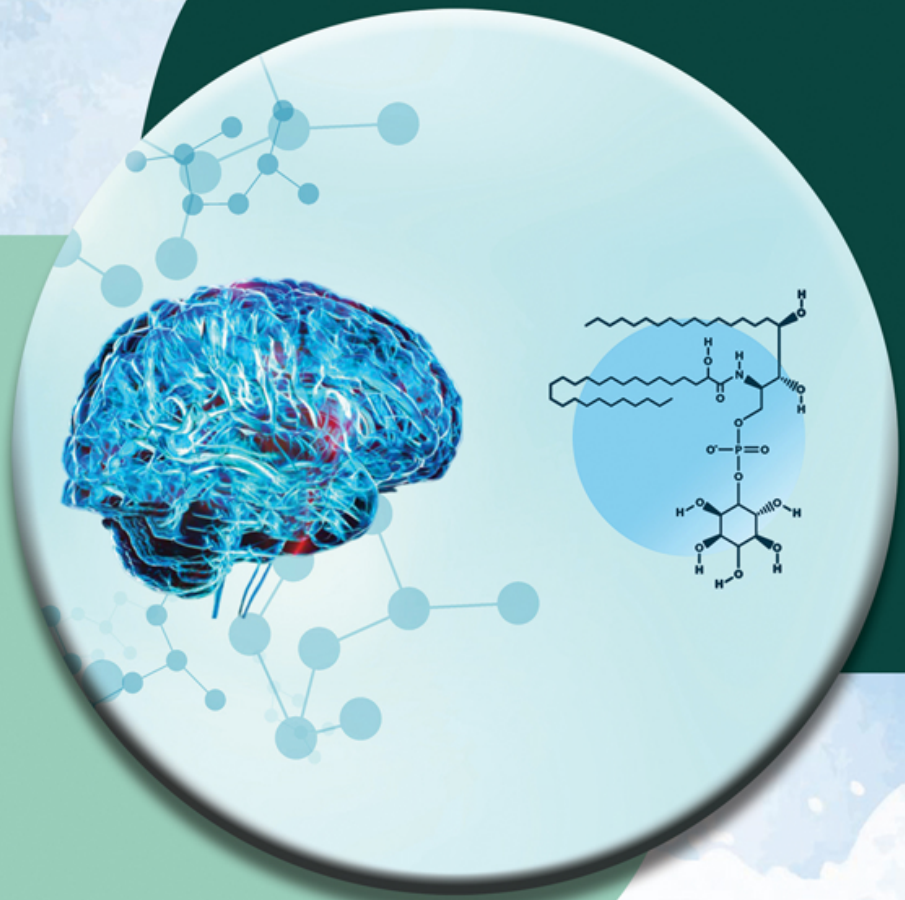
کتابچه چکیده مقالات

سیزدهمین سمینار سالیانه نورومتابولیک

بیماری های لیزوزومال



۲۳ و ۲۴ آذر ۱۴۰۲

هتل پارس شیراز


بسم الله الرحمن الرحیم

فهرست مطالب


14 - 15 Dec
2023
13th Annual Iranian
Neurometabolic
Congress
Lysosomal Disorders
Hotel Pars Shiraz
Neurometabolic.ir
Neurometabolic.irnmd@gmail.com
021- 22909559

پیام رئیس کنگره

خداوند منان را شاکریم که تاکنون توانسته‌ایم ۱۳ سمینار سالیانه نورومتابولیک را برگزار نماییم و بر آن هستیم که سیزدهمین سمینار سالیانه نورومتابولیک ایران را در شهر زیبای شیراز در تاریخ ۲۳ و ۲۴ آذرماه سال ۱۴۰۲ برگزار کنیم. همه ساله در آذرماه شاهد برگزاری کنگره سالیانه نورومتابولیک هستیم و امسال در شهر شیراز این کنگره را برگزار می‌نماییم.

در هر سال با یک عنوان خاص این کنگره برگزار شده، امسال با عنوان بیماری های لیزوزومال برگزار می شود که حیطه وسیعی از بیماری های نورومتابولیک را در بر می گیرد. هدف از انتخاب این عنوان آنکه خیلی از بیماری های لیزوزومال اگر تشخیص زودرس داده شوند قابل درمان بوده و به دلیل تظاهرات وسیع بالینی ممکن است دیر تشخیص داده شده و از نگاه پزشکان پنهان باقی بماند.

در کنگره امسال که در دو روز، در هتل پارس شیراز برگزار می شود به جز دو Maine lecture پانل های متفاوتی در مورد بیماری های لیزوزومال برگزار می شود که اساتید ممتاز در این پانل ها به بحث های علمی می پردازند. امیدوارم که شاهد حضور گرم شما در شیراز در سیزدهمین کنگره نورومتابولیک باشیم.

دکتر پروانه کریم زاده
رئیس کنگره نورومتابولیک

پیام دبیر علمی کنگره

خداوند منان را شاکریم که توفیق برگزاری همین کنگره کشوری نورومتابولیک را به میزبانی شهر شعر و ادب، شیراز زیبا یافتیم.

شاید روزی که با فکر تشکیل انجمن نورومتابولیک و برگزاری اولین کنگره با این مضمون تلاشمان را آغاز کردیم، تصور این که روزی میزبان شما گرامیان در شهری غیر از تهران باشیم بعید می نمود اما با پشتیبانی بی وقفه تان و پشتکار مثال زدنی اساتید این حیطه، نه تنها این مهم میسر شده که جایگاه علمی نورومتابولیک ایران در سطح بین المللی مایه مباهات هر ایرانی است و این نه فقط یک ادعا که واقعیتی است که با حضور در مجامع بین المللی شاهد آن هستیم.

کمیته علمی برگزاری این کنگره، امسال سعی کرده است با پذیرش مقالات همکاران جوان، حتی با محوریتی غیر از بیماریهای لیزوزومال و ارائه آنها بصورت پوستر، بستری برای هر چه بیشتر دیده شدن این عزیزان از سراسر کشور فراهم کند و امیدواریم این خط مشی مستدام باشد.

علیرغم تمام این تلاشها معتقدیم فقط دیکته ننوشته است که غلط ندارد و لذا با علم به این موضوع آماده پذیرش انتقادها و راهکارهای شما همراهان دانشمند بوده و تلاش خواهیم کرد با بکار بستن آنها در دوره های آتی، قدمی هر چند کوچک در اعتلای علمی این کهن سرزمین برداریم

دکتر فرزاد احمد آبادی

دبیر علمی کنگره نورومتابولیک

پیام دبیر اجرایی کنگره

خدای بزرگ را شاکریم و مفتخر که با برگزاری سیزدهمین کنگره سالیانه نورومتابولیک ایران در تاریخ ۲۳ و ۲۴ آذرماه امسال و در شهر تاریخی و زیبای شیراز میزبان شما همکاران عزیز و سروران گرانقدر خواهیم بود.

۱۲ کنگره قبلی در تهران و در بیمارستان کودکان مفید و کنگره دوازدهم در آذرماه ۱۴۰۱ و با محوریت اختلالات نوروترانسمیتری و تصویربرداری پزشکی در شهر باشکوه اصفهان برگزار گردیدند.

کنگره امسال با دلگرمی شما عزیزان و همت والا و تلاش ستودنی اعضای محترم کمیته های علمی و اجرایی و با محور اختلالات لیزوزومال برگزار خواهد شد.

استقبال چشمگیر شما همکاران ارجمند از برنامه های منظم هفتگی، سمینارهای ماهانه و همایش های سالیانه انجمن علمی نورومتابولیک ایران ما را بیش از پیش در ارتقاء کیفیت کنگره ملّی، متعهد می سازد.

مطالب و مقالات پذیرفته شده به صورت کتابچه چاپی و الکترونیکی در اختیار شرکت کنندگان عزیز قرار خواهد گرفت.

از نقاط قوت این کنگره، ارائه جدیدترین یافته ها و دستاوردهای بیماری های نورومتابولیک توسط ۴۲ نفر از اساتید و محققین برجسته کشور در قالب پانل و سخنرانی است.

