

Neonatal Transport

*The Newsletter of the Maryland Regional Neonatal Transport Program
September 2008*

Hydrops Fetalis in the Newborn

Hydrops fetalis is a condition that occurs in approximately 1 in 600 to 1 in 4000 pregnancies in the United States. It is a severe life threatening problem of edema in the fetus and newborn. There are two types of hydrops: Immune and non-immune. Immune hydrops is when the mother's and infant's blood types are different causing the mother's immune system to breakdown the red blood cells in the fetus. Non-immune hydrops is the most common type resulting from complications that interfere with the baby's ability to manage fluid.

Hydrops develops when too much fluid leaves the bloodstream and enters the tissues. There are many different diseases and complications that can cause hydrops. One of the most common types of immune hydrops can develop when an Rh negative mother has an Rh positive baby, causing the breakdown of the baby's red blood cells leading to anemia. This in turn leads to the inability of the baby's organs to compensate for the anemia thus causing the heart to fail and the build up of large amounts of fluid in the organs and tissues. This type has decreased drastically due to the development of Rhogam. Non-immune hydrops includes all other complications and disease processes that interfere with the baby's ability to manage fluid. Some disease processes associated with this type are heart or lung defects, congenital infections, and chromosomal abnormalities.

Prenatal diagnosis of hydrops is done by fetal ultrasound, fetal blood sampling and amniocentesis. Signs and symptoms during pregnancy include: polyhydramnios, enlarged liver spleen or heart in the fetus as well as a build up of fluid in the abdomen of the fetus. After birth, the infant may have severe edema over their entire body and especially the abdomen,

respiratory distress and be pale in color, have poor perfusion, possible pneumothorax and possible pericardial effusion.

Treatment for hydrops in the newborn includes supporting the respiratory system with supplemental oxygen or mechanical ventilation, removing the excess fluid around the lungs by needle aspiration (thoracentesis) and/ or insertion of chest tubes to suction. The infant may also need excess fluid removed from the abdomen by needle aspiration (paracentesis) or insertion of a drain. Placement of umbilical lines is helpful for administering fluid boluses and medications. The treatment is dependent on the underlying cause, gestational age, and infant's ability to tolerate specific procedures and therapies. The risk of death from hydrops fetalis in the neonate depends on the underlying diagnosis and is highest in those born premature and who are sicker immediately after birth.

Recently the MRNTP transported an infant with non-immune hydrops, who presented very ill at birth. This infant had generalized edema, bilateral pneumothoraces and pericardial effusion. On initial x-ray there was an area in the left lower lobe of the lung that appeared to be a cystic mass but upon further evaluation it was found to be a congenital diaphragmatic hernia (CDH). This was an atypical presentation. The referring hospital had intubated the infant, placed umbilical lines and bilateral chest tubes. The pneumothoraces were continuously re-accumulating. The right chest tube was constantly evacuating air. The left chest tube was draining mostly fluid. It appeared the abdominal ascites was migrating to the

Neonatal Transport

*The Newsletter of the Maryland Regional Neonatal Transport Program
September 2008*

left chest and being evacuated by the chest tube. The infant was requiring very high ventilator pressures to maintain oxygen saturations in the 70's. The infant's clinical condition continued to deteriorate and the infant died on day of life 2.

References

Merensetin, G. B., & Gardner S. L., (2002), Handbook of Neonatal Intensive Care, (5th edition) p. 65, Mosby Inc., St. Louis Missouri, www.healthsystem.virginia.edu, High-Risk Newborn, Hydrops Fetalis, 8-11-2008, 2-12-2004.

Hamdan MD, A. H., www.emedicine.com, Hydrops Fetalis, last update 12-13-07, retrieval date 8-11-08,

Abrams MD, M. E., Meredith MD, K.S., Kinnard RN, P., Clark MD, R., Hydrops Fetalis: A Retrospective review of cases reported to a large National Database and Identification of Risk Factors Associated with Death, Official journal of the American Academy of Pediatrics, Vol 120 No. 1, July 1, 2007, pp. 84-89.

Outreach Education

STABLE

09.10.08- Frederick Memorial

9.19.08- Calvert Memorial

10.3.08- Mount Washington CC

11.13.08-Easton

Thermoregulation

10.1.08- Carroll County

11.24.08- Upper Chesapeake

NRP

9.25.08- BWMC & MEC

10.29.08- BWMC & MEC

NRP Instructor Retreat

10.24.08

For more information contact Webra

Price Douglas wpdougl@jhmi.edu

WMANN

<http://wmann.homestead.com/>

WMANN elections will be held using an on-line format from October 1 to October 31, with the final results available 11.12.08.

At this time, we are calling for all nominations to be presented by **9.20.08**
11.12.08 CNMC Officer Announcement
5.15.09 CONFERENCE to be held at Holy Cross Hospital

Check the website for more information
<http://wmann.homestead.com/>

Welcome New Employee



Michael Mannozi is the newest member of the MRNTP medic team. He has been an EMT for three years and previously worked on the MedStar transport team at Washington Hospital Center through Lifestar. He has a background in public health emergency management and addiction prevention and recovery. He and his wife have started a non-profit organization focused on emergency preparedness consulting and humanitarian aid efforts. Michael lives in Baltimore with his wife and 9 month old daughter.