Neurospecific Enolase as Marker of Brain Neuron Lesions in Newborns with Hypoxic Damages of the Central Nervous System

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Purpose: To study clinical-prognostic aspects of the changes of the neurospecific enolase (NSE) concentration, the biochemical marker of the neuron lesions in the blood serum of newborns with hypoxic damages of the central nervous system (CNS).

Material and methods: There were studied 75 full-term newborns having perinatal CNS damages of hypoxic-ischemic genesis at birth (group 1). The state after birth in 38 infants of group 1 was evaluated as of moderate severity (subgroup 1) and in 37 ones as severe (subgroup 2). Control group consisted of 20 healthy newborns (group 2).

Results: The cerebral ischemia in newborns is accompanied by increase in level of neurospecific enolase in the peripheral blood. In children with CNS severe damages in the early neonatal period its level was 2.5 times higher than in children with CNS damages and 4.2 times higher than in children of control group. The level of NSE was 1.6 times higher in the early neonatal period in newborns from subgroup 2 in comparison with control group and had tendency to lowering in the late neonatal period. With progressing improvement during adaptation there was shift of the NSE values to the reduction; however to the third month of life NSE level remained to be active. There was observed formation of occlusive hydrocephaly in 6 infants of subgroup 2. Investigations of the enzymes in the blood serum in infants with occlusive hydrocephaly showed strong dependence of their findings on the severity of cerebral damages, thus, on the third month of life this indicator was 2.5 times higher in comparison with healthy infants.

Conclusion. Thus, NSE increase in the blood serum of newborns may to serve as additional criterion of the severity degree and prognosis of hypoxic lesion of the brain.
Neuroblastoma Revealed By Opsoclonus Myoclonus Syndrome

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Background: Opsoclonus–myoclonus syndrome (OMS), also called ‘‘dancing eyes syndrome’’ or ‘‘Kinsbourne syndrome’’, is a rare entity, characterized by three main symptoms: opsoclonus, myoclonus and ataxia. In children, OMS is most frequently paraneoplastic, found in association with neuroblastoma, or much more rarely with other cancers.

Objectives: Report a new case of neuroblastoma revealed by OMS.

Results: 8-year-old child without family or personal antecedents consults for ataxia. His history of the diseases back to 5 days by the appearance of tingling numbness, weakness of the lower level and gait troubles in a context of apyrexia .There is no vesicosphincteral or swallowing disorders. The physical examination finds afebrile child with in the neurological examination an unstable walking, enlargement of polygon of sustention , dance of the hamstring muscles, abolished osteotendon reflexes, flexion of the cutaneo-plantar reflexes, myoclonus of upper and lower limbs, active and passive motor skills preserved and proximal and distal strength retained . Cerebro-medullar MRI revealed absence of cerebral or medullar lesion but was discovered at the end of the examination a right calcified hypervascular adrenal mass of 7 x5 x 5 cm. The most likely diagnosis was an opsoclonus myoclonus syndrome associated to a neuroblastoma. The diagnosis was confirmed by a Thoraco abdominal scanner and biopsy. The measurement of urinary VMA was negative and MIBG scintigraphies don’t reveal an extent of disease. The child was operated with favorable evolution.

Conclusion: OMS with or without a detected neuroblastoma is the same disease, whose major challenges are the neurological sequelae. An international collaboration is required to improve the knowledge about OMS, the treatment and the outcome in this rare disorder.
Aim: Febrile seizures (FS) are a type of seizures that are frequently seen; although having a good prognosis, but can be worrying for the family. This study aims to examine the patients from an etiological aspect, to determine the risk factors for recurrent febrile seizures and to present some epidemiological and clinical characteristics of this condition.

Materials and Method: The study group consisted of 155 patients aged between 5 months - 8 years in age (average 25±13 months) who admitted to Zeynep Kamil Maternity and Children’s Training and Research Hospital with febrile seizure. Family histories, physical-neurological examinations and laboratory tests and lumbar punctures (LP) were carried out, as necessary.

Results: In our study, male/female ratio was 1.12/1, the most common cause of FS was upper respiratory infection (77%). During the nine months of our study, FS was most frequently encountered during November (23%) and least in July (5%). It was determined that 99% of the patients experienced a generalized tonic, tonic-clonic or atonic convulsion in the first 24 hours after the onset of fever. 87% of the seizures were a simple type FS, while 13% were a complex FS. 33% of the patients had previously experienced febrile seizures, once or more times. 54% of the patients who had repeat FS histories experienced the convulsions between the ages of 0 and 12 months. Of the 17 patients who underwent electroencephalography (EEG), pathological findings were discovered only in 1. The mean age of 35 patients performed LP was 28±9 months. Four of these 35 patients were diagnosed as meningitis and excluded from the study.

Conclusions: In this study it was determined that the younger the child was when the first seizure was experienced the greater the risk of repeat. Premature birth, history of newborn intensive care or the existence of epilepsy in the family were identified as risk factors for repeated FS.
Denver II Developmental Test Performance of the Children with Iron-Deficiency Anemia before and after the Treatment

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Objective: It is known that non-treatment of iron deficiency anemia in early childhood results in mental and cognitive retardation. In our study we aimed to examine the Denver-II developmental test performance of the children with iron-deficiency or iron-deficiency anemia before and after 3 months of the treatment.