همچون سال های گذشته مسابقه علمی (CPC) همراه با اهدای جوایز نفیس در روز پایانی کنگره خواهیم داشت.

کمیته برگزاری همایش، پیشاپیش مقدم شما عزیزان را گرامی می دارد.

دکتر ساسان ساکت

دبیر اجرایی کنگره نورومتابولیک

درباره ی انجمن

پایه گذاری **انجمن علمی نورومتابولیک ایران** از سال ۱۳۹۱ در بیمارستان کودکان مفید صورت گرفت لیکن فعالیت اصلی انجمن پس از تصویب از سال ۱۳۹۴ آغاز و پی ریزی شد. اهداف انجمن شامل اهداف آموزشی، پژوهشی و درمانی بوده و استراتژی طولانی مدت در راستای اهداف انجمن طراحی شده است. در راستای این اهداف استراتژیک چشم انداز آینده انجمن برای سال ۱۴۰۵ رسیدن به رتبه بهترین و بالاترین انجمن کشور از نقطه نظر پژوهشی و آموزشی می باشد. این انجمن با اعضای تایید شده ۷۵ نفری و اعضای در انتظار تایید ۸۰ نفری خود یکی از انجمن های بین رشته ای می باشد که می تواند پاسخگوی قسمتی از نیاز های آموزشی و پژوهشی رشته های مغز و اعصاب، ژنتیک و غدد باشد. ضمن اینکه ارتباط تنگاتنگی با رشته های رادیولوژی، پاتولوژی و علوم تغذیه و طب فیزیکی و توان بخشی دارد.

در رابطه با عملکرد انجمن برگزاری جلسات هفتگی معرفی Case که به صورت مستمر در سه سال اخیر بدون وقفه ادامه یافته است، جلسات ماهیانه نورومتابولیک و نهایتا ۱۱ دوره کنگره سالیانه نورومتابولیک است که حتی پیش از شروع به کار رسمی انجمن از سال ۱۳۹۱ برگزار گردیده است.

اعضای کمیته علمی

۱. دکتر پروانه کریم زاده
۲. دکتر محمودرضا اشرفی
۳. دکتر فرزاد احمدآبادی
۴. دکتر سامان ناهید
۵. دکتر حمید نعمتی
۶. دکتر مهران بیرقی طوسی
۷. دکتر محمدوفایی شاهی
۸. دکتر مرتضی حیدری
۹. دکتر الهام رحیمیان
۱۰. دکتر تکتم موسویان
۱۱. دکتر محمد کرامتی پور
۱۲. دکتر شاداب صالح پور
۱۳. دکتر ساسان ساکت
۱۴. دکتر مریم کچویی
۱۵. دکتر پیترا خلیلی
۱۶. دکتر سعید انوری
۱۷. دکتر آسیه مصلی نژاد
۱۸. دکتر مهدی دیانت پور
۱۹. دکتر یلدا نیلی پور
۲۰. دکتر غلامرضا زمانی
۲۱. دکتر سرور اینالو
۲۲. دکتر نرجس جعفری
۲۳. دکتر معصومه ابراهیمی
۲۴. دکتر حسین اسلامیه
۲۵. دکتر محمدرضا علایی
۲۶. دکتر مرجان شکیبا
۲۷. دکتر راضیه تقی زاده
۲۸. دکتر هما ایلخانی
۲۹. دکتر حسین مروج
۳۰. دکتر میثم بابایی
۳۱. دکتر پگاه کتیبه
۳۲. دکتر شهرام نصیری
۳۳. دکتر آیدین تبریزی
۳۴. دکتر محمدمهدی ناصحی
۳۵. دکتر محمد میرمونسی
۳۶. دکتر امید یقینی
۳۷. دکتر آزیتا توسلی
۳۸. دکتر ثمین علوی
۳۹. دکتر سهیلا آل یاسین
۴۰. دکتر محمدمهدی تقدیری
۴۱. دکتر مرضیه بابایی

اعضای کمیته اجرایی

۱. دکتر ساسان ساکت
۲. دکتر پروانه کریم زاده
۳. دکتر محمودرضا اشرفی
۴. دکتر فرزاد احمدآبادی
۵. دکتر محمد میرپونسی
۶. سرکار خانم فرزانه نوربران
۷. سرکار خانم سعیده امین زاده
۸. سرکار خانم فاطمه روح الامینی
۹. سرکار خانم الهه خاری
۱۰. سرکار خانم منیره شهیدی

سیزدهمین سمینار سالیانه نورومتابولیک ایران

عنوان: Lysosomal Disorders

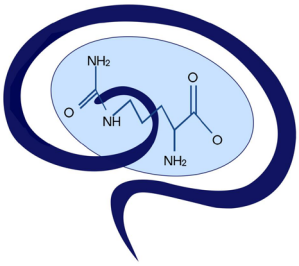
تاریخ :۲۳ و ۲۴ آذر ماه ۱۴۰۲ (دارای امتیاز بازآموزی)

۱۴۰۲/۹/۲۳			
ردیف	زمان	عنوان	نام سخنران
۱	۰۸:۱۵ -۰۸:۳۰	خیر مقدم	**دکتر محمد غفرانی**
۲	۰۸:۳۰ -۰۸:۵۰	کلیات و طبقه بندی بیماریهای لیزوزومال	**دکتر پروانه کریم زاده**
	۰۸:۵۰ -۰۹:۰۵	تازه های آزمایش های بیوکمیکال در بیماری های لیزوزومال	**دکتر سامان ناهید**
۳	۰۹:۰۵ -۱۰:۰۵	بیماریهای لیزوزومال با Progressive myoclonic Epilepsy	**دکتر حمید نعمتی**- دکتر مهران بیرقی طوسی دکتر محمد وفایی شاهی
۴	۱۰:۰۵ -۱۱:۰۵	لکودیستروفیهای لیزوزومال	**دکتر مرتضی حیدری** -دکتر الهام رحیمیان دکتر تکتم موسویان - دکتر محمد کرامتی پور
	Break ۱۱:۰۵-۱۱:۲۰		
۶	۱۱:۲۰ -۱۲:۲۰	پانل موکوپلی ساکاریدوزیس	**دکترشاداب صالح پور** - دکتر ساسان ساکت دکتر مریم کچویی -دکتر میترا خلیلی
۷	۱۲:۲۰ -۱۳:۲۰	Hurler like disorders	**دکتر سعید انوری**- دکتر آسیه مصلی نژاد دکتر مهدی دیانت پور
	نماز و نهار ۱۳:۲۰ -۱۴:۲۰		
۱۱	۱۴:۲۰-۱۵:۳۵	پمپه	**دکتر یلدا نیلی پور**- دکترغلامرضا زمانی دکترسرور اینالو- دکتر نرجس جعفری
۱۲	۱۵:۳۵-۱۵:۵۰	Iranian Juvenile GM2-gangliosidosis patients :(up to 5 years follow up of treatment with Miglustat)	**دکتر معصومه ابراهیمی**
۱۳	۱۵:۵۰-۱۶:۰۵	Progressive spastic paraplegia as a first manifestation of late infantile form of Niemman Pick C disease: a case report	**دکتر حسین اسلامیه**

۱۴۰۲/۹/۲۴			
ردیف	زمان	عنوان	نام سخنران
۱	۸:۱۵-۸:۳۵	Clinical and paraclinical aspects in Lysosomal disorders	**دکتر محمودرضا اشرفی**
۲	۸:۳۵-۹:۵۰	Other Lysosomal Disorders	**دکتر محمدرضا علایی**-دکتر مرجان شکیبا دکتر راضیه تقی زاده- دکتر هما ایلخانی- دکترحسین مروج
۳	۹:۵۰-۱۰:۵۰	نیمن پیک C	**دکتر میثم بابایی**- دکتر پگاه کتیبه دکترشهرام نصیری -دکتر آیدین تبریزی
Break **۱۰:۵۰-۱۱:۱۰**			
۴	۱۱:۱۰-۱۲:۱۰	تازه های درمان در NCL	**دکتر فرزاد احمدآبادی**- دکتر محمد مهدی ناصحی دکترمحمد میریونسی- دکتر امید یقینی
۵	۱۲:۱۰-۱۲:۵۰	بیماریهای ارگانلهای مرتبط لیزوزومی Lysosomal Related Organelle disorders	**دکتر آزیتا توسلی**- دکترثمین علوی- دکترسهیلا آل یاسین
۶	۱۲:۵۰-۱۳:۰۵	CPC	دکتر محمدمهدی تقدیری- دکتر مرضیه بابایی
نماز و نهار **۱۳:۱۵ -۱۴:۴۵**			

