MRI Shows Brain Abnormalities in Moderate and Late Preterm Babies

By Diagnostic Imaging Staff

Imaging shows signs of brain abnormalities among babies born between 32 and 37 weeks’ gestation.

Magnetic resonance imaging has shown that moderate and late preterm (MLPT) birth is associated with smaller brain size and some brain abnormalities, according to a study published online in the journal Radiology.

Researchers from Australia sought to compare the size of multiple brain structures, the maturation of brain myelination and gyral development and evidence of brain injury between infants born at full-term and those born between 32 and 36 weeks’ and six days’ gestation.

“In those very preterm babies, brain injury from bleeding into the brain or a lack of blood flow, oxygen or nutrition to the brain may explain some of the abnormal brain development that occurs,” lead author Jennifer M. Walsh, MBBCh, BAO, MRCPI, said in a release. “However, in some preterm babies, there may be no obvious explanation for why their brain development appears slow compared with babies born on time.”

A total of 199 MLPT babies and 50 full-gestation (37 weeks or longer) babies were included in the study. All underwent MR imaging. The images were examined for size of multiple cerebral structures, degree of myelination of the posterior limb of the internal capsule, gyral maturation, signal intensity abnormalities and the presence of cysts.

The researchers found that while injury rates were similar between the two groups, the measurements of brain biparietal diameter, corpus callosum, basal ganglia and thalami, and cerebellum were all smaller in the preterm infants. In addition, the MLPT infants had less developed myelination than the full-term infants, and more immature gyral folding.

Signal intensity abnormalities and cysts were uncommon in both groups.

“Given that brain growth is very rapid in the last one-third of pregnancy, it is perhaps not surprising that being born during this potentially vulnerable period may disrupt brain development,” Walsh said.

The researchers concluded that these brain changes may form the basis of some of the long-term neurodevelopmental deficits that may affect some children after moderate to late preterm gestation.

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