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Abstracts

Articles appearing in the August 2020 issue

Hydrocephalus and diffuse choroid plexus hyperplasia in primary ciliary dyskinesia-related MCIDAS mutation

Objective To report a neuroradiologic phenotype associated with reduced generation of multiple motile cilia (RGMC) and mutations in the *multicilin* gene. We hypothesize that the observed phenotype may reflect the emerging role that ependymal cilia play in regulating CSF production.

Methods Clinical and radiologic records were retrospectively reviewed for 7 consecutive patients diagnosed by the Leicester UK national primary ciliary dyskinesia (PCD) diagnostic laboratory.

Results On MRI scanning, all patients demonstrated hydrocephalus, choroid plexus hyperplasia (CPH), and arachnoid cysts. No patient had any sign of neurologic deficit. All patients had significant lung disease.

Conclusions We conclude that there is a high incidence of hydrocephalus, arachnoid cysts, and CPH in *MCIDAS*-associated RGMC. In all cases, the observed hydrocephalus seems arrested in childhood without progression or adverse neurologic sequelae. Our new observation of CPH, which is associated with CSF overproduction, is the first macroscopic evidence that ependymal cilia may be involved in the regulation of CSF production and flow. We suggest that brain imaging should be performed in all cases of RGMC and that a diagnosis of PCD or RGMC be strongly considered in patients with unexplained hydrocephalus and a lifelong "wet"-sounding cough.

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Delineating the phenotypic spectrum of sulfite oxidase and molybdenum cofactor deficiency

Objective To define the phenotypic spectrum of isolated sulfite oxidase (ISOD) and molybdenum cofactor deficiency (MoCD), aiming to promote timely diagnosis and assist in future clinical trial design.

Methods We analyzed clinical, radiographic, biochemical, and genetic data from 146 patients reported in the literature.

Results We stratified patients into 2 phenotypic subgroups based on clinical and radiographic characteristics. In the first (Class I), patients presented early in life (age 1–50 days) with acute onset of neurologic symptoms and development of diffuse brain injury with cystic leukomalacia. Patients in the second subgroup (Class II) presented later in life (age 30 days–23 years) with prominent movement abnormalities and selective injury of the basal ganglia and cerebellum. A significant difference in survival estimates correlated with milder disease severity among Class II patients. Substantial overlap in sulfur-containing metabolite levels prevented discrimination of subgroups based on diagnostic biomarkers, but genotype-phenotype correlations suggested that residual SUOX activity may contribute to milder phenotypes.

Conclusions Patients with SUOX and MoCD gravitate toward 1 of 2 distinct clinicoradiographic profiles. Patient stratification may help promote accurate diagnosis, prognostication, and aid in the design of future clinical trials.

NPub.org/NG/9515b

Most-Read Articles

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KCNQ2 encephalopathy: Features, mutational hot spots, and ezogabine treatment of 11 patients

J.J. Millichap, K.L. Park, T. Tsuchida, et al. 2016;2:e96. doi.org/10.1212/NXG.0000000000000096

Mendelian randomization shows a causal effect of low vitamin D on multiple sclerosis risk

B. Rhead, M. Bäärnhielm, M. Gianfrancesco, et al. 2016;2:e97. doi.org/10.1212/NXG.0000000000000097

***CHCHD10* variant p.(Gly66Val) causes axonal Charcot-Marie-Tooth disease**

M. Auranen, E. Ylikallio, M. Shcherbii, et al. 2015;1:e1. doi.org/10.1212/NXG.0000000000000003

Homozygous deletion in *MICU1* presenting with fatigue and lethargy in childhood

D. Lewis-Smith, K. J. Kamer, H. Griffin, et al. 2016;2:e59. doi.org/10.1212/NXG.0000000000000059