رئیس کنگره: دکتر پروانه کریم زاده **دبیر علمی کنگره:** دکتر فرزاد احمدآبادی **دبیر اجرایی کنگره:** دکتر ساسان ساکت

برگزار کنندگان



انجمن علمی نورومتابولیک ایران

دانشگاه علوم پزشکی شیراز

انجمن علمی اعصاب کودکان ایران

دانشگاه علوم پزشکی شهید بهشتی تهران

حامیان کنگره

پلاتینیوم

SAMAN MED LAB

آزمایشگاه سامان

طلایی

ZOMOROD LAB آزمایشگاه پاتوبیولوژی زمرد

آزمایشگاه زمرد

طلایی

شرکت داروسازی مداوا (سهامی خاص)
Modava Pharmaceutical Co. (PVT)

شرکت مداوا

طلایی

ASHBALCHEMI

شرکت اشبال شیمی


نقره‌ای
HACHIGHAT
مرکز تحقیقات تصویربرداری پزشکی حقیقت
مرکز تصویربرداری حقیقت


برنزی
ACTOVERCO
Together for a healthy future
شرکت اکتوور


برنزی
tekaje
beyond generics
شرکت تدبیر کالای جم


برنزی
ROUGINE
sanostol for all
سانستول برای همه
شرکت روژین فارمد


برنزی
آزمایشگاه دنا
DNA Laboratory
کلینیکال، ژنتیک، پاتولوژی
آزمایشگاه دنا


برنزی
بنیان سلامت کسری
BSK BONYAN SALAMAT KASRA
شرکت بنیان سلامت کسری / زیست تخمیر


برنزی
biocol KIDS
Because your KID'S life matters
شرکت
سامان دارو سلامت


ABIAN
PHARMED
شرکت ابیان فارمد

New Treatments in Neuronal Ceroid Lipofuscinosis

Ahmadabadi F[1], Yaghini O[2], Nasehi MM[3], Miryounewsi M[3]

[1]Pediatric Neurology Research Center, Shahid Beheshti University of Medical Sciences, Tehran, Iran.

[2] Child Growth and Development Research Center, Research Institute for Primordial Prevention of non-communicable Disease, Isfahan University of Medical Sciences, Isfahan, Iran.

[3] Department of Medical Genetics, Faculty of Medicine, Shahid Beheshti University of Medical Sciences, Tehran, Iran.

Abstract

The Neuronal Ceroid Lipofuscinoses (NCLs) are a group of neurodegenerative disorders that affect 1:100,000 live births per year. These results from mutations in one of 14 different.

The diseases are divided into infantile, late-infantile, juvenile and adult forms based on their age of onset. The disease phenotypes may vary in age and all typically include progressive visual deterioration, cognitive impairment, motor problems and seizures.

Management is targeted at controlling the symptoms rather than “curing” the disease but in some subclass's specific treatments as Gene therapy or Enzyme replacement therapies are available.

An effective treatment option for NCL types is the replacement of the defective enzyme by infusion of the recombinant protein, virus‐mediated gene transfer, or cell‐based approaches.

There are many reports demonstrating the efficacy of an enzyme replacement therapy to slow disease progression in patients with CLN2. Potential treatment options include gene augmentation strategies, immunomodulatory therapies, neuroprotection, or small‐molecule therapies. Results from studies suggest that a combination of different treatment strategies might be required to achieve significant therapeutic outcomes.

Keywords

- NCL,Neuronal Ceroid Lipofuscinosis
- Treatment

Pompe Disease, Overview

Zamani Gh[1]

[1] Ped.Neurologist, Children's Medical Center, TUMS.

Abstract

Pompe disease, also known as glycogen storage disease type II, is a rare genetic disorder with a profound impact on various organs. It primarily affects muscle function due to the buildup of glycogen within cells. Pompe disease can be categorized into infantile-onset and late-onset forms, depending on the age of symptom onset and severity.

Symptoms vary widely in severity and age of onset. Infants with severe form often display muscle weakness, cardiomegaly, and difficulty in breathing. In contrast, late-onset Pompe disease manifests later in childhood or adulthood with progressive muscle weakness, particularly in the limbs and respiratory muscles. Patients may experience fatigue, difficulty walking, and respiratory issues.

The disease arises from a deficiency of the enzyme acid alpha-glucosidase (GAA), responsible for breaking down glycogen into glucose within lysosomes. Without functional GAA, glycogen accumulates in lysosomes, leading to cellular dysfunction, tissue damage, and organ malfunction, particularly in muscles and the heart.

Enzyme replacement therapy (ERT) has revolutionized the management of Pompe disease. ERT involves administering a synthetic version of the missing GAA enzyme, which helps break down glycogen and alleviate symptoms. This therapy is most effective when initiated early in infantile-onset cases. Additionally, supportive care, including physical therapy and respiratory support, is crucial to managing symptoms and improving the quality of life. Researchers are continually exploring innovative treatments and therapeutic approaches for Pompe disease.

Gene therapy, which involves introducing functional GAA genes into affected cells, shows promise as a potential cure.

As our understanding of the disease deepens, we can anticipate further breakthroughs in treatment of Pompe disease and offering hope for improved patients' outcomes and their quality of life.

A multidisciplinary approach, including genetic testing and enzyme activity assays, is crucial to confirm the diagnosis accurately. Early diagnosis and intervention can significantly improve the management and prognosis of Pompe disease.

The dose of enzyme replacement therapy (ERT) for Pompe disease, specifically for the medication alglucosidase alfa (Lumizyme) or alglucosidase alfa (Myozyme), can vary depending on the patient's age, weight, and the severity of the disease

For infants with severe, infantile-onset Pompe disease, the standard starting dose of ERT is typically 20 mg/kg of body weight administered every two weeks. This dose may be adjusted based on the patient's clinical response.

The dosing regimen for late-onset Pompe disease can vary. It often involves a lower dose and may be administered every other week or every week.

It's important to emphasize that the dosage and treatment plan should always be discussed with a healthcare professional who specializes in the management of Pompe disease.

In the context of Pompe disease and enzyme replacement therapy, the focus is typically on monitoring the development of antibodies against the administered enzyme (alglucosidase alfa) and assessing their impact on treatment efficacy. Some patients, receiving ERT may develop antibodies against the administered enzyme (Immunogenicity). These antibodies can neutralize the therapeutic effects of the enzyme, reducing its effectiveness and result in suboptimal therapeutic outcome, and the disease may progress more rapidly. Monitoring for antibodies allows healthcare providers to assess their impact on treatment and make necessary adjustments. Depending on the antibody levels and their effect on treatment, the healthcare team may consider increasing the dose, changing the treatment regimen, or exploring other therapeutic options.

Treating Pompe disease requires a multidisciplinary approach, with neurologists playing a vital role in addressing the neurological and musculoskeletal aspects of the condition. Close collaboration with other specialists and ongoing patient care is essential for optimizing treatment outcomes and improving the patient's quality of life.

Disorders of lysosome-related organells

Tavasoli A[1]

[1] Associated professor of child neurology IUMS, Ali-Asghar Children Hospital.

Abstract

Lysosome related organells (LROs) are a group of functionally diverse, cell type specific compartments belonging to the endolysosomal family that share some features with lysosomes or secretoty granules. They include lytic granules of natural killer cells, Weibel–Palade bodies of endothelial cells, alpha and dense granules of platelets, notochord fluid-filled vacuoles, osteoclast granules, lamellar bodies and melanosomes of skin keratinocytes, basophil and azurophil granules in white blood cells, and Presynaptic vesicles in neurons. Immature LROs emerge from Golgi apparatus, early endosome or multivesicular bodies. Specific components of the intracellular machinery assist their trafficking through microtubules and cytoskeleton for delivery and secretion.

