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SEIZURE DISORDERS

C-REACTIVE PROTEIN SERUM LEVELS AFTER SEIZURES

Investigators at Tampere University Hospital, Finland measured C-reactive protein (CRP) serum concentrations in 31 patients (mean age 34, range 6-58 years) with refractory focal epilepsy while undergoing video-EEG monitoring and compared with 80 healthy controls. CRP concentrations were significantly higher in patients with refractory focal epilepsy than in controls (3.5 vs 0.7 mg/ml, $p<0.001$). All 5 patients with elevated CRP had temporal lobe epilepsy (TLE)(i.e. 33% of 15 with TLE). None of 16 patients with extra-temporal lobe epilepsy had elevated CRP concentrations. Increase in CRP from baseline to a maximum level after the index seizure was dependent on the type of seizure ($p=0.005$). Secondarily generalized tonic-clonic seizure (SGTCS) was the most important predictor of increase in CRP level ($p=0.030$), whereas simple and complex partial seizures were without effect on CRP. SGTCS stimulates CRP production. Patients taking enzyme-inducing AEDs (carbamazepine or phenytoin) had higher levels of CRP than those on noninducing drugs ($p=0.084$, NS). Higher CPR levels were associated with lower numbers of AEDs ($p<0.001$), and were found in patients of older age at diagnosis and in measurements during the 24 hour video EEG ($p=0.003$). Baseline CRP level was not significantly associated with sex, etiology, seizure frequency, or duration of index seizure. Elevated levels of CRP in patients with refractory epilepsy emphasize the association between inflammation and epilepsy. These results suggest that a more severe seizure type (SGTCS) shows a stronger inflammatory response after an acute seizure. (Alapirtti T, Waris M, Fallah M, et al. C-reactive protein and seizures in focal epilepsy: a video-electroencephalographic study. **Epilepsia** 2012 May;53(5):790-796). (Respond: Dr Tiina Alapirtti, Department of Neurosciences and Rehabilitation, Tampere University Hospital, PO Box 2000, FI-33521, Tampere, Finland. E-mail: tiina.alapirtti@pshp.fi).

COMMENT. C-reactive protein (CRP) is produced by the liver in response to an

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inflammatory signal, most prominently interleukin-6 (IL-6). Blood levels of CRP may be used as a biomarker for inflammation, cardiovascular disease, dementia, and some epilepsies. The more severe the seizure, the stronger the inflammatory response and the higher the CRP level after an acute seizure. Epileptic seizures provoke a production of cytokines such as IL-6 that may in turn cause an activation of the acute phase reaction and elevation of blood CRP. (Peltola J et al. Indicators of inflammation after recent tonic-clonic epileptic seizures correlate with plasma interleukin-6 levels. **Seizure** 2002 Jan;11(1):44-46).

CELIAC DISEASE AND INCREASED RISK OF EPILEPSY

Researchers at Orebro University Hospital, Orebro, and the Karolinska Institute, Stockholm, Sweden; and the Universities of Naples and Salerno, Italy examined the risk of developing epilepsy in a nationwide population-based sample of >28,000 patients with biopsy-verified celiac disease (CD). The absolute risk of future epilepsy in patients with CD was 92/100,000 person-years (excess risk = 27/100,000 person-years), and the risk was independent of age. The hazard ratio (HR) for having at least 2 interactions with health care due to epilepsy was 1.41. In those patients with epilepsy treated with AEDs, the increased risk of epilepsy was 1.43. (Ludvigsson JF, Zingone F, Tomson T, Ekhom A, Ciaccio C. Increased risk of epilepsy in biopsy-verified celiac disease: A population-based cohort study. **Neurology** 2012 May 1;78:1401-1407). (Respond: Dr Ludvigsson. E-mail: jonasludvigsson@yahoo.com).

COMMENT. Celiac disease carries a moderately increased risk of epilepsy, and patients with epilepsy are at increased risk of future CD. The increased risk of epilepsy is present both before and after CD diagnosis, indicative of shared risk factors and supportive of an immunological etiology for epilepsy. (Vezzani A et al. The role of inflammation in epilepsy. **Nat Rev Neurol** 2011;7;31-40).

LONG-TERM EFFECTIVENESS OF ETHOSUXIMIDE, VALPROIC ACID AND LAMOTRIGINE IN ABSENCE EPILEPSY

Researchers at Seoul National University Bundang and Children's Hospitals, Republic of Korea evaluated the long-term effectiveness and tolerability of ethosuximide (ESX), valproic acid (VPA), and lamotrigine (LTG) as initial monotherapies for patients with childhood absence epilepsy (CAE). CAE was diagnosed according to the criteria of Panayiotopoulos (2005) in a total of 128 patients, female preponderance 1.8:1, and mean age at onset of 6.5 years; 48 were assigned to the ESX group, 59 were treated with VPA and 21 with LTG. The mean follow-up duration was 3.4 years (range, 1-17 years). ESX and VPA starting dose was 10 mg/kg/day, and 1 mg/kg/day for LTG. The final maintenance doses were 23 mg/kg/day for ESX, 26 mg/kg/day for VPA, and 4.7 mg/kg/day for LTG. The seizure-free rate of ESX at 3 months was 84% and significantly higher than that of VPA (62%) and LTG (54%). At 6 months, the seizure-free rate of ESX (90%) was significantly higher than that of LTG (63%); the seizure-free rates of VPA and LTG groups at 6 months were not significantly different. After 9 months, there was no significant difference in seizure-free rates among the 3 drug groups, nor in rates