An update on neonatal head ultrasound: optimizing diagnosis

Sarah Johnson
University Health Network-University of Toronto, Canada

Neonatal intracranial hemorrhage (ICH) can be a devastating clinical event. Premature infants are especially at risk. Neonatal ICH is usually initially diagnosed with ultrasound (US); the principles and practice of neonatal head US (also known as transcranial sonography) will be reviewed, with the intention of familiarizing all providers of neonatal care with this important diagnostic tool. US is a radiation-free diagnostic imaging modality which allows direct visualization of the neonatal brain via the open fontanelles. US is admittedly very operator-dependent, which may result in a wide range of quality. However, when performed well, US is an excellent tool for diagnosis of ICH, which otherwise may remain occult. ICH manifests on US as echogenic (bright) material within the fetal brain; US can also be used to assess for the sequelae of ICH, including hydrocephalus and leukoencephalomalacia. The indications, advantages, and limitations of US will be further explored. A standard has been established for US examination of the neonatal brain and a pictorial review will be completed. The contribution of US to clinical management will be discussed. US is an important tool for diagnosing neonatal ICH and its potential complications. Basic familiarity with the indications, scope, findings, and implications of neonatal head US is important for practitioners of neonatal care.

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