In some rare hereditary multisystem disorders including Hermansky– Pudlak syndromes (HPS), Arthrogryposis Renal dysfunction and Cholestasis syndrome (ARC), Chediak–Higashi syndrome (CHS), Griscelli syndrome (GS) and other primary immunodeficiency syndromes, the formation, maturation and secretion of LROs are disturbed. Some common clinical phenotype of these patients related to the LROs defects include: partial albinism due to melanosomes defects, bleeding and inflammatory defects related to defective endothelial granules, ataxia, opisthotonos and neurological defects due to synaptic vesicles malformation or secretion defect, lung fibrosis and immunodeficiencies. These clinical phenotypes are related to mutations in proteins involved in LRO biogenesis include Rab27a and its effectors, Myosins, LYST, AP3, BLOC1-3, and the CHEVI complex.

GS is a rare autosomal recessive (AR) disorder associated with hypopigmentation of the skin and hair, severe immune disorder and/or neurological impairment.

GS1 is caused by defective LRO trafficking and is associated with neurological defects that lead to severe developmental delay and mental retardation. CHS Caused by Impaired LRO Fission is a rare AR disorder

characterized by severe immunodeficiency, oculocutaneous albinism, bleeding tendencies, recurrent life-threatening infections, varying neurologic problems and lymphohistiocytosis. ARC syndrome is a multisystem disorder due to CHEVI complex defect with arthrogryposis, renal tubule dysfunction and neonatal cholestasis, ichthyosis, sensorineural deafness, central nervous system malformation, abnormal platelet, recurrent infections and severe failure to thrive.

Fabry Disease: Pediatric Presentation

Shakiba M[1]

[1] Department of pediatric endocrinology and metabolism, Mofid children's hospital, Tehran, Iran.

Abstract

Fabry disease is a rare, X-linked disorder caused by a deficiency in the activity of the lysosomal enzyme, α-galactosidase and affected children with both sexes. Manifestations of disease present at an earlier age and at a higher prevalence in male than females. Fabry Registry data reported the median age of symptom onset was 6 and 9 years respectively in male and female. Globotriaosylceramide(Gb3) accumulates in various tissues since fetus life.[1] The most serious complications present in the kidneys, heart, and central nervous system. The earliest presenting symptoms are typically gastrointestinal complaint and neuropathic pain.

The neurological symptoms of Fabry disease in the youngest pediatric population are related predominantly to a small-fiber neuropathy, leading to exercise intolerance, pain in the hands and feet, hypohidrosis, periodic acute pain crises and altered heat and cold sensitivity ranging in age from 2.0 to 4.0 years.[2] Hearing loss and CVA has been reported in affected children. Early microvascular cerebral involvement in the form of white matter lesions has been demonstrated by MRI imaging in asymptomatic patients as young as 8 years of age.

Substantial loss of glomerular filtration rate (GFR) and proteinuria were found in pediatric patients even in children as young as 4 years old.[3]

Diarrhea, constipation, nausea, vomiting and abdominal pain are gastrointestinal manifestations.

Cardiac involvement, including left ventricular hypertrophy and valvular changes, also was present in young patients.[4]

Angiokeratomas is found in the most patients. Whorled-shaped corneal opacities (cornea verticillata) is a specific presentation which help to diagnose this rare disease in children.[5]

Gm1 Gangliosidosis

Saneifard H[1]

[1] Associated Professor of Pediatric Endocrinology and Metabolism. Shahid Beheshti University if Medical Sciences.

Abstract

GM1 gangliosidosis (GM1) is an inherited autosomal recessive lysosomal storage disorder (LSD) affecting one in every 100,000 to 200,000 live births. It is a neuronopathic LSD caused by a deficiency of β-galactosidase activity due to biallelic mutations in the GLB1 gene and leads to the accumulation of GM1 ganglioside, primarily in lysosomes of neuronal tissue, causing profound dysfunction of the nervous system.

Three clinical forms of GM1 gangliosidosis have been described based on age of first symptom onset and severity of disease progression.

The Type 1 infantile form is the most severe, with death often before 3 years of age. The age of first symptom onset is between birth and 6 months, with clinical findings of hypotonia and developmental delay, hepatosplenomegaly, skeletal dysplasia, cherry-red maculae, cardiomyopathy, and coarse facial features.

The Type 2 has been subdivided into the late infantile (Type 2a) and juvenile (Type 2b) subtypes. In late infantile symptom onset is between 7 months and 2 years of age, while juvenile patients develop symptoms between 2 and 3 years of age. Symptoms include psychomotor regression and eye and bone abnormalities, but have an attenuated progression.

Diagnosis occurs by assay of β-galactosidase enzyme activity, genetic testing through whole-genome sequencing or sequencing of the GLB1 gene.

Therapy consists of, Substrate reduction therapy, use small molecule inhibitors of enzymes responsible for the biosynthesis of stored substrates. Enzyme enhancement therapy, use small molecules to stabilize potentially unstable or misfolded mutant proteins in the endoplasmic reticulum. Enzyme replacement therapy, Stem Cell Transplantation and Gene Therapy.

Neurologic Manifestations of Mucopolysaccharidosis

Saket S[1]

[1] Assistant Professor of Pediatric Neurology, Department of Pediatric Neurology, School of Medicine, Imam Hossein & Mofid Children's Hospitals, Iranian Child Neurology Center of Excellence, Pediatric Neurology Research Center, Shahid Beheshti University of Medical Sciences, Tehran, Iran.

Abstract

Mucopolysaccharidoses (MPS) comprise a group of rare lysosomal storage disorders characterized by the accumulation of glycosaminoglycans (GAGs) within cellular lysosomes. These disorders result from deficiencies in the enzymes responsible for the catabolism of GAGs, leading to systemic manifestations that profoundly affect various organ systems. This article focuses specifically on the neurological manifestations of MPS, shedding light on the complex interplay between the molecular mechanisms, clinical presentation, and potential therapeutic interventions.

Mechanisms of neurological involvement

The accumulation of glycosaminoglycans within the central nervous system (CNS) plays a pivotal role in the neurological manifestations of MPS. GAG deposition disrupts cellular function, leading to inflammation, neurodegeneration, and subsequent cognitive decline. Additionally, secondary mechanisms, such as oxidative stress and inflammation, contribute to the neurological pathology observed in MPS.

The neurological manifestations of MPS present as a spectrum of symptoms that can vary in severity and onset. Common neurological features include cognitive impairment, developmental delays, seizures, motor dysfunction, and sensory deficits. Progressive neurodegeneration often leads to severe intellectual disability and decline in motor skills, affecting the overall quality of life in these patients.

Diagnosing neurological manifestations of MPS can be challenging because of the heterogeneous nature of symptoms and the rarity of these disorders. Genetic testing, enzyme assays, and imaging studies play crucial roles in confirming the diagnosis and identifying specific subtypes of MPS. Early and accurate diagnosis is essential for implementing timely interventions that may slow disease progression and improve outcomes.

Therapeutic Approaches for the neurological manifestations of MPS primarily focus on alleviating symptoms and improving overall quality of life. Enzyme replacement therapy (ERT) and hematopoietic stem cell transplantation (HSCT) have shown promise in addressing systemic manifestations, including neurological symptoms. Emerging therapeutic strategies, such as gene therapy and substrate reduction therapy, have the potential to directly target the underlying molecular defects in MPS.

Conclusion:
The neurological manifestations of mucopolysaccharidoses present a formidable challenge for both diagnosis and management. Continued research is essential to unravel the intricacies of these disorders and develop innovative treatments to improve the lives of individuals affected by MPS.

Keywords

- Mucopolysaccharidoses
- MPS
- neurological manifestations.

