



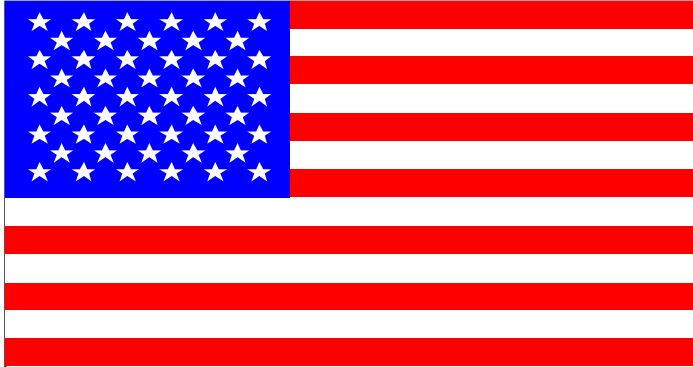
Perinatal Gazette

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A personal thought from Dr. Nergesh Tejani, entitled “After 9/11/01”

“Sadness that will not leave - as to what happened and more - as to why it happened. How can we put it down and move on? We think back to our resilience. We always spring back. The sharp edge of pain is always blunted with time. Are there some unspeakable things from which there is no return?”

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It is my day in the diabetic-prenatal clinic. Nothing seems important any more. All those daily things-reading, eating, walking, cleaning, swimming, laughing. The first patient is a young woman who has been a diabetic for four years. She is a single parent trying hard to hold down a job, care for a four year old. No time to spend caring for her own problems. Her hemoglobin A1C, evidence of long term diabetic control, is wild at 19%, the highest I have ever seen! Prognosis for a periconceptual HbA1C of more than 13% is dismal with an enormous congenital anomaly and pregnancy loss rate.

The few blood sugars she has done are out of control. We decide to admit her to the hospital for diabetic control, but we first perform a sonogram to confirm her early pregnancy. The images show a sac, a fetal pole- no more than a speck, a yolk sac - all the requisites, but no heart activity.

As we counsel her, I think to myself – perhaps this is for the best. How can this harried woman take on yet another responsibility? She surprises us all by her grief. Infectious grief that raises us all from our collective sadness. It mattered not to her what her life circumstance was and it mattered not that a tragedy of tragedies had occurred – she was experiencing the death of a loved one and she was in the depths of a mother’s despair. She carried us with her - for sometime we had forgotten what had happened and continued what we are use to doing - attending to our patient. Love her, console her, make a plan for her, and give her the phone numbers she may need.

Keep working - it helps; it may be the only thing that helps.”

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The Neonate with Cardiac Problems

The neonate with a cardiac problem is always an issue of great concern. This is because birth heralds the great transitional change from the fetal circulation to the postnatal adult circulation. The baby changes from an aquatic lifestyle to an air-breathing animal, and the body makes the transition from placental gas exchange to pulmonary ventilation. At this time the pulmonary vascular resistance drops rapidly and pulmonary blood flow increases. Structures like the foramen ovale and ductus arteriosus which were vital conduits for blood flow in the fetal life are now of no use, and begin to close.

Neonatal heart disease varies from a benign heart murmur to hypoplastic left heart syndrome or interrupted aortic arch where the baby would have to be treated with intravenous prostaglandins immediately. Identifying the neonate at high risk who requires prompt referral to a cardiologist and recognizing a benign cardiac murmur are important roles of the treating pediatrician, nursery nurse or neonatologist.

The High Risk Neonate:

Neonatal heart disease that would prompt rapid action would fall under the category of ductal dependent lesions and transposition of great arteries (which is not truly a ductal dependent lesion). Table 1 lists the lesions, which could be left sided, or right sided cardiac problems. These are lesions that may not be detected easily in the first few hours of life when the PDA is wide open, but would manifest as severe cyanosis/ acidosis/ shock or death as soon as the PDA closes in a few hours to days. Reliable four extremity pulse oxymeter saturation and blood pressures will help rule out most ductal dependent lesions.

Left sided lesions like hypoplastic left heart syndrome (HLHS) and its variants may be diagnosed in the fetal life and referred for delivery to a tertiary care unit, and prompt post natal referral to a pediatric cardiologist would facilitate confirmation of diagnosis and appropriate management. Often four extremity saturation would suggest a right to left ductus supplying the lower extremities, if the leg saturation's were lower than the arms (Differential saturation).

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This situation would be present in neonates with suprasystemic RV pressures as in PPHN (persistent pulmonary hypertension in newborn) and in critical coarctation/ interruption of arch where the PA supplies the lower part of the body via the PDA. A blood pressure difference between arms and legs if present, would differentiate PPHN from aortic arch obstruction.

Right-sided ductal dependent lesions present with central cyanosis, the degree of which would depend on the size of the PDA. A blood gas and a hyperoxia test would help differentiating between central cyanosis of respiratory and cardiac origin. The cyanosis increases with shrinkage of the ductus arteriosus in these babies. They require prompt institution of prostaglandin's to keep the ductus open until a BT shunt can be placed to augment pulmonary blood flow.

Transposition of Great arteries is another condition where the baby presents with deep cyanosis which does not improve with 100% Oxygen, and requires a balloon atrial septostomy to improve intracardiac mixing prior to arterial switch operation. A PDA is not as effective for mixing of deoxygenated and oxygenated blood as ASD, however, occasionally, starting prostaglandins and opening the ductus may temporarily help to improve the Oxygen saturation.

