COGNITIVE FUNCTION AND ABSENCE EPILEPSY

Researchers at the University of Rome, Italy studied executive function and attention in 15 children with childhood absence epilepsy (CAE) (8 boys, 7 girls), under treatment with valproic acid, compared to healthy controls. Age at onset of CAE was 6-11 years. Seizures were completely controlled and their EEG after seizure remission showed no ictal or interictal epileptiform activity. Tests of neuropsychological function included planning and problem solving (Tower of London, TOL), verbal fluency (phonological fluency, FAS; category fluency, CAT), verbal short-term memory (digit span, DSForward), verbal working memory (digit span backward, DSB), visuo-spatial memory (Corsi block tapping test, CBTT), and sustained and divided attention (Trail making visual search test, TMT-A, TMT-B). CAE and control groups showed no differences on measures of intellectual functioning, verbal short-term memory and visuospatial memory. In contrast, significant differences were found in total time of planning task (TOL), phonological (FAS) and category (CAT) fluency and sustained and divided attention (TMT). (D'Agati E, Cerminara C, Casarelli L, Pitzianti M, Curatolo P. Attention and executive functions profile in childhood absence epilepsy. **Brain Dev** 2012 Nov;34(10):812-7). (Respond: Dr Elisa D'Agati, Department of Neuroscience, Child Neurology and Psychiatry Unit, "Tor Vergata" University of Rome, Viale Oxford 81, 00133 Rome, Italy. E-mail: elisadagati@gmail.com).

COMMENT. CAE and control groups show no significant differences in *scores* of tests of intellectual functioning and memory but large differences in *total time* of planning, verbal fluency, and attention. The authors suggest that, based on neuroimaging studies, the task slowness of children with absence epilepsy could be due to dysfunction of dorsolateral prefrontal circuits and other frontal regions, including the anterior cingulate, orbito-frontal and motor/premotor regions. This study involves patients whose clinical and EEG seizures are completely controlled.

In a study of impairment of consciousness during absence and other epileptic seizures, the cerebral cortex and subcortical structures were involved in maintaining consciousness. Alterations of consciousness during epileptic seizures may be produced by subcortical, i.e. reticular formation and/or cortical dysfunction. These authors propose that an impairment of consciousness during absence seizures may be due mainly to cortical dysfunction, whereas complex partial seizures may be associated with dysfunctional subcortical structures. (Yamauchi T. **Epilepsia** 1998;39 Suppl 5:16-20).

RECOGNITION MEMORY AFTER FEBRILE SEIZURES

Researchers at the Institute of Child Health, London; Epilepsy Center, University of Edinburgh; and Dartmouth Medical School, New Hampshire, US studied memory abilities in 26 children (mean age 23 months, SD 12.6 months) after prolonged febrile seizures (median, 37.5 days), and compared to 37 normal controls. Fifteen patients were reassessed after a mean of 12.5 months. The visual paired comparison task, dependent on functional hippocampi, was used to test memory abilities. Recognition memory was impaired when tested at a median of 37.5 days following prolonged febrile seizure (> 30 min). The deficits were not related to the seizure itself or to the anticonvulsant

medication. The magnitude of the decline in performance from the immediate to the delayed paradigm was linked to the size of the hippocampi at time of testing. One year later, the prolonged febrile seizure group still showed impairments in remembering a face after a 5 min delay. Age at the time of the seizure was not a factor. (Martinos MM, Yoong M, Patil S, et al. Recognition memory is impaired in children after prolonged febrile seizures. **Brain** 2012 Oct;135(Pt 10):3153-64). (Respond: Rod C Scott PhD, Dartmouth Medical School, Lebanon, NH. E-Mail: Rodney.C.Scott@Dartmouth.edu).

COMMENT. In this study concerning the effects of prolonged febrile seizures on recognition memory, a visual paired comparison task employing faces was used to test memory abilities in small infants. Prosopagnosia, an inability to recognize faces, is congenital and genetic or acquired. The congenital form may be inherited by ~2.5% of the population. The brain region associated with prosopagnosia is usually stated as the fusiform gyrus or an occipito-temporal location, contiguous with the hippocampal gyrus, the location emphasized in the above study. Congenital prosopagnosia is not rare. Oliver Sacks himself confused the faces of his brothers and learned that his relatives were similarly affected (Sacks O. A Neurologist's Notebook: Face-blind. Why are some of us terrible at recognizing faces? **The New Yorker** 2010 Aug 30:36). A PubMed search of the literature uncovered reports of significant improvements in familiar face recognition following training of a 4-year-old child with congenital prosopagnosia (Schmalzl L, et al. **Cogn Neuropsychol** 2008 Jul;25(5):704-29). Training focused on directing visual attention to specific characteristics of the face, particularly the eye region. The performance became flawless immediately after training as well as at a follow-up assessment 1 month later. Since the visual paired comparison task uses the face in repetitive tests of memory, practice effects on an inherent prosopagnosia are a possible modifying factor in studies of the effect of prolonged febrile seizure on face recognition and memory in infants.

ATYPICAL FACE SHAPE AND GENOMIC VARIANTS IN EPILEPSY

Researchers at the Institute of Neurology, Queen Square, London; Children's Hospital, Florence, Italy; and other centers in the UK, Belgium, and the Netherlands studied face shape abnormalities in 118 children and adults attending three European epilepsy clinics, using an objective measure called Face Shape Difference to show that those with pathogenic structural variants have a significantly atypical face shape. In a second group of 63 patients the predictive accuracy of the measure showed high sensitivity (80% for whole face, 60% for periorbital and perinasal regions) and specificity (78% for whole face and perinasal regions, 69% for periorbital region). Computer-based stereophotogrammetry and dense surface models were effective in detecting subtle relevant face shape abnormalities or dysmorphisms in patients with epilepsy and pathogenic structural genomic variants, as determined by chromosome microarray. (Chinthapalli K, Bartolini E, Novy J, et al. Atypical face shape and genomic structural variants in epilepsy. **Brain** 2012 Oct;135(Pt 10):3101-14). (Respond: Dr Sanjay M Sisodiya, Department of Clinical and Experimental Epilepsy, UCL Institute of Neurology, Queen Square, London WC1N 3BG, UK, E-mail: s.sisodiya@ucl.ac.uk).