Niemann – Pick Type C: A Single-Center Study in Iran

Tabrizi A[1]

[1] Pediatric Nephrologist,Iranian child & adolescent neurology Society.

Abstract

Introduction: Niemann-Pick disease type C (NPC) is a slowly progressive lysosomal disorder whose principal manifestations are age dependent. The manifestations in the perinatal period and infancy are predominantly visceral, with hepatosplenomegaly, jaundice, and pulmonary infiltrates. From late infancy onward, the presentation is dominated by neurologic manifestations. The youngest children may present with hypotonia and developmental delay, with the subsequent emergence of ataxia, dysarthria, dysphagia, and, in some individuals, epileptic seizures, dystonia, and gelastic cataplexy. Although cognitive impairment may be subtle at first, it eventually becomes apparent that affected individuals have a progressive dementia. The aim of the study was to analyze the demographic, clinical and paraclinical features of Iranian patients with Niemann-Pick disease type C (NP-C)

Method: We performed retrospective study based on already existing data sources in the patients' records. Diagnoses were confirmed based on metabolic evaluation and/or genetic testing.

Result: The sample consisted of 50 patients aged 11 months and 35 years with a male to female ratio of 1.7. The interval between first visit and diagnosis was 23.65±3.25 months. Cerebellar ataxia was the most common sign (80%) followed by ocular presentation (56%) and neurodevelopmental delay (52%). Diagnoses were confirmed in all patients based on filipin staining and genetic study. The variety of mutations were detected in patients.

Conclusion: This study demonstrated prolonged duration between disease clinical onset and definite diagnosis. Moreover, there was varied spectrum of gene mutations in this study

Prevalence of Neurometabolic Disorders in Children with Epilepsy: A 6-Year Journey in North Khorasan

Babaei M[1*], Banaei M[2]

[1] Department of Paediatrics, North Khorasan University of Medical Sciences, Bojnurd, Iran.

[2] Hazrat Ali Asghar Children's Hospital, Iran University of Medical Sciences, Tehran, Iran.

Abstract

Background: although seizure and epilepsy are common in inborn errors of metabolism (IEM), 40-60 %; but it seems IEM is a rare cause of epilepsy. Also, management of epilepsy in IEM cannot be accomplished unless the underlying aetiology is recognized and treated. In this study we aimed to determine the prevalence of IEM in epileptic children.

Method & Material: in this cross-sectional study we investigate the files of all patients who referred to educational centre of paediatric neurology under 18 years, between January 2018- September 2023 with complaint of seizure. From the total of 1422 patients referred by seizure, based on history and examination, 1016 patients (72%) were convulsive and the rest of them (406 patients (28%)) were seizure mimicker.

Results: from 1016 patients with seizure disorders, 812 patients (80%) treated with epilepsy diagnosis. Of these, 26 patients with probable or definite diagnosis of inborn errors of metabolism include: (8 with aminoacidopathies, 6 with lisosomal storage disorders, 2 with B6 dependent epilepsy, 2 with peroxisomal disorders, 6 with carbohydrate metabolism disorders and the rest by mitochondrial disorders) were treated. According to this study, prevalence of IEM in epileptic children were 3/2 %.

Conclusion: despite the low prevalence of IEM in epileptic children, due to existence of specific treatments in them, prompt and early diagnosis is important and sometimes vital.

Keywords

- inborn errors of metabolism
- neurometabolic disorder
- epilepsy
- children

A Case Report of Gm_1 Gangliosidosis

Kachuei M[1]

[1] Pediatric Nephrologist,Iranian child & adolescent neurology Society.

Abstract

Introduction: GM1 gangliosidosis, also called beta-galactosidase-1 deficiency, occur due to inherited deficiency of human beta-galaktosidase, resulting in the accumulation of glicosphyngolipides within the lysosomes causing seizures, vision loss and other symptoms.

Case report: We present a patient with an early, infintile type of GM, gangliosidosis.She was the product of consanguineous marriage. Hypotonia was evident from the first months of life. There was no fix and follow at examination and cherry red spot was detected. Hepatosplenomegaly was documented by sonography and extensive Mongolian spot was also noted. At 14 month she had head lag, feeding was done with NG tube and beta-galaktosidase enzyme activity was lower than normal.

Conclusion: The absence of beta-galaktosidase enzyme activity confirmed the diagnosis and supportive treatment continued.

Imaging in Mucopolysaccharidoses

Khalili M[1]

[1] MD assistant professor of radiology, Mofid Children Hospital, Shahid Beheshti University of Medical Science.

Abstract

Mucopolysaccharidosis (MPS) represent a heterogeneous group of inherited lysosomal storage disease with accumulation of glycosaminoglycans (GAGs) which leads to progressive damage of organs.

MPS has manifestations in many organs especially in central nervous system and skeletal system so, radiology plays an important role to recognize this disease, excluding other metabolic diseases and also for monitoring overtime.

In the skeletal system radiological findings include multiplex dysostosis, which is represented by multiple bone malformations which are found in the skull, hands, legs, arms, pelvis and spinal column. Bone survey is modality of choice to find these changes. CT scan and MRI maybe helpful if radiographs are difficult to interpret and for surgical aims. For example, in cervical instability flexion/extension CT can be helpful or cervical MRI is particularly useful for evaluation of craniocervical junction stenosis.

In central nervous system (CNS) involvement magnetic resonance (MR) imaging is the method of choice to evaluate brain and spinal cord abnormalities. Enlarged perivascular spaces, white matter lesions, hydrocephalus and brain atrophy are the CNS manifestations in MRI.

The aim of this presentation is to describe the imaging findings of MPS both skeletal and neurological feature.

Progressive Spastic Paraplegia as A First Manifestation of Late Infantile Form of Niemman Pick C Disease: A Case Report

Eslamiyeh H[1]

[1] Division of pediatric neurology, Department of Pediatrics, Shahid Sadoughi University of Medical Sciences and Health Services, Yazd, Iran.

Abstract

Niemann-Pick C disease is an atypical lipid storage disorder with the interesting manifestations. We reported a three and a half-year-old boy with unusual presentations. The patient presented with progressive spastic paraplegia and exaggerated Deep Tendon reflexes with high Lactate Dehydrogenase for 6 months ago. In further investigations, spinal Magnetic Resonance Imaging, Lumbar Puncture, serum amino acid chromatography and infectious studies were normal. To rule out malignancies, bone marrow aspiration obtained and mild myeloid preponderance observed. Two months later, he admitted to the hospital with exacerbation of walking disorder and ataxia.

Due to deterioration of symptoms, bone marrow aspiration repeated and foamy cells observed. For establishment of diagnosis, genetic test performed and mutation of NPC-1 gene was found. The special characteristic of this case was the onset of neurological manifestation by progressive spastic paraplegia in a patient older than 3 years old however, the disease was not an early-infantile form.

Keywords

- Niemann–Pick type C
- lysosomal storage disease
- progressive spastic paraplegia

Iranian Juvenile Gm2-Gangliosidosis Patients :(Up To 5 Years Follow Up of Treatment with Miglustat)

Karimzadeh P[1], Ebrahimi M[2], Etemad K[3], Ahmad Abadi F[4], Khaleghi A[5].

[1] Pediatric Neurology Research Center, Research Institute for children Health, Shahid Beheshti University of Medical Sciences, Tehran, Iran.

[2] Department of Child Neurology, Shahid Beheshti University of Medical Sciences, Tehran, Iran.

[3] Department of Epidemiology, Shahid Beheshti University of Medical Sciences, Tehran, Iran.

[4] Pediatric Neurology Research Center, Research Institute for children Health, Shahid Beheshti University of Medical Sciences, Tehran, Iran.

[5] Psychiatry Department, Imam Hossein Hospital, Shahid Beheshti University of Medical Sciences, Tehran, Iran.

Abstract

Background: GM2-gangliosidosis is an inherited metabolic disease that is caused by the accumulation of gangliosides in the central nervous system, leading to severe and progressive neurological impairment. It is classified into infantile, juvenile, and late-onset types based on the age of onset of clinical symptoms.

