licensed Midwives, the American College of Nurse-Midwives, SUNY Downstate Medical Center, Citizens for Midwifery, National Organization for Women - NYS Chapter, New York State Perinatal Association, New York State Nurses Association, and The Nurse Practitioner Association of New York State.

"In rural Tompkins and Cortland counties, we have several midwives who are being forced to leave the community because the local physicians are not willing to sign agreements with them," said Assembly Member Barbara Lifton, who represents that area. "Their malpractice insurance company may think it adds to the physician's liability, or some of the physicians don't want the competition. But the result is a more severe health care shortage for the women of New York."

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Fortuitously, the American College of Obstetricians and Gynecologists replaced its Practice Bulletin #54, July 2004, and Committee Opinion #342 from August 2006, with a Practice Bulletin #115 in August 2010. They continued to espouse based on **Level A** evidence, (Good and consistent scientific evidence) that most women with one previous cesarean delivery with a low transverse incision are candidates for, and should be counseled about VBAC, and offered TOLAC.

With **Level B** evidence, (Limited or inconsistent scientific evidence) they revised their previous recommendation, which required a history of a previous vaginal delivery before TOLAC could be considered in women with two previous low transverse cesarean deliveries. In the revision, they have outlined that women with two previous low transverse cesarean deliveries may be considered candidates for TOLAC. They also added that women with one previous cesarean delivery with a low transverse incision, who are otherwise appropriate candidates for twin vaginal delivery may be considered for TOLAC. They did state that external cephalic version for breech presentation is not contraindicated in women with a prior low transverse uterine incision, who are at low risk for adverse maternal or neonatal outcomes from external cephalic version and TOLAC. They emphasized that induction of labor for maternal or fetal indication remains an option for women undergoing TOLAC; and they also stated that TOLAC is not contraindicated for women with previous cesarean delivery with an unknown uterine scar type, unless there is a high clinical suspicion of a previous classical uterine incision.

Using **Level C** evidence, (Primarily consensus and expert opinion) ACOG however continued to emphasize that a Trial of Labor after previous cesarean delivery should be undertaken at facilities capable of emergency deliveries; and they again reiterated that TOLAC be undertaken at facilities with staff immediately available to provide emergency care. Their final counsel was that the ultimate decision to undergo TOLAC or a repeat cesarean delivery should be made by the patient in consultation with her health care provider. The potential risks and benefits of both TOLAC and elective repeat cesarean delivery should be discussed.

It is heartening to know that ACOG continues to be supportive of vaginal birth after cesarean, and it is cognizant of the increase maternal risk with multiple cesarean deliveries. This is clearly stated in its Committee Opinion #386, November 2007, on cesarean delivery on maternal request, in which the College concludes that cesarean delivery on maternal request is not recommended for women desiring several children, given that the risk of placenta previa, placenta accreta, and the need for gravid hysterectomy increase with each cesarean delivery.

It is hoped that with the best current evidence available, taking into the full consideration the safety of mother and fetus, that the pendulum will swing to back to "Once a Cesarean, always a Trial of Labor".

References:

National Center for Health Statistics, (NCHS), CDC

American College of Obstetricians and Gynecologists (ACOG), Committee Opinion Report, August, 2010.

National Institute of Health's Consensus Development Conference on Vaginal Birth after Cesarean, March, 2010.



Congratulations Dr. La Gamma

At the 31st annual Westchester Medical Center Gala held recently at Pier Sixty at Chelsea Piers in New York City, **Dr. Edmund La Gamma, M.D.**, the Director of the Regional Neonatal Center at Westchester Medical Center and Chief of the Division of Newborn Medicine at Maria Fareri Children's Hospital, was

honored for his outstanding efforts and accomplishments, which have brought the Regional Neonatal Intensive Care Unit to a level unparalleled in the region.

Dr. La Gamma joined the Westchester Medical Center team 11 years ago. With Dr. La Gamma's leadership, the Regional NICU at Maria Fareri Children's Hospital has matured considerably. The number of neonatologists in the unit has increased from three to 27 and the number of babies treated has grown to 700 annually. Dr. La Gamma has helped build partnerships with 11 community hospitals in the Hudson Valley region and Fairfield County, Connecticut, to create a spoke-and-Hub system of care for premature or ill newborns with Westchester Medical Center and Maria Fareri Children's Hospital as its centerpieces. In addition, Dr. La Gamma helped build one of the largest Neonatal-Perinatal fellowship programs in the United States. Dr. La Gamma has also influenced care provided to newborns in other Neonatal Intensive Care Units. In the past five years, Dr. La Gamma and his staff have conducted more than \$4 million research. Personally, Dr. La Gamma has written over 100 peer-reviewed basic and clinical research reports as well as 25 chapters in text books regarding neonatal care and development. Because of his outstanding clinical work and personal care, Dr. Edmund La Gamma has appeared numerous times on "Best Doctors" lists for many years and has received countless awards.

Continued from page 2. *ABO Incompatibility References:*

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**For the full NIH 2010 VBAC consensus statement please go to:
www.consensus.nih.gov**

9th Annual Regional Perinatal Forum Conference

Early Bird Registration Fee \$60

(\$75 after October 21, 2010)

Seating is limited please register early!

For more information, call (914) 493-7612 or e-mail: Heather_Brumberg@nymc.edu

*Applications for CE units submitted.

SAVE THE DATE 9TH ANNUAL HUDSON VALLEY REGIONAL PERINATAL FORUM CONFERENCE

Preventing Late Preterm Births and Unnecessary Cesarean Deliveries: How to Reach the Public Using Social Health Marketing

Wednesday • November 3, 2010 • 8:30 a.m. - 4 p.m.
Marriott Westchester • 670 White Plains Road • Tarrytown, NY 10591

MORNING KEYNOTE SPEAKER:
ALAN R. ANDREASEN, PhD, MS, Professor of Marketing, McDonough School of Business of Georgetown University;
Executive Director of the Social Health Marketing Institute

AFTERNOON KEYNOTE SPEAKER:
JULIA KISH DOTO, PhD, MS, Health Communication Specialist at RTI International

Pediatric Grand Rounds • 8 - 9 a.m.
Maria Fareri Children's Hospital at Westchester Medical Center
Valhalla, NY 10595



Alan R. Andreasen, PhD, MS



Julia Kish Doto, PhD, MS

Sponsored by: The Hudson Valley Regional Perinatal Forum Conference
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For a copy of our newsletter or to be placed on our mailing list, contact us by phone or e-mail.

Please visit <http://www.worldclassmedicine.com/RPC> for information about the Regional Perinatal Center at the Maria Fareri Children's Hospital at Westchester Medical Center and to locate other issues of *The Perinatal Gazette*.

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