Multiple subependymal pseudocysts in neonates play a role in later attention deficit hyperactivity and autistic spectrum disorder

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Abstract

BACKGROUND/PURPOSE:
To assess the long-term neurodevelopmental outcome of normal-term neonates who were accidentally found to exhibit subependymal pseudocysts (SEPCs), frontal horn cysts, or choroid plexus cysts through cranial ultrasound (CUS) examination in a neonatal health examination.

METHODS:
In total, 5569 neonates received CUS examination as an item in a health examination during the first week of birth between 2002 and 2012. Among them, 5147 infants fulfilled the inclusion criteria. The participants were aged between 5 and 15 years at the time when the data were collected. We retrospectively collected these data and interpreted their statistical significance by using one-way analysis of variance, Chi-square test with Yate's correction and odds ratios.

RESULTS:
The presence of SEPCs was significantly correlated with developmental delay and developmental disability, particularly with attention deficit hyperactivity disorder (ADHD) and autistic spectrum disorder (ASD). The risk of ADHD or ASD was significantly higher in participants with multiple SEPCs, among whom the odds ratios for ADHD and ASD were 6.50 (95% confidence interval [CI] = 2.27-18.64) and 28.54 (95% CI = 5.98-136.36), respectively, higher than those for the total study population.

CONCLUSIONS:
Our data revealed multiple SEPCs in normal-term neonates as a risk factor for neurobehavioral outcome, particularly in ADHD and ASD. Simultaneously, the utility of CUS examination as a health examination item for neonates was confirmed.