

Periventricular Leukomalacia

What is periventricular leukomalacia (PVL)?

“Periventricular” means around the ventricles, the spaces in the brain containing cerebrospinal fluid.

“Leuko” means white.

“Malacia” means softening.

Periventricular leukomalacia is damage to the white matter of the brain due to softening of the brain near the ventricles. The softening occurs because brain tissue in this area has died.

Why do premature babies get PVL?

PVL is thought to be due to insufficient blood flow to that part of the brain either when the baby is a fetus in the womb, at delivery, or after delivery during the first days of life. Usually doctors do not know exactly when this occurred.

How will my doctors know if my baby has PVL?

Most often the baby has no signs or symptoms. PVL is diagnosed by a test called a cranial (head) ultrasound. It is a painless test, performed at the bedside, in which sound waves are used to give a picture of the baby’s brain (very similar to the ultrasound that the mother had of the baby before it was born). Because PVL usually takes a few weeks to become detectable, babies at risk for PVL are tested 4 to 8 weeks after birth. Sometimes this test will first show a suspicious area, which may or may not turn out to be PVL. With continuing tests it will become more clear.

How is PVL treated?

There is no specific treatment for PVL.

Can my baby have both IVH (intraventricular hemorrhage) and PVL?

Yes, it is common for babies who have intraventricular hemorrhages to also have areas of PVL.

What are the complications of PVL?

Because PVL results from loss of brain tissue, babies with PVL are at very high risk for abnormal development later on. The more severe the PVL, the more likely a baby will develop mental or motor (movement) problems. Even babies who just had suspicious areas need to have their development followed closely.

How do I know if my baby will be abnormal because of PVL?

This can be determined only over time. Near the time of discharge, the baby may be less responsive to his/her environment or to peoples’ faces than babies without PVL. Serious abnormalities appear gradually.

These may include:

- motor (movement) problems (cerebral palsy) – legs often worse than arms:
 - ❖ tight or stiff muscles
 - ❖ holding legs straight and crossed most of the time
 - ❖ difficulty sitting
 - ❖ slow to crawl, stand, or walk or inability to do these
 - ❖ abnormal crawling, toe walking
 - ❖ frequent arching of the back (not just when angry or at play)
- slow mental development

- ❖ does not listen to your voice by age 3-4 months after hospital discharge
- ❖ does not make different sounds by 8-9 months after discharge
- ❖ doesn't seem to understand or say any words by one year after discharge
- poor hearing or deafness
- poor vision

Less serious problems appear more slowly, are more difficult to detect, and may not be obvious until preschool or grade school. These can include:

- poor coordination or balance
- specific learning disabilities (math or reading)
- very short attention span
- behavioral problems
- difficulty with activities that require coordination of the eyes and hands; for example, catching a ball or copying a simple drawing

It is very important for babies who have PVL to receive close follow-up of their development. If your baby has PVL, s/he may be eligible for a developmental intervention program. Anytime in the future if you are concerned about something that you think might be abnormal, have it checked out by your baby's doctor.