Materials and Methods: 53 children aged between 1 and 6 years whom diagnosed as iron deficient or iron deficiency anemia were studied. Denver-II test were applied to the cases before and after 3 months of the treatment. The Denver Test results were classified as normal, suspicious and abnormal.

Results: Suspicious Denver-II test results were found significantly higher in iron deficient anemic infants compared with iron deficient children (p 0.01). The initial measurement level of ferritin and tranferrin saturation were found significantly low in children with suspicious test results compared with children with normal test results. Before iron therapy, the rate of normal Denver test results in iron deficient anemic children was 42.5% and 81.5% in iron deficient children. After treatment the rate is 100% for iron deficient anemic children and 92.6% for iron deficient children.

Conclusion: Iron deficiency should be treated before chronic or serious, motor, cognitive and behavioural development deficits occur.
Reliability of Gross Motor Function Classification System-Expanded and Revised in Children with Cerebral Palsy Aged 0-6 Years by Undergraduate Physical Therapy Students

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Background: The Gross Motor Function Classification System (GMFCS) has become an useful tool for classifying the level of functional mobility in children with cerebral palsy (CP). GMFCS has a high reliability when used clinically by health professionals. Research suggested that it could be useful for physical therapy students who had little clinical experiences. The GMFCS has been updated to an Expanded and Revised version called GMFCS-E&R. GMFCS-E&R is a reliable and practical classification system thus was hypothesized to be a reliable system for physical therapy students to classify children with cerebral palsy (CP). At present, there is no report on the reliability of GMFCS-E&R Thai version by physical therapy students.

Objective: To examine the reliability of GMFCS-E&R Thai version in children with CP aged 0-6 years by undergraduate physical therapy students.

Methods: Fifty-eight children with CP were recruited. Three raters were the 3rd year physical therapy students from the School of physical therapy, Khon Kaen University. Each rater watched VDO of children movement and classified their ability using GMFCS-E&R Thai version. The inter-rater and intra-rater reliability were analyzed using the weight kappa (k).

Results: The weight k of inter-rater reliability for children with CP aged 0-before 2 years, 2-before 4 years and 4-6 years were 0.81, 0.83 and 0.89, respectively. The weight k of intra-rater reliability for children with CP aged 0-before 2 years, 2-before 4 years and 4-6 years were 0.72, 0.78 and 0.86, respectively.

Conclusion: The GMFCS-E&R Thai version showed good to excellent reliability in children with CP aged 0-6 years when classified by students. This implies that the GMFCS-E&R Thai version can be used in clinical practice for undergraduate physical therapy students.
Background: One of the causes of afebrile seizures is represented by Taylor’s focal cortical dysplasia. This is a disease based on the presence of dysmorphic neurons and represents a cause of refractory focal epilepsy.

Objective: The realization of a brain MRI in Emergency Room in case of a non-post-traumatic afebrile seizure helps us establish an early diagnosis.

Material and method: We describe the case of a 12-years old girl who arrives in Emergency Room with afebrile generalized seizures.

Results: All the additional blood tests were normal. We proceeded to do a brain CT-scan. The radiologist observed a dubious image, whereby was indicated a brain MRI. With this technique were demonstrated signs suggestive of dysplasia in the supratentorial region in the left part of the brain.

Conclusion: In front of a case of afebrile seizures we have to think to realize a brain MRI as soon as possible in order to have a certain diagnosis given to the future evolution of certain types of epilepsy as Taylor’s focal cortical dysplasia.
Folate Substitution to Epilepsy Patients Who Receive Pharmacologic Treatment?

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Background: Folate is a B vitamin involved in plenty body functions and folate deficiency is related to variable manifestations. Folate is also involved in the remethylation of homocysteine to methionine and folate deficiency results to hyperhomocysteinemia. The last two decades there were published some studies regarding antiepileptic drugs (AED), their impact on folate and homocysteine and the indication of folate substitution in epilepsy patients.

Objective: Evaluate through published studies the indication for folate substitution in epilepsy patients.

Method: Review of studies published in PubMed. Keywords “epilepsy, antiepileptic drugs, folate, homocysteine” resulted in 47 publications between 1997 and 2012 of which 29 were population based.

Results: All studies are not of the same quality neither is it indicated in all whether results were statistically significant or not. Still, they present the relationship/differences in the measured values of folate and homocysteine between AED-treated epilepsy patients and healthy controls. 29 studies included a total of 5286 epilepsy patients, the majority of whom were treated with AED. In 11 studies with totally 981 patients, 522/981 patients had ↓folate and 956/981 had ↑homocysteine. In 14 studies with 4063 patients of whom 3875 received AED, presents results according to medication. In 13 studies with 383 patients with valproate monotherapy treatment, 132/383 patients had ↓folate and 311/383 had ↑homocysteine. 233 patients in 6 studies were given folate, cobalamin or multivitamin substitution: in the vast majority of patients the values normalized.

Conclusion: In a large proportion of patients with AED treatment was found ↓folate level and ↑homocysteine. Substitution with folate/multivitamins was given in 233 patients and it contributed in normalizing this values. There were not registered any side effects of vitamin substitution. It seems, according to this literature review, motivated to monitor folate and homocysteine levels in epilepsy patients with AED treatment and give substitution when needed.