

# THE LNC NEWSLETTER

PRESENTED BY:

## Medical-Legal Interface

### Welcome to Our newest Member of the Newsletter Team

May 2006

**Inside this issue:**

<b>Traumatic Brain Injury (TBI) Online Resources</b>	<b>2</b>
<b>Brachial Plexus Injuries</b>	<b>4</b>

Dolores Taylor is a Certified Legal Nurse Consultant with 15 years experience as a Registered Nurse, with specialization in Obstetrics and Gynecology in both the hospital and clinical settings. She was the Nursing Coordinator for a small OB/GYN practice where she assisted with the start-up of the practice in an administration manner. Dolores was also an Instructor of LPN students in Basic Nursing, Nursing Skills and Life Span Psychology at a Professional Institute.

Dolores attended NVCC where she remained on the Dean's List throughout her studies. She transferred to Marymount University in Arlington, VA to continue her studies in Nursing, where she graduated in the top 10% of her class.

Dolores Taylor is the Principal of Taylor & Associates, Legal Nurse Consulting and within her company there is 40 years Nursing experience (RN's) and 25 years experience (WHNP) who is a participant in the company.

## PREECLAMPSIA

### MANY THEORIES, NO DEFINITIVE CAUSE

Dolores Taylor, RN, CLNC

#### What is Preeclampsia?

Preeclampsia is a disease of the placenta and also a multi-system pregnancy-specific disorder with a high maternal and perinatal morbidity and mortality, but its pathogenesis remains poorly understood. This disease is second only to thromboembolic disease as a cause of maternal death in the United States, complicating up to 8% of all pregnancies (1,2), and is responsible for 12% to 18% of all pregnancy-related maternal deaths (2-4). Preeclampsia is classified as "mild" or "severe". Epidemiologic studies and biochemical research have developed several theories to explain this disorder, however no single theory can account for all the findings in preeclampsia.

Diagnosing preeclampsia is a three-part process as this is not a single disease but one with three distinct elements, those being: (1, 5)

- (1) A new onset hypertension (sustained sitting blood pressure  $\geq 140/90$  in a woman with previously normal readings)
- (2) New onset proteinuria ( $>300\text{mg}/24\text{h}$  or  $\geq 2+$  on a clean catch urinalysis)
- (3) New onset of significant nondependent edema.

The diagnosis of preeclampsia is only reliable after 20 weeks gestation. Once you have diagnosed a patient with preeclampsia, the first principles of management are the stabilization of the mother's conditions and assessment of well-being of the fetus. The only effective treatment for preeclampsia is the delivery of the fetus and the placenta. Delivery is recommended for women with "mild preeclampsia" once a favorable GA has been reached, however, immediate delivery, regardless of GA must be performed for all women with "severe preeclampsia to prevent maternal and fetal complications. (5)

A serious complication of preeclampsia is "HELLP syndrome" and maternal and fetal death rates soar to 24% in maternal deaths and as high as 60% in fetal deaths. Delayed diagnosis and delayed inappropriate treatment are commonly cited to explain the poor overall prognosis associated with HELLP syndrome. (6-7)

On admission to a Labor and Delivery Unit, Magnesium Sulfate is infused to prevent seizures in the patient with preeclampsia. Magnesium Sulfate needs to be carefully and accurately infused and is always given via an infusion pump. The normal course for infusion is a

Cont on page 3

## Traumatic Brain Injury (TBI) Online Resources

Marguerite Barbacci, RNC, MPH, BSN, LNCC

### Alabama Head Injury

<http://www.ahif.org/>

AHIF assists family and friends to help understand the results of brain injury.

### American Academy of Neurology

<http://www.aan.com/>

### Brain Injury Association

<http://www.biausa.org/>

Provides information on prevention, treatment, and rehab, resources and support.

### Brain Injury Association of Texas

<http://www.biatx.org/>

Helps families in their search for facilities and support for loved ones who have sustained brain injury.

### Brain Injury Ring

<http://www.altelco.net/%7ejame/bir/bir.htm>

Homepages of brain injury survivors, caregivers, friends, family and BI resources.

### Brain Injury Society

<http://www.bisociety.org/>

A quick response service to all brain injured individuals.

### CDC Resource Page - Traumatic Head Injury

<http://www.cdc.gov/node.do/id/0900f3ec8000dbdc>

CDC Heads Up - Head Injury Resource packet for physicians  
<http://www.cdc.gov/doc.do/id/0900f3ec80017619>

### Coma Recovery Association

<http://comarecovery.org/>

A non-profit organization for coma and brain injury survivors, family members, etc.

### Head Injury Outline

<http://www.headinjury.com/>

Guide to head injury facts.

### Life With TBI

<http://www.tbilife.com>

Resource-filled site that centers on surviving traumatic brain injury.

