

New technique improves brain MRI for restless children



In magnetic resonance imaging (MRI), artefacts caused by different factors may affect the quality of diagnosis. MRI is increasingly used in the evaluation of the brains of children, who often have difficulty remaining still for MRI examinations resulting in motion-related artefacts. Researchers in South Korea have devised a new method for brain imaging of restless children that has shown promise in reducing motion-related artefacts. The new findings are published online in the American Journal of Roentgenology (AJR).

The researchers, led by Ji Eun Park of the Seoul National University Children's Hospital and Kyung Hee University Hospital in Seoul, said radially sampled 3D fat-suppressed T1-weighted gradient-echo sequences (radial volumetric interpolated breathhold examination, or radial VIBE) for contrast-enhanced brain MRI of children was shown to be a viable alternative to conventional cartesian acquisition for contrast-enhanced brain imaging of restless children.

The study, "Three-Dimensional Radial VIBE Sequence for Contrast-Enhanced Brain Imaging: An Alternative for Reducing Motion Artefacts in Restless Children," compared contrast-enhanced brain MRI examinations performed with a magnetisation-prepared rapid-acquisition gradient-echo (MP-RAGE) sequence with those performed with a radial VIBE sequence.

According to the researchers, images obtained with the radial VIBE sequence had fewer motion and pulsation artefacts than those obtained with the MP-RAGE sequence. Among 25 images with serious motion artefacts, radial VIBE images had significantly higher scores for all qualitative parameters, including overall image quality, than did MP-RAGE images.

For children who could remain still, MP-RAGE yielded better image quality, the researchers said, while the radial VIBE sequence yielded improved overall image quality and lesion conspicuity in imaging of restless children.

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