Non urgent Neonatal Heart Disease:

In contrast to the lesions described above, babies with VSDs, PDA and moderate valvular stenosis often present with murmurs in an otherwise healthy infant. Neonates with physiologic peripheral pulmonary artery stenosis also present with systolic murmurs often widely heard over the chest and back. These are benign lesions and the murmurs disappear as the infant grows. In all these cases, the baby is fully saturated and has no blood pressure differential between the arms and legs. As shunting across a VSD or PDA is not much in the presence of a relatively higher pulmonary vascular resistance in the first few days of life, there are no symptoms suggestive of any cardiac problem in the nursery. Often a systolic murmur is first heard only during the first office visit when the PA pressures have normalized and the left to right shunting becomes significant.

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The PDA in a full term neonate is different from one in a premature baby in that it does not cause hemodynamic problems necessitating urgent closure. Valvular lesions if critical (Critical AS or PS) usually present as ductal dependent lesions or as neonatal CHF (due to poor ventricular function) and are amenable to transcatheter balloon dilatation in the neonatal period.

The patent ductus arteriosus in an extremely premature baby and in a baby with PPHN are part of the physiology of these sick neonates and do not truly come under the realm of congenital heart disease.

As described above, heart disease in neonates could be benign or very significant and a high index of suspicion and knowledge of physiology will help differentiate the two and allow appropriate triage and intervention. Most of the lesions are amenable to either transcatheter intervention or surgical therapy and early diagnosis would allow these interventions to be performed at an optimal time. Antenatal diagnosis aids in optimizing the timing, location and type of delivery as well as for parental counseling prior to delivery itself.

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Table

Ductal Dependent Cardiac Lesions

Right Heart

TOF, Pulmonary Atresia (PA)
Critical TOF
Pulmonary Atresia, No VSD
Critical Aortic Stenosis
Tricuspid atresia, VSD, PS/ PA
Univentricular Heart with PS/PA
Severe Ebsteins Anomaly
More ASD dependent than ductal dependent

Left Heart

HLHS
Severe Aortic Coarctation
Interrupted Aortic Arch
Critical Aortic Stenosis
"Shones" Complex Variants

Other

Transposition of Great Arteries

Happy Holiday's To All



“Clinical notes”

Pain Assessment in The NICU

Neonates are more sensitive to pain compared to older children and adults and are more vulnerable to its long-term effects. Management of pain must be considered a priority for the newborn. It is very difficult to assess pain in the critically ill and preterm neonate. The difficulties in recognizing that the neonate is experiencing pain and fear regarding the adverse effects associated with analgesic use is common.

The capacity to experience pain can be distinguished by 24 weeks gestation. Stress can alter basic physiological function. Pain and agitation can cause altered oxygenation, feeding problems and behavioral development. Immediate physiological consequences are increase in heart rate, respiratory rate, and blood pressure and decrease in oxygen saturation and vagal tone. Changes in behavior also occur as a result of pain. The typical facial expression consists of bulging brows, eyes squeezed tightly shut, and mouth stretched vertically and horizontally open and the tongue-cupped out. The pain cry is high pitched and harsh. The body movements are distorted. The muscle tone tensed or flaccid. There are other pain assessment scales like “CRIES” & “PIPP” are being used in other centers. We’re in the process of developing a pain scale here at WMC that can be used for NICU babies of a wide range of gestational age.

For a pain assessment scale please call:

Annamma John, RNC., MSN., ANCC.
Phone (914) 493 –8585

References:

Anand.K.J.S. (2002) and the International Evidence Based Group for Neonatal Pain Arch Pediatrics.155: 173-180.
Philips.P (1995, March-April). Neonatal Pain management call to action. Pediatric Nursing 21(2), 195-199.
Stevens B.J. (1995, Nov-Dec). Special Needs of preterm infants in the management of pain and discomfort. JOGNN, 24(9), 856-861.

Pediatric Winter Grand Rounds Schedule - Cedarwood Hall at WMC Campus – Jan (914) 594-4020

- 11-28 Pulmonology-Pediatric Sleep Disorders-Dr. Lehrman
- 12-5 Allergy/Immunology- Dr. Fusillo
- 12-12 Cardiology
- 12-19 ACGME Competency Project–Dr. Woolf
- 12-26 No Grand Rounds
- 1- 2 No Grand Rounds
- 1- 9 Neonatology
- 1-16 Critical Care
- 1-23 CPC/M&M -Dr. Woolf
- 1-30 Developmental/Behavioral
- 2- 6 Neurology
- 2-13 Allergy/Immunology
- 2- 20 Gastroenterology
- 2- 27 Genetics
- 3- 6 Nephrology

Obstetrics/Gynecology Winter Grand Rounds Schedule Cedarwood Hall at WMC Campus & Teleconferenced from St. Vincent's in the WMC Learning Center at 8am call LaJuanna for questions (914) 347-4138

- 11-1 Intrauterine Repair of Spina Bifida - Frank Boehm, MD
- 11-8 Recurrent Pregnancy Loss - Anthony Vintzileos, M.D.
- 11-15 Managing Multiples -Richard Viscarella, M.D.-*Teleconference*
- 11-22 NO MEETING – Thanksgiving Holiday
- 11-29 To Be Announced -Catherine Seeley
- 12-6 Resident Presentation To Be Announced-Aleksandr Fuks, M.D.
- 12-13 Topic to be announced – Fred Agre, M.D.
- 12-20 The Role of the Obstetrician in Preventing Neural Tube Defects: Understanding the Benefits of Folic Acid- Donald R. Mattison, M.D. -*Teleconference*

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We are interested in providing you with a newsletter that is relevant and of interest to you. Please contact us with perinatal topics you would like to see addressed.

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Children's Hospital at Westchester Medical Center

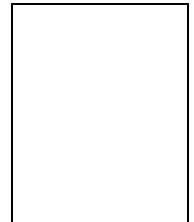
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ADDRESS CORRECTION REQUESTED



