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Background and Aims Malformations of cortical development MCDs are increasingly recognized as important causes of epilepsy. The aims of this study is to evaluate the presentation and severity of epilepsy in the different types of MCDs in children.

Methods Neuroimaging data of patients with epilepsy and MCDs in MRI were evaluated for a period from 2000–2011. The case records were taken from the medical file.

Results We are reporting 13 cases (9 boys and 3 girls) of MCDs. The mean age at onset of seizure was 20 months (2 months–8 years). Psychomotor retardation were present in 5 patients. Craniofacial dysmorphism was noted in 4 cases and microcephaly in 6 cases. Hypotonia and subsequently limb hypertonia were noted in 5 cases. Partial seizure was seen in 5 patients followed by infantile spasms in 3 cases. EEG demonstrated focal epileptiform discharges in 4 cases, and hypsarrhythmia in 2 cases. Cortical dysplasia was seen in 4 patients, polymicrogyria in 3 patients, lissencephaly in 4 patients and schizencephaly in one patient. Heterotopias were seen in 3 patients in combination with other malformations. Genetic analysis for Miller-Dieker syndrome showed mutations of the LIS1 gene on chromosome 17 in one case. Only 5 Patients had their seizures controlled by antiepileptic drugs (2 patients with cortical dysplasia and 3 with polymicrogyria).

Conclusion MR imaging allows the detection and classification of MCDs. An adequate classification of these malformations should help to provide to the family an appropriate counseling both in terms of genetics and outcome.

1503 ACUTE DISSEMINATED ENCEPHALOMYELITIS IN CHILDREN (EIGHT CASES REPORTS)

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Background Acute disseminated encephalomyelitis (ADEM) is an immune-mediated inflammatory disorder of the central nervous system, characterized by a widespread demyelination that predominantly involves the white matter of the brain and spinal cord.

We aimed to assess the clinical presentations, neuroimaging, treatment, and outcome of eight children with ADEM.

Methods An 11-years retrospective chart review of children with the diagnosis of ADEM was conducted during the period between 2000 and 2011. The diagnosis of ADEM was carried in front of clinical and radiological signs.

Results Eight cases of ADEM, aged between 9 months and 14 years, were identified. The clinical picture is characterized by multiple symptoms. Prominent findings are seizures in three cases, altered level of consciousness in seven cases and motor system dysfunction in five cases. Brain magnetic resonance imaging evaluations had done in all patients and revealed demyelinated lesions in the cerebral cortex, subcortical white matter, in periventricular white matter, in deep gray matter and in brainstem in all patients. Spinal cord MRI was performed in one case and showed demyelinated lesions in cervical and dorsal etage. All patients were treated with high-dose intravenous methylprednisolone pulse therapy during six days, related by oral corticotherapy. Five of them received also intravenous immunoglobulins. The evolution was favorable in all patients, only one had mild long-term optic neuritis sequelae.

Conclusion Clinical features of ADEM are similar to those of infectious encephalitis. The neuroimaging test of choice to establish the diagnosis is MRI. In most patients, the prognosis is good after treatment.

1504 BDNF AND OXIDATIVE STRESS IN CHILDREN WITH ACUTE LYMPHOBLASTIC LEUKEMIA

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Background Acute lymphoblastic leukemia (ALL) is the most common malignancy in children, representing nearly one third of all pediatric cancers. Nowadays overall cure rates for children with ALL have reached 90% due to great improvements in diagnosis and treatment. Unfortunately, the increase in survival rates have been associated with an increase in treatment related toxicity. Survivors may experience late effects from treatment for this condition, such as learning disability and cognitive defects even with no cranial radiation. BDNF levels have been associated with cognitive deficits, among others conditions.

Objectives To evaluate the BDNF levels and oxidative stress in patients with acute lymphoblastic leukemia (ALL).

Design and methods We measured serum concentrations of brain derived neurotrophic factor (BDNF), serum thiobarbituric acid reactive substances (TBARS), serum protein carbonylation, serum IL-6 and IL-10 before and after 72 hours intratecal methotrexate (MTX). This study was performed on 8 children with ALL during the treatment with BFM protocol and in 40 controls.

Results BDNF levels were lower in ALL patients than in controls ($p < 0.001$). BDNF levels before and after intratecal MTX had not showed significant alterations. Serum protein carbonylation was lower after complete remission.

Conclusion These findings suggested that there is oxidative stress and decreased levels of serum BDNF in patients with acute lymphoblastic leukemia. The treatment may have a protective role in relation to oxidative stress and possible cognitive deficits.

1505 ZINC DEFICIENCY ANEMIA IN SCHOOL CHILDREN

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Background and Aims The objective of this study was to determine the hematologic abnormalities and their potential correlates in school children with zinc deficiency.

Methods 20 parameter hemograms were obtained from the children. Variables that could potentially affect hematological parameters as ferritin, zinc, vitamin B12, and folic acid concentrations were measured in sera of 463 school children. Demographic, anthropometric, biochemical and hematological characteristics of zinc deficient children were compared with those of zinc sufficient children. Associations between potentially related parameters were examined.

Results We showed that zinc deficient and control groups were similar for age and gender ($p > 0.05$), and zinc deficient children had smaller head circumferences than zinc sufficient children ($p < 0.01$). We also demonstrated lower hemoglobin ($p < 0.001$), hematocrit and red blood cell counts in zinc deficient children, despite similar ferritin levels in both groups. Correlation analysis proved significant relationship between zinc and hemoglobin levels ($p < 0.001$). Linear regression analysis also verified a positive correlation between hemoglobin and head circumference ($p < 0.01$). Logistic regression demonstrated 12 times more odds of anemia in zinc deficient children (OR: 11.9; 95% CI: 7.0, 20.5).