Objectives: This study aims to prospectively describe the natural course of clinical changes of juvenile GM2-gangliosidosis and also to present the results of therapeutic interventions performed by prescribing the Miglustat in a number of these patients.

Methods: The clinical findings and progressive status of patients at the time of enrollment in the study, as well as their clinical course and evolutionary changes, along with the care provided, including the prescription of Miglustat and the observation of its impact on the patients' developmental domains, were prospectively documented until the end of the study.

Results: 8 patients with juvenile GM2-gangliosidosis were enrolled this study and we followed them between 5 months to 5 years.

5 patients were diagnosed Tay-Sachs type, and 3 patients Sandhoff type of the disease. All patients were the result of consanguineous marriages and had undergone a normal course of development before the onset of clinical symptoms of the disease. The onset of clinical symptoms was between 1.5 and 8.5 years old. The most common form of onset of clinical symptoms was Regression in and speech. The most common disorders observed in the course of the disease were seizures, dysphagia, dystonia and limb contracture.
The average age of 4 deceased patients was 8.4 (4.5-13.5) years.4 Tay-Sachs patients and one Sandhoff patient were treated with Miglustat between 0.5 and 5 years. Miglustat had no clear effect on 4 Tay-Sachs patients, but the drug stopped the progression of the disease in Sandhoff's patient.

Conclusion: This prospective study demonstrated that the drug Miglustat does not have a clear effect on improving developmental domains in patients with juvenile GM2-gangliosidosis of the Tay-Sachs type. The disease followed its natural course in these patients. However, the observation of a positive effect of the drug on a Sandhoff patient, whose clinical symptoms started later and had a slower disease progression, provides a glimmer of hope for the potential effectiveness of this drug for stopping of progression in this specific subgroup of patients.

Keywords

- Juvenile GM2-gangliosidosis
- Miglustat
- Developmental delay-Regression.

Cerebral Folate Deficiency (A Case Report and Review of Literature)

Eslamiyeh H[1]

[1] Division of pediatric neurology, Department of Pediatrics, Shahid Sadoughi University of Medical Sciences and Health Services, Yazd, Iran.

Abstract

Background: Cerebral folate deficiency (CFD) is a rare neurological disease, hallmarked by remarkable low concentrations of 5-methyltetrahydrofolic acid (5-MTHF) in cerebrospinal fluid (CSF) despite being normal in the blood. An important cause of cerebral folate deficiency is a mutation in a gene responsible for folate transport from blood to cerebrospinal fluid, specifically FOLR1.

Case Presentation: Here we present an Iranian boy with refractory myoclonic epilepsy and developmental delay whose seizure started at 3 years and eight-month-old as frequent head drops. At the onset of seizures, the events respond partially to anti-seizure medications but, over time, the frequency of seizures increased gradually and they did not stop by several anti-seizure medications including sodium valproate, Topiramate and clobazam.

The child was first offspring of consanguineous parents (cousins) with no history of prenatal and perinatal insult and positive family history of epilepsy in his aunt. Developmental history indicated acquisition of motor skills on time up to one year of age and severe developmental delay in the domains of speech and communication.

Considering the obvious history of refractory epilepsy and developmental delay, extensive neurological and Para clinical investigations recommended. Neurometabolic study was unremarkable and Whoe exome sequencing (WES) revealed a point mutation in FLOR 1 gene in favor of cerebral folate deficiency.

Discussion: Cerebral folate deficiency (CFD) is a rare and important neurometabolic disorder which if not treated, could result to refractory epilepsy and severe developmental delay. on the other hand, timely diagnosis and treatment by folinic acid can lead to improved prognosis of these potentially treatable group of disorders.

Keywords

- Medication Resistant Epilepsy,
- Neurodegeneration Due to Cerebral Folate Transport Deficiency
- Folinic acid

Unraveling Genetic Underpinnings of Mucopolysaccharidosis Type 3 In Southern Iranian Families

Movahedinia M[1], Vahidi Mehrjardi MY[2], Poursalehi N[3]

[1] Children Growth Disorder Research center, Shahid Sadoughi University of medical sciences, Yazd, Iran.

[2] Research Center for Food Hygiene and Safety, School of Public Health, Shahid Sadoughi University of Medical Sciences, Yazd, Iran.

[3] Department of Medical Biotechnology, School of Medicine Shahid Sadoughi University of Medical Sciences, Yazd, Iran.

Abstract

Case Presentation and methods: In the current study, we meticulously assessed 12 families, each with a child diagnosed with MPS Type 3. Patients were referred to the Pediatric Neurology Clinic affiliated with Shahid Sadoughi University of Medical Sciences, Yazd, between 2021 and 2023. The implementation of Whole exome sequencing (WES) offered valuable tool for a comprehensive examination of the genetic profiles of the Mucopolysaccharidosis (MPS).

Our findings revealed that six patients exhibited mutations in the SGSH gene, while four others displayed mutations in the NAGLU gene. Additionally, two families presented mutations in the HGSNAT gene. Genetic analysis of the patients demonstrated that the most prevalent and recurrent mutations in MPS Type 3 were identified in the SGSH gene. Notably, three patients with SGSH gene mutations shared a specific genetic locus.

The data obtained from this study indicated that in the studied population of MPS Type 3 patients in the southeastern region of Iran, the SGSH gene harbored the most common and recurrent mutations.

This research enriches our knowledge of the genetic intricacies of MPS Type 3 and highlights the importance of genetic investigations in addressing the unique genetic landscape of affected individuals within specific geographic regions.

Keywords

- Mucopolysaccharidosis
- MPS III
- SGSH

Sjögren-Larsson Syndrome: An Inborn Error of Metabolism Characterized by Prominent Non-Neurologic Features

Karimzadeh P[1,7], Ghofrani M[2,7], Rahimian E[3], Saket S[4,7], Shariatmadari F[5], Mansoursamaei M[6], Mohseni MH [6]

[1] Professor of Pediatric Neurology, Department of Pediatric Neurology, School of Medicine, Mofid Children's Hospital, Tehran, Iran.

[2] Professor of Pediatric Neurology, Department of Pediatric Neurology, School of Medicine, Mofid Children's Hospital, Tehran, Iran.

[3] Neuroradiologist, Haghighat Medical Imaging Center, Haghighat Medical Research Center, Tehran, Iran.

[4] Assistant Professor of Pediatric Neurology, Department of Pediatric Neurology, School of Medicine, Imam Hossein & Mofid Children's Hospitals, Tehran, Iran.

[5] Assistant Professor of Pediatric Neurology, Department of Pediatric Neurology, School of Medicine, Amir Kabir Hospital, Arak, Iran.

[6] General Practitioner, School of Medicine, Shahid Beheshti University of Medical Sciences, Tehran, Iran.

[7] Iranian Child Neurology Center of Excellence, Pediatric Neurology Research Center, Mofid Children's Hospital, Tehran, Iran.

Abstract

Background: Sjögren-Larsson syndrome (SLS) is a rare autosomal recessive genetic disorder characterized by neurocutaneous features. This metabolic condition manifests with ichthyosis, symmetric spastic di- or tetraplegia, crystalline retinopathy, and leukoencephalopathy, leading to diminished intellectual abilities in early childhood.

The syndrome is linked to mutations in ALDH3A2, responsible for fatty aldehyde dehydrogenase (FALDH), resulting in the accumulation of fatty aldehydes and alcohols.
Individuals with SLS exhibit a progressive phenotype, starting with ichthyosis at birth and developing spastic diplegia and motor delays within the initial two years of life. Subsequent features include intellectual disability, delayed speech with dysarthria, and dysmyelinating white matter disease visible on MRI with a periventricular distribution. MR spectroscopy may detect abnormal lipid accumulation in cerebral white matter before neurological changes.
The condition often leads to spastic diplegia, impaired walking, and gradually progressive contractures that can lead to complete loss of ambulation. Although SLS is typically considered a static leukoencephalopathy, most patients live into adulthood, with a neurodegenerative course being extremely rare. However, if progression occurs, it is often associated with uncontrolled seizures. In this context, we present a case of a young SLS patient.