### National Resource Center for TBI

<http://www.neuro.pmr.vcu.edu/>

From Virginia Commonwealth University, this resource center provides practical information for professionals, persons with brain injury and family members.

### Neurological Surgeons Association

<http://www.neurosurgery.org/aans/>

Neurosurgical information online.

### Neurology Journal

<http://brain.oupjournals.org/>

Oxford University Press journals.

### Neuroscience Center

<http://www.neuroscience.cnter.com/>

Source of clinical research information for professional involved in the neurosciences. find news, research and software reviews.

### Neurotrauma-Law Nexus

<http://www.neurolaw.com/>

A guide to understanding the legal system's role in brain injury and spinal cord injury.

### Office of Special Education and Rehabilitative Services (OSERS)

<http://www.ed.gov/offices/OSERS/>

OSERS provides a wide array of support to parents and individuals, school districts and states in the areas of special education, vocational rehabilitation and research.

### Ohio Valley Center-Brain Injury and Rehabilitation Center

<http://www.ohiovalley.org/>

This center develops programs to improve the quality of life of persons who experience traumatic brain injury.

### TBIHelp.com

<http://www.tbihelp.org/>

Provides information, resources, networking and advocacy services to persons with brain injury and their families.

### TBI Homepage

<http://tbichat.org/>

Chatrooms, message boards, stories and poems written by survivors and caregivers.

### Traumatic Brain Injury Resource Guide

<http://www.neuroskills.com/>

TBI resource guide, with information about brain injury and rehabilitation, illustrations and other resources

### TBI Resource Online

<http://comarecovery.org/>

Facts, employment opportunities, suggested literature rehab and product information on brain injury.

WISHING YOU  
AND YOURS A  
SAFE AND  
ENJOYABLE  
MEMORIAL DAY  
HOLIDAY!!

## PREECLAMPSIA MANY THEORIES, NO DEFINITIVE CAUSE

Continued from page 1

“Loading Dose” of 4-6 gms over 20 minutes. The infusion is then set to infuse @ 2-3 gms/h maintenance dose. Therapeutic blood levels are completed at the end of the loading dose and every 6 hours while the infusion is running. A therapeutic level of MgSO<sub>4</sub> is 4-8 mEq/L is desired. Corticosteroids are also given to enhance fetal lung maturity. Dexamethasone is usually the drug of choice and 6 mg, IM is given every 12 hours x 4 doses. (6-9)

### **Features of Severe Preeclampsia**

#### **Symptoms:**

- There are symptoms of CNS dysfunction (Central Nervous System). These symptoms would include blurred vision, scotomata, altered mental status, and severe headache.
- Symptoms of liver capsule distention or rupture (right upper quadrant or epigastric pain or both)

#### **Signs:**

- Severe elevations in blood pressure, defined as BP  $\geq$ 160-110 on two separate occasions at least 6 hours apart.
- Pulmonary edema.
- Eclampsia (generalized seizures and/or unexplained coma in the setting of preeclampsia and in the absence of other neurologic conditions).
- Cerebrovascular accident.
- Cortical blindness.
- Fetal intrauterine growth restriction (IUGR).

#### **Lab findings:**

- Proteinuria (>5 g per 24 h).

- Renal Failure or oliguria (<500 ml per 24 h).
- Hepatocellular injury (serum transaminase levels  $\geq$  2x normal)  
Thrombocytopenia (<100,000 platelets/mm<sup>3</sup>).
- Coagulopathy
- HELLP (Hemolysis, Elevated Liver enzymes, Low Platelets)

We know the risk factors for developing preeclampsia but unfortunately, we still cannot predict with any certainty which pregnancies will be affected. Despite intensive research we are helpless to prevent preeclampsia from developing. Obstetricians are currently focusing on identifying this disorder early on. With blood pressure readings and urinary screening at regular prenatal visits, we aim to follow early identification with aggressive and gestational age (GA) appropriate management.

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## Brachial Plexus Injuries

Pattie Patterson RN, LNCC, CLCP

The most complicated set of nerves in your body are the nerves that go from your neck down to your fingers. The nerves, called the "brachial plexus", can be injured at birth when excessive traction (pulling) is applied to the head/neck. The injury is often the result of the combination of excessive traction and a birthing emergency called "shoulder dystocia" - when the baby's shoulder gets caught underneath the mother's pelvic bone. The result can be a mild/temporary to severe/permanent injury.

Doctors deliver nearly five thousand children a year who suffer from Brachial Plexus Palsy. In 90 percent of Brachial Plexus Palsy cases, traumatic stretching of the infant's plexus during birth causes the palsy. Estimates suggest that one to two out of every one thousand births result in a brachial plexus injury. Of those, one out of every ten represents an injury serious enough to require some form of treatment. Doctors, dating back to the 1700's, have described brachial plexus palsy as a paralysis of the arm. Dr. Wilhelm Heinrich Erb, a German neurologist, located the most common injury resulting in brachial plexus palsy, in the nerves present at the fifth and sixth cervical vertebrae (C-5 and C-6).

