MR spectroscopy in pediatric Wernicke encephalopathy

Figure Brain magnetic resonance with spectroscopy

(A) Diffusion restriction in bilateral striata and medial thalami. (B) Increased T2 signal in periaqueductal gray on axial fluid-attenuated inversion recovery. (C) T2 hyperintensities in mammillary bodies on coronal T2. (D) Magnetic resonance spectroscopy demonstrating a large lactate doublet (arrow) at 1.33 ppm (voxels taken from left basal ganglia and left parietal white matter).

The patient is a 7-year-old girl with a history of repaired gastroschisis and short gut syndrome. She presented with a 4-day history of progressive encephalopathy, truncal ataxia, and omnidirectional gaze-evoked nystagmus. Peripheral lactate was 7.1 mmol/L. Serum thiamine level was decreased (<5 nmol/L). Brain magnetic resonance with spectroscopy is shown in the figure. A clinical diagnosis of Wernicke encephalopathy was made. The patient was started on thiamine and demonstrated a rapid clinical recovery. Peripheral lactate normalized within 1 day. Increased lactate has been reported in thiamine deficiency, presumed secondary to the role of thiamine as a cofactor for the pyruvate dehydrogenase complex and α -ketoglutarate dehydrogenase.¹

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