Case Presentation: A 9-year-old male patient presents with a lifelong occurrence of dry and scaly ichthyotic skin, a history of seizures since early childhood, and intellectual disability. Born via cesarean section to the mother's third child without birth asphyxia, the patient comes from a consanguineous marriage. During the neonatal period, he underwent a 5-day hospitalization due to jaundice. Seizures were noted at the ages of one and two, and the patient has experienced delayed mental and motor development. The family history reveals no instances of seizure disorders.
The patient exhibited alertness during the physical examination; however, signs of intellectual disability, motor delay, an abnormal gait, brisk deep tendon reflexes, and skin covered with dry, peeling scales were observed.
hyperintense signals in both Centrum Semiovale on T2-weighted images. In brain Magnetic Resonance Spectroscopy (MRS), the analysis of various metabolites reveals the presence of a lipid peak in the majority of the acquired spectra.

Emollient creams containing urea, Eucerin, and zinc oxide were employed for addressing itching and scaling. Additionally, capsules containing omega-3, vitamins, and carotenoids were administered to address vision-related issues.

Conclusion: SLS is an uncommon autosomal recessive genetic disorder resulting from mutations in ALDH3A2, and it is recognized for its neurocutaneous features. In some affected individuals, the use of 5-lipoxygenase inhibitors, such as zileuton, has been employed to alleviate pruritus and enhance behavioral outcomes.

Keywords

- Sjögren-Larsson syndrome
- Neurocutaneous
- ALDH3A2
- Pediatric
- MRS.

Gaucher Disease Type 3; A Lisosomal Disorder with Progressive Myoclonic Epilepsy

Beiraghi Toosi M*[1-2], Akhondian J[1], Ashrafzadeh F[1], Hashemi N[1], Imannejad Sh[1].

[1] Pediatric ward, Ghaem hospital, Faculty of Medicine, Mashhad University of Medical Sciences, Mashhad, Iran.

[2] Neuroscience Research Center, Mashhad University of Medical Science, Mashhad, Iran.

Abstract

Gaucher disease type 3 is a subacute and chronic neurological form of Gaucher disease characterized by progressive encephalopathy and associated with systemic manifestations of type 1 GD (organomegaly, bone lesions and cytopenias), thus falling between types 1 and 2. Affected patients suffered visceral and neurological damage. Neurological damage is more severe than type 2. The liver and spleen can return to their normal size. Not all aspects of visceral disease are affected, leading to varying degrees of chronic disease. Neurological involvement is present almost from birth and remains very mild and stable in most patients. In some patients, the condition can be very severe and progressive .

Manifestations include as: very common (strabismus, splenomegaly, osteolysis, ophthalmoplegia, increased susceptibility to fractures, increased bone density, hepatomegaly, fatigue, encephalopathy, bone disease and avascular necrosis), common (thrombocytopenia, pancytopenia, growth retardation, generalized myoclonus, gait disturbance, dementia, delayed skeletal maturation, delayed puberty, and ataxia), and uncommon (recurrent respiratory infections, pulmonary hypertension, pericardial effusion, aortic or mitral valve calcification and cardiac valvular dysmorphism).

We want to present a child with gaucher type 3 and multiple myoclonic attacks with regression.

Keywords

- Gaucher disease type 3
- progressive myoclonic epilepsy
- lisosomal disorder
- child

Congenital Disorder of Glycosylation with Defective Fucosylation (Cdgf1); A Treatable Entity in Neuro-Metabolic Disorders

Beiraghi Toosi M [1], Akhondian J [1], Ashrafzadeh F [1], Hashemi N [1]*, Imannejad Sh [1], Esmaeilzadeh M

[1] Pediatric ward, Ghaem hospital, Faculty of Medicine, Mashhad University of Medical Sciences, Mashhad, Iran.

Abstract

Introduction: Congenital disorders of glycosylation (CDG) are hereditary metabolic errors causing impaired glycosylation. These disorders result in a multi-system dysfunction in the affected individual. Fucosylation is a major step in the glycosylation of several proteins and lipids. This step is affected in numerous CDG subtypes. Congenital disorder of glycosylation with defective fucosylation 1 (CDGF1) is a subtype of CDGs which affects fucosylation, leading to the typical phenotypes observed in CDG patients. FUT8-CDG (OMIM: 618005) is a recently discovered CDG caused by mutations in FUT8 (HGNC: 4019), which encodes an α-1,6-fucosyltransferase. Patients with this subtype typically present with developmental delay, microcephaly, dysmorphic features, skeletal abnormalities, gastrointestinal and respiratory anomalies, feeding problems, and muscular hypotonia. Epileptic seizures are the common presentation among all reported cases.

Case report: In this article, we are presenting an 8-year-old girl with neurodevelopmental delay and epilepsy. WES was performed which was indicative of FUT8-CDG homozygous mutation resulting in CDG with defective fucosylation that can be responsive to “Fucose” therapy.

Discussion: Despite the majority of neurometabolic disorders, CDGs can be treated with dietary supplementation of the defective products such as Mannose, Fucose, Galactose, Uridine, and Biometals The proper choice of supplement is thru identification of the defective gene; thus, performing whole exome sequencing to discover gene mutations is necessary in cases of suspected CDG like epilepsy and neurodevelopmental delay.

Peripheral Neuropathy as A Very Rare Symptom in A Patient with Niemann–Pick Type C with Negative Enzymatic Evaluation: A Case Report

Barzegar M[1], Valaee F [1,2*], Ghoreishizadeh Sh[1,2]

Abstract

Background: Niemann–Pick is a rare metabolic disease distinguished by lysosomal storage defects. This disease is characterized by sphingomyelinase acid deiciency, causing its accumulation in various organs such as the kidneys, spleen, liver, brain, and nerves. Niemann–Pick disease is categorized into four groups: A, B, C, and D. Peripheral neuropathy is an extremely rare complication in patients with Niemann–Pick type C, which certainly leads to neurologic deterioration.

Case presentation: We report a case of Niemann–Pick type C disease in a 3-year-old Iranian Azeri female patient who was hospitalized twice. The irst time was at 1 month of age with symptoms of splenomegaly, jaundice, and elevated liver enzymes, and the second time was at around age 2 for loss of mental and physical abilities. The patient presented with failure to thrive. According to paraclinical examinations, mildly delayed myelination along with a nonspeciic periventricular hypersignal intensity was seen. Interestingly, the patient's Niemann–Pick type C enzymatic function was evaluated twice and was negative on both occasions, while she was positive for NPC1 and NPC2 gene examinations.

Conclusions: In this study, despite the enzymatic study being negative, Niemann–Pick type C disease was inally conirmed, revealing the importance of mutations in Niemann–Pick type C pathogenesis. Besides, peripheral neuropathy was diagnosed in this patient as a very rare symptom of Niemann–Pick type C.

Keywords

- Niemann–Pick
- Niemann–Pick type C
- Peripheral neuropathy
- Mutation

Treatable Ataxia: A Comprehensive Case Series Study

Ashrafi MR[1], Pourbakhtyaran E[1], Rohani M[2], Shalbafan B[3], Tavasoli AR[4], Hosseinpour S[5], Rasulinezhad M[4], Rezaei Z[1], Zare Dehnavi A[1], Hosseiny S MM[4], Haghighi R[4], Ghabeli H[4], Heidari M[1,4*]

[1] Department of Paediatrics, Division of Paediatric Neurology, Growth and Development Research Center, Children's Medical Centre, Paediatrics Centre of Excellence, Tehran University of Medical Sciences, Tehran, Iran.

[2] Department of Neurology, School of Medicine, Hazrat Rasool-E Akram General Hospital, Iran University of Medical Sciences, Tehran, Iran.

[3] Clinical Research Development Center of Labbafinejad Hospital, Shahid Beheshti University of Medical Sciences, Tehran, Iran.

[4] Myelin Disorders Clinic, Pediatric Neurology Division, Children's Medical Center, Pediatrics Center of Excellence, Tehran University of Medical Sciences, Tehran, Iran.