A brachial plexus injury (including Complete Brachial Plexus Palsy, Erb's Palsy and Klempe's Palsy) affects a bundle of five nerves known as the brachial plexus, which control muscles in the shoulder, arm, and hand. As a result of this injury, all or some of these muscles might suffer paralysis. Some sufferers

have no muscle control and no feeling in their arms or hands. Some can move their arms, but have little control over the wrist and hand. Still others can use their hands well, but cannot use the shoulder or elbow.

There are four types of nerve injuries that can result in brachial plexus palsy. Types of Injuries include:

4. Stretch: This is the type of injury where the nerves are just stretched. There are two types of stretches. One is where just the outer wall is stretched but the inner nerve cells are ok and the next one is where both the outer and the inner portions are stretched (being the more serious of the two).
5. Rupture: The nerve or nerves have been stretched beyond their limitations and have actually partially or fully torn.
6. Neuroma: If it is partially torn, when the nerves try to grow back together it ends up forming a ball of scar tissue. Sometimes nerves actually do grow together inside this ball of scar tissue and sometimes they don't. Surgeons can tell what areas of this neuroma are viable or not with intra-operative EMG test. Surgeons may or may not do a nerve graft in this case - it all depends on how well the nerve has connected inside the neuroma - as found in the results of the EMG test. If the nerve is fully torn, surgeons will do their best at connecting the sections with one or more nerve grafts.

7. Avulsions: This is considered to be the most severe injury. The nerve has actually been pulled out of the spinal column "socket". Although the nerve cannot be reconnected at the spinal cord level, some specialists have been successful connecting the avulsed nerves into other intact nerves

### Erb's Palsy Causes

Occasionally during labor and birth, a baby's shoulder can get stuck on the mother's pelvic bone. This birthing emergency is called Shoulder Dystocia- arrest of normal labor after delivery of the head by impaction of the anterior shoulder against the symphysis pubis. Accepted medical protocol exists to deal with this birthing emergency. Doctors may use many different procedures to dislodge the baby's shoulder so that the baby can safely pass through the birthing canal. In some cases, the doctor can reposition the mother, or the doctor can use his or her hands to maneuver and change the position of the baby. In particularly dangerous and difficult births, the doctor can break the baby's clavicle bone on purpose, break the mother's pelvic bone or perform an emergency C-section. A doctor can cut a deep episiotomy, perform the McRobert's maneuver, a maneuver to reduce a fetal shoulder dystocia by flexion of the maternal hips, and exert suprapubic pressure. The doctor can also use gentle traction in a horizontal plane to avoid damaging the brachial plexus.

Cont on page 5

Continued from page 4

In the event of shoulder dystocia, the doctor can support the head of the baby and apply a small amount of traction during the dislodging maneuvers. When the doctor uses excessive traction on the head while the baby's shoulder remains stuck, the brachial plexus nerves in the baby's neck may suffer injury. Depending on its location, this injury then causes one of the types of brachial plexus palsy.

Though doctors cannot predict shoulder dystocia and the danger of brachial plexus palsy, certain factors may suggest that certain births face a higher risk of shoulder dystocia. These risk factors include:

- suspected large baby, over 8 lbs. 14 oz. (fetal macrosomia)
- maternal diabetes / gestational diabetes
- maternal obesity
- an overdue baby, gestation over 40 weeks
- short maternal stature
- contracted or flat (platypelloid) pelvis
- maternal weight gain of more than 35 lbs.
- protracted first stage of labor
- prolonged second stage
- breech birth (this is a risk factor for brachial plexus injury but not for shoulder dystocia).

**From prior pregnancies:**

- a history of shoulder dystocia during a previous delivery
- a history of giving birth to large babies
- 8 years or more have

## Brachial Plexus Injuries

passed since your last birth. Because of the loss of sensation from an epidural, a mother may not feel the pushing sensation, and the baby might descend in an awkward position. The use of tools, including forceps or vacuum, to help the baby descend, may increase the risk of shoulder dystocia as well. Studies also suggest an association between an increased risk for shoulder dystocia and the use of labor-inducing drugs.

Despite these risk factors, more women have uneventful birthing experiences than those whose labors are complicated by shoulder dystocia. In addition, shoulder dystocia can occur in the absence of these risk factors as well. A minority of obstetric brachial plexus impairments are not related to shoulder dystocia. Some other reasons for this disability include tumors in the baby's neck or the mother's uterus, viral disease or other abnormalities.

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Next time we'll look at treatment modalities.

As you may notice, we have had some turnover in our staff. Part of the problem has been the time constraints, so we're going to try to start putting the newsletter out every other month, as our schedules are just too full to do a monthly newsletter at this time. I hope we will be better able to serve you with this change.

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*“We get to the heart of your  
case.”*

