01. Inborn errors of metabolism: general, adult

A-001

Case of combination of cystic fibrosis with metabolic disorders of fatty acids and sulfur containing amino acids

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Background: Cystic fibrosis has a clinically and genetically heterogeneous polymorphic pathology, which is accompanied by various changes in metabolism. Case report: A boy, 4 years old, from a closely related marriage, with diagnosis of malabsorption, hypoproteinemic edema, pneumonia, endogenous intoxication syndrome, sick since 2 months of age with poor weight gain, stool disorder, lethargy. At 3 months the condition worsened: malnutrition, hypodynamy, hypotonia, episodes of arrhythmia, dyspnea, anxiety, malabsorption, pallor, swelling of the skin. On examination : ↑↑sweat chloride 156, 110 mmol/l sweat. Steatorrhea, reduced trypsin in feces. Mild hepatosplenomegaly, metabolic nephropathy. Lagged behind in development, hypotonia, pneumonia, shortness of breath, coughing, tachyarrhythmia, bloating, stool disorders. At the age of 1 year: hepatomegaly, fibrosis. In blood: ↓methionine 0.015 mmol\l, ↓valine 0.068 mmol\l, ↓glutamine 0.280 mmol\l, ↑homocysteine 7.8 mmol\l; ↑AST 110U/L, ↑ALT 226U/L, ↑LDH 959.84U/L; ↓cholesterol 1.32 mmol/l, ↓iron 5.1 μmol/l, ↓ Ca 1.38 mmol/l, ↓albumin 30.93 g/l. Gas chromatography of urine: ↑↑methylmalonate 54.44 mmol| molCREA, ↑↑suberic acid 461.48U|molCREA, ↑↑oxoglutaric acid 755.73U|molCREA, ↑↑p-hydroxyphenylacetic acid 3466.41 U|molCREA, ↑↑hydroxyphenyllactic acid 1475.6 U|molCREA, ↑↑3-hydroxysebacic acid 157.25 U|molCREA, ↑ethylmalonic acid, ↑phenoxyacetic acid 179.39 U|molCREA, ↑azelaic acid, ↑5-hydroxyindolacetic acid. Conclusion: We need to find comorbidity in patients with multiple organ disorders, in families with incestuous marriages to choose adequate therapy and rehabilitation.

06. Phenylketonuria: general

A-002

Does utilizing the PKU clinical coordinator for a 13 year old PKU patient and her family improve outcome

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Phenylketonuria (PKU) is an autosomal recessive disorder treated for life with a phenylalanine restricted diet and an adjunct therapy called sapropterin dihydrochloride in responsive patients. The traditional PKU diet may be difficult for families to maintain due to cost, convenience and support. The success of phenylalanine levels within treatment range is associated with support at home and school. BioMarin introduced a PKU clinical coordinator (PCC) program where a registered dietitian is available to assist our clinic and patients to ensure individual clinic protocols for treatment are followed. Sapropterin dihydrochloride therapy was initiated in a patient struggling despite close clinic contact and weekly phone calls. The PCC makes home visits, ensures Kuvan is taken daily and provides the food service staff with thorough education regarding the appropriate PKU diet modifications to the breakfast and lunch school program. Frequent blood Phe monitoring is completed with reminders from the PCC to assess improvement in phenylalanine levels. The knowledge of a patient's history and guidance from the clinic creates a team approach that enhances the role of the PCC. This combination of clinic and PCC may lead to better outcomes and greater understanding of the diet for the patient and their support system.
Conflict of Interest declared.

A-003

A systematic review (SR) and meta-analysis (MA) to assess blood phenylalanine (Phe) levels in adults with phenylketonuria (PKU)

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Background and Objectives: Treatment guidelines recommend lifetime maintenance of a low-Phe diet to lower blood Phe levels, reducing the risk of neuropsychiatric symptoms. This SR and MA was performed to assess blood Phe levels in individuals ≥16 years old with PKU.
Methods: The SR of published literature was conducted based on searches in MEDLINE, Embase, and Cochrane Collection databases from January 1980 through June 2013 supplemented by manual searches of reference lists in accepted studies and recent reviews. Random-effects MA were performed to calculate a pooled estimate of blood Phe levels with variance estimates and potential sources of heterogeneity were explored.
Results: The SR identified 61 study arms comprising 1366 PKU adults that reported mean blood Phe levels with variance estimates. The random-effects combined estimate for blood Phe was 1179 μmol/L (95 % CI: 1064–1293 μmol/L). Univariate meta-regression analysis suggested that neuropsychiatric symptoms, PKU treatment (early vs late/untreated), and publication year may account for some of the observed heterogeneity.
Discussion/Conclusion: Blood Phe levels in PKU adults substantially exceed treatment guidelines for lifetime maintenance, confirming previous reports of the difficulty of maintaining a low-Phe diet after adolescence, and supporting the need for medications that lower blood Phe levels in adults with PKU.
Conflict of Interest declared.

A-004

A systematic review (SR) and meta-analysis (MA) to assess the prevalence of neuropsychiatric symptoms in adults with phenylketonuria (PKU)

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Background and Objectives: Numerous reviews have documented the prevalence of neuropsychiatric symptoms in children with PKU with elevated blood phenylalanine (Phe) levels, but a comprehensive review of prevalence in adults has not been reported. This SR and MA was conducted to assess the prevalence of neuropsychiatric symptoms in individuals ≥16 years old with PKU.
Methods: The SR of published literature was conducted based on searches in MEDLINE, Embase, and Cochrane Collection databases from January 1980 through June 2013, supplemented by manual searches of reference lists in accepted studies and recent reviews. Random-effects MA were performed to calculate pooled estimates of the prevalence of reported psychiatric symptoms such as anxiety, hyperactivity, inattention, depression, executive function deficits (attention, cognitive flexibility, inhibitory control), and neurologic symptoms (epilepsy/seizures, tremors).