CT Imaging of Neonatal Hypoglycemia - A Case report

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A 6-day old infant was admitted to our hospital with seizures, irritability and poor feeding. CT imaging of the brain showed edema and parenchymal loss typically confined to the occipital and parietal lobes of the brain. Though hypoglycemia is a common occurrence in neonates hours or days after birth, there are only few cases of brain damage from neonatal hypoglycemia reported in the literature. This case report contains the clinical and neuroimaging features of a case of brain damage resulting from hypoglycemia in a neonate.

Case Report

A 6-day old term infant born to a non-diabetic mother was admitted to our hospital with seizures, irritability and poor feeding. The infant's Apgar score was 8 at 1 minute and 9 at 5 minutes and weighed 3100 g. Blood glucose level in this neonate was 6.0 mg/dl at time of admission. A term infant is considered to be hypoglycemic if his/her blood glucose concentration is less than 30 mg/dl. Etiological investigations for hypoglycemia were normal.

CT study of the brain revealed edema and multiple hypodense areas resembling infarctions involving both the cortex and underlying white matter, but restricted to the occipital and parietal lobes. CT images also demonstrated parenchymal loss of occipital lobes as evidenced by the prominence of the occipital horns of both lateral ventricles. The basal ganglia, temporal and frontal lobes were spared.

Discussion

The imaging studies and clinical records of a series of neonatal hypoglycemia patients with brain injury revealed that both the cortices and underlying white matter were affected and these changes were typically confined to the parietal and occipital lobes [1,2]. The pathological changes of neonatal hypoglycemia confirm the brain damage due to neonatal hypoglycemia was localized mainly in the parietal and occipital lobes [3,4]. Our findings of diffuse brain damage observed using CT imaging resembles closely with the observations reported by Anderson et al[3,4], Spar et al[2] and Barkovich et al[1] with regard to the diffuse nature of neonatal hypoglycemic injury and also localization of injured regions to the parietal and occipital lobes.

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and occipital cortices. There is no explanation for the vulnerability of these regions. No correlation can be made with the normal glucose uptake in hypoglycemic neonates since the glucose demand of these regions as determined by Positron Emission Tomography is relatively low [5].

Thus the CT imaging findings of edema and multiple hypodense areas involving the occipital and parietal cortices predominantly with parenchymal loss appear to be relatively specific for neonatal hypoglycemia.

References