[5] Department of Pediatric Neurology, Vali-e-Asr Hospital, Imam Khomeini Hospital Complex, Tehran University of Medical Sciences, Tehran, Iran.

Abstract

Background: Autosomal recessive cerebellar ataxias are a group of heterogeneous early-onset progressive disorders that some of them are treatable. Here, we present clinical presentation, genetic findings, treatment, and outcome of 25 patients with treatable autosomal recessive ataxias recruited from our Neurometabolic registry system and an early-onset cerebellar ataxia study from 2017.

Methods and materials: Patients with the diagnosis of progressive cerebellar ataxia had been referred to the ataxia clinic of Children's Medical Center, Tehran, Iran were registered.

“A neurologic-based neurologic less adrenal disease: a case report and review article on adrenoleukodystrophy”

Nourian Sh[1], Saeedi P[2]

[1] Department of Pediatrics Endocrinology and Metabolisms, Emam Ali Hospital, Alborz University of Medical Sciences and Health Services, Karaj, Iran.

[2] Alborz University of Medical Sciences and Health Services, Karaj, Iran.

Abstract

Introduction: ALD (Adrenoleukodystrophy) is an X-linked disorder associated with the accumulation of VLCFAs (Very long-chain fatty acids) and a progressive dysfunction of the adrenal cortex and nervous system and is caused by a mutation in the *ABCD1* gene. It is the most common peroxisomal disorder occurring in beta-oxidation process and has 5 phenotypes. Primary adrenal insufficiency is the initial manifestation of ALD in 30 to 40 percent of patients. ALD cannot be distinguished clinically from other forms of Addison disease, thus it is recommended that assays of VLCFA levels be performed in all male patients with Addison disease.

Case Presentation: Herein we report a 7-year-old boy who was referred to us for further evaluation concerning surgery correction of his bilateral UDT (Undescended Testis) at age of 5 years. He had a history of hypoglycemia and femur fracture. There were no other sign and symptoms especially neural ones. The sonogram and karyotype were normal. Lab results demonstrated normal Na, K, FBS and very high ACTH along with normal cortisol. Also, high renin and normal aldosterone was reported. We suspected ALD but couldn’t test him for VLCFA as it was unavailable. finally, we referred him for a WES (Whole Exome Sequencing) which confirmed ALD diagnosis.

Conclusion: The initial manifestation of ALD in our case is UDT, hyperpigmentation and a single episode of hypoglycemia. Corticosteroid replacement for adrenocortical hypofunction is effective. It may be lifesaving and may increase quality of life, but it does not alter the course of the neurologic disability. Supportive therapy, genetic counseling and prevention, and bone marrow transplantation (BMT) are other treatments. Brain MRI should be monitored at 6 months intervals in neurologically asymptomatic boys; If it's normal, BMT is not indicated. Statins, Lorenzo's oil and dietary VLCFAs restriction are not suggested for treatment by current evidence.

Alexander Disease (Case Report)

Rasulinezhad MS [1]

Abstract

Background: Alexander disease (AxD) is classified into AxD type I (infantile) and AxD type II (juvenile and adult form). We aimed to determine the potential genetic cause(s) contributing to the AxD type II manifestations in a 9-year-old male who presented area postrema-like syndrome and his vomiting and weight loss improved after taking prednisolone.

Case presentation: A normal cognitive 9-year-old boy with persistent nausea, vomiting, and a significant weight loss at the age of 6 years was noticed. He also experienced an episode of status epilepticus with generalized atonic seizures. He showed non-febrile infrequent multifocal motor seizures at the age of 40 days which were treated with phenobarbital. He exhibited normal physical growth and neurologic developmental milestones by the age of six. Occasionally vomiting unrelated to feeding was reported. Upon examination at 9 years, a weak gag reflex, prominent drooling, exaggerated knee-deep tendon reflexes (3+), and nasal tone speech was detected. All gastroenterological, biochemical, and metabolic assessments were normal. Brain magnetic resonance imaging (MRI) revealed bifrontal confluent deep and periventricular white matter signal changes, fine symmetric frontal white matter and bilateral caudate nucleus involvements with garland changes, and a hyperintense tumefactive-like lesion in the brain stem around the floor of the fourth ventricle and area postrema with contrast uptake in post-contrast T1-W images. Latter MRI at the age of 8 years showed enlarged area postrema lesion and bilateral middle cerebellar peduncles and dentate nuclei involvements.

Due to clinical and genetic heterogeneities, whole-exome sequencing was performed and the candidate variant was confirmed by Sanger sequencing. A de novo heterozygous mutation, NM_001242376.1: c.262 C > T; R88C in exon 1 of the GFAP (OMIM: 137,780) was verified. Because of persistent vomiting and weight loss of 6.0 kg, prednisolone was prescribed which brought about ceasing vomiting and led to weight gaining of 3.0 kg over the next 3 months after treatment. Occasional attempts to discontinue prednisolone had been resulting in the reappearance of vomiting.

Conclusions: This study broadens the spectrum of symptomatic treatment in leukodystrophies and also shows that R88C mutation may lead to a broad range of phenotypes in AxD type II patients.

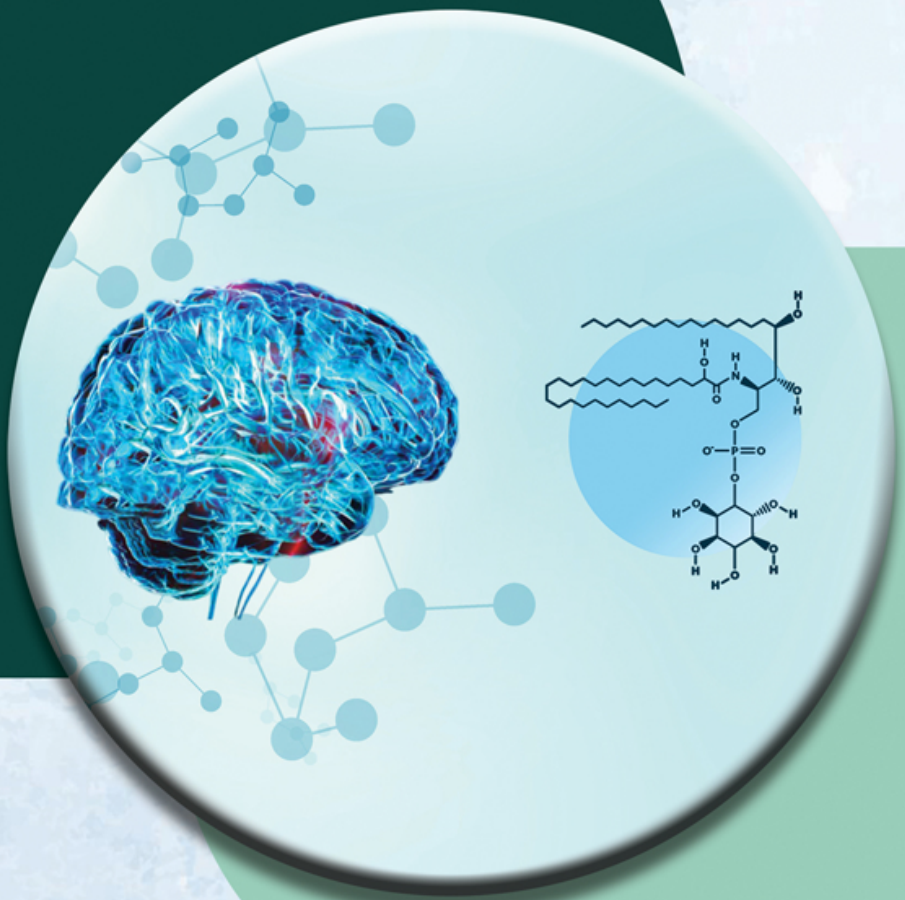
Keywords

- Alexander disease
- AxD type II; GFAP
- Steroid
- Vomiting

Book of Abstracts of Articles

13th Annual Iranian Neurometabolic Congress

Lysosomal Disorders



14 - 15 Dec 2023

Shiraz - Pars Hotel