Conclusions The results implicated that anemia associated with zinc deficiency could not be simply an anemia from iron deficiency but an anemia from deficiency of zinc itself. The results pointed out

the concept of zinc deficiency anemia in healthy school children which was not described before. Smaller head circumferences in zinc deficient children might contribute to cognitive deficiencies.

1506 NUTRITIONAL STATUS AND FEEDING PROBLEMS IN PATIENTS WITH CEREBRAL PALSY

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Aim The nutritional status and feeding problems in children with cerebral palsy results in growth retardation, increased morbidity and mortality. The aim of this study is to evaluate the nutritional status and feeding problems of cerebral palsy patients followed up by Medical Faculty of Trakya University, Department of Pediatrics, Division Pediatric Neurology.

Methods The medical histories and full physical examination findings of 66 cerebral palsy patients were recorded as weight, height, body mass index, circumference measurements of head, arm, chest, fathom length, biacromial length, lower leg length, and subcutaneous fat thickness of triceps and subscapular region. The 3-day diet for each patient was evaluated by a special computer program called BEBIS. Patients' blood hemoglobin, iron levels and binding capacity and serum ferritin, vitamin B12, folic acid levels were also evaluated.

Results The majority of patients were Spastic Cerebral Palsy (%89), %6 were Ataxic and %5 were Mixt type (Quadriplegic/Distonic). The weight, body mass index, subcutaneous fat thickness of subscapular region, biacromial length, arm-chest circumference, blood iron levels, dietary calory and fiber intakes of patients with severely affected cerebral palsy, especially in the Quadriplegic/Mixt types, were lower than the mild and moderately affected ones.

Conclusions The nutritional status and dietary intakes of the severely affected cerebral palsy are worse than the others in our study, as mentioned in the literature. To prevent complications a multidisciplinary approach and close follow up have to be done.

1507 EFFECTS OF LAMOTRIGINE ON THE LANGUAGE AND PROBLEM SOLVING ABILITIES IN NEWLY DIAGNOSED PEDIATRIC EPILEPTIC PATIENTS

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Purpose The purpose of this study was to investigate the effects of lamotrigine on language and problem solving abilities in newly diagnosed pediatric epileptic patients.

Methods Sixty-seven newly diagnosed pediatric epileptic patients. (Male:Female=43:24, Mean age :8y 9m ± 2y 4m), who were investigated from 2006 to July 2011. We performed a standardized full articulation tests and Peabody picture vocabulary test-revised. Test of Problem Solving (TOPS), Mean Length of Utterance in words (MLU-w), comparison of Precise Articulation, Computerized Speech Lab were used to assess the language function before and after initiation of lamotrigine. Starting dosage of lamotrigine was 1mg/kg for the first 7–14 days; increased to 2mg/kg for the next 14 days and increased up to 7mg/kg/day (or 200mg/day).

Results First, TOPS showed that the abilities of problem solving were not injured after initiation of lamotrigine (32.9±13.0 vs 34.5±12.5, P >0.05). All parameters: Causal reason (11.6±4.5 vs 12.1±4.2), solution ratiocination (13.4±5.4 vs 13.6±5.6), beginning guess (7.9±4.2 vs 8.7±4.0) were not changed after initiation of lamotrigine. Second, MLU-w did not reduce after taking medicine

(4.2±1.4 vs 4.2±1.3). Third, the receptive language function was significantly improved after taking lamotrigine in PPVT (8y 4m±2y 4m vs 8y 10m±2y 4m, P <0.01). However, there were no significant changes in percentages of precise articulation and error pattern of consonants after taking lamotrigine (98.3% to 99.1%, P >0.05).

Conclusions Our results suggest that lamotrigine can be used without significant negative effects on language function. Moreover, language functions, especially receptive language, were improved after lamotrigine initiation.

1508 SPECTRUM OF NEURAL TUBE DEFECTS AFTER PRENATAL ANTIEPILEPTIC DRUG EXPOSURE: EXTENSIVE CASE SERIES

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Background Most pregnant women with chronic active epilepsy need to use antiepileptic drugs (AEDs) during pregnancy to prevent epileptic seizures that may threaten maternal and fetal well-being. Valproic acid (VPA) and carbamazepine (CBZ) have been associated with an increased risk of neural tube defects (NTDs) in the exposed fetus.

Aim To investigate the spectrum of neural tube defects and associated central nervous system (CNS) and non-CNS malformations after prenatal exposure to CBZ and/or VPA.

Methods NTDs in pregnancies in which CBZ and/or VPA were used during the first trimester were collected from 1970–2012 in the Netherlands. Type and location of the NTDs, associated CNS and non-CNS major malformations and relevant patient characteristics were analysed.

Results 87 pregnancies were included. NTDs after exposure to CBZ or VPA were mostly caudally located, whereas a combination of CBZ and VPA was associated with a location shift of the NTD to the rostral side (Figure 1). There were no differences between CBZ and VPA in the percentage of associated CNS malformations and non-CNS malformations circa 75% and 45%.

Abstract 1508 Figure 1 Antiepileptic drugs versus type and location of NTDs

Conclusions The combination of VPA and CBZ shows a tendency towards a more rostral location (lumbar) which may have more severe functional consequences. Current findings confirm that NTDs associated fetal exposure to VPA and/or CBZ are serious and frequently accompanied by other CNS and non-CNS malformations.