

INTRAVENTRICULAR HEMORRHAGE (IVH) – INFANT

IVH stands for *intraventricular hemorrhage* (intra ven TRICK you lar HEM or ej). In the brain of a premature infant, the blood vessels are fragile and immature. These blood vessels are in the lining of parts of the brain where *cerebral spinal fluid* is produced. Normally, this fluid coats and protects the brain and spinal cord. The areas that hold this fluid are called *ventricles* (VEN trick uls). Sometimes the fragile blood vessels burst and bleed into the lining around the ventricles or into the ventricles themselves. This may be caused by changes in the blood flow or oxygen levels at birth, having stressful procedures done, or by a difficult delivery. In the most severe cases, the blood fills up the ventricles and spills into nearby brain tissue.

Almost all cases of IVH's occur in the first 7 days of life. Although this can be a scary time for the family, the brain can often recover. When the bleed is moderate or small, the body often absorbs this blood, leaving little or no damage or ill effects. In 90% of all cases of IVH, there are only a few, or no long-term problems.

EARLY SIGNS:

- Apnea (a pause in breathing)
- Bradycardia (decrease in heart rate)
- Anemia
- Increase in head size (circumference)
- Seizures
- Learning disabilities

LATER SIGNS:

- Fluid buildup on the brain (hydrocephalus – hi droe SEF ah lus)
- Cerebral palsy
- Hearing loss
- Vision problems

DIAGNOSIS

IVH is diagnosed by an ultrasound test (See the Helping Hand, *Ultrasound*, HH-III-54). This test does not hurt and most babies handle it quite well. The images from the test show the location and size of any bleeding and the condition of the ventricles. Depending on how severe the IVH is, the doctor will assign one of these grades:

Grade I - The mildest form of IVH. Bleeding is limited to the lining of the ventricles with little or no ill effects.

Grade II - The blood does spill into the ventricles, but there is no enlargement or swelling. Usually the blood is reabsorbed with no long or short-term effects.

Grade III - The ventricles have become enlarged and are full of blood. Some short-term or long-term side effects may result.

Grade IV - Blood spills out from the ventricles into the surrounding brain. This can result in significant side effects. Only time will tell how serious or lasting the effects will be.

WHAT PARENTS CAN EXPECT AFTER DIAGNOSIS

- More ultrasound scans of the head, and possibly an MRI will be done to follow up.
- Head size (circumference) will be measured daily to check for any possible increase in cerebral spinal fluid in the brain.
- All vital signs will be checked daily and more lab tests will be done to follow your baby's progress.
- Your baby will be watched closely for any signs of seizures.
- Specialists in physical and occupational therapy (PT and OT) will work with you and the nursing staff to address developmental concerns.
- If hydrocephalus occurs, the neonatologist and possibly neurologist will monitor the condition.

If you have any questions, be sure to ask your baby's doctor or nurse.