abnormalities found in fibrillary astrocytomas are lacking in JPA. It is suggested that distinct genetic pathways in NF1 may produce subsets of astrocytomas.

Dysplastic and heterotopic neurons in focal cortical dysplasia. These cell types were differentiated by demonstrating a differential expression of glutamate and GABA-A receptor subunit mRNA in single immuno-histochemically labeled neurons, microdissected from human focal cortical dysplasia specimens removed during epilepsy surgery, at the Children's Hospital of Philadelphia, PA (Crino PB et al. Neurology 2001;56:906-913). Dysplastic and heterotopic neurons may be pharmacologically distinct and differ in their contribution to epileptogenesis in focal cortical dysplasia.

SEIZURE DISORDERS

GENETIC BASIS OF CARBAMAZEPINE HYPERSENSITIVITY

The genetic basis of carbamazepine hypersensitivity was investigated in 60 affected patients (37 with mild rashes and 23 severe reactions) and 63 control non-sensitive subjects taking carbamazepine and treated at the University of Liverpool, UK. Using PCR and focusing on the major histocompatibility complex (MHC) on chromosome 6, a region linked to diseases of immune etiology, the association of hypersensitivity with polymorphisms in the TNFa promotor region gene and with HLA-DR3 and -DQ2 was determined. The TNF2 allele acted as a predisposing factor for CBZ sensitivity, but only in severe reactions, including exfoliative dermatitis, Stevens-Johnson syndrome, and toxic epidermal necrolysis. Also, HLA-DR3 and -DQ2 were associated with severe reactions. None of the alleles were independently associated with CBZ sensitivity. Hypersecretion of TNFa (tumor necrosis factor a) may determine the severity of the tissue reaction to CBZ. (Pirmohamed M, Lin K, Chadwick D, Park BK. TNFa promotor region gene polymorphisms in carbamazepine-hypersensitive patients. Neurology April (1 of 2) 2001;56:890-896). (Reprints: Dr M Pirmohamed, Department of Pharmacology and Therapeutics, University of Liverpool, Ashton Street, Liverpool, L69 3GE, UK).

COMMENT. CBZ hypersensitivity reaction, an immune mediated side effect of anticonvulsant treatment, is found to have a genetic basis involving polymorphisms and hypersecretion of tumor necrosis factor a (TNFa) contained within the major histocompatibility complex on chromosome 6. Further studies may help to identify susceptible patients and iessen the risk of these serious skin reactions.

COGNITIVE EFFECTS OF CARBAMAZEPINE AND LAMOTRIGINE

The cognitive and behavioral effects of carbamazepine (CBZ) and lamotrigine (LTG) were assessed and compared in 25 healthy adult volunteers, using a double-blind, randomized crossover design with two 10-week treatment periods, at the Medical College of Georgia, Augusta, and New York University, New York. A neuropsychological test battery was administered at the end of each AED treatment period (CBZ mean dose 696 mg/day, and LMG 150 mg/day), at pretreatment baselines, and at 1 month after completion of the last AED treatment. Comparison of the two AEDs showed better cognitive and subjective behavioral measures for LMG than CBZ. Measures included cognitive speed, memory, graphomotor coding, neurotoxic symptoms, mood, sedation, and perception of cognitive performance. Compared to nondrug periods, performance on CBZ was

worse on 62% of the variables and better on 0%, while LMG was worse on 2.5% and better on 2.5% of variables. (Meador KJ, Loring DW, Ray PG et al. Differential cognitive and behavioral effects of carbamazepine and lamatrogine. Neurology May (1 of 2) 2001;56:1177-1182). (Reprints: Dr KJ Meador, Department of Neurology, Medical College of Georgia, 1120 15th St (BA3410), Augusta, GA).

COMMENT. Lamotrigine in healthy adult volunteers has fewer adverse cognitive and behavioral effects than carbamazepine at midrange standard anticonvulsant doses. Cognitive and behavioral side effects of AEDs are significant factors in decision to treat and duration of therapy of seizure disorders, especially in children. Equally important is a neuropsychological impairment that may be associated with the epilepsy syndrome, independent of any effects of AEDs.

NEUROCOGNITIVE PROFILE OF ABSENCE EPILEPSY SYNDROME

Cognitive and language function was determined in 16 children (mean age, 9.2 years; range 6-16) with absence epilepsy compared to 16 controls at the University of Catania, Italy. Children with absence epilepsy had subtle but significant deficits in global cognitive functioning (median full-scale IQ 90.8 cf 103.2 in controls), and in visuospatial skills, nonverbal memory and delayed recall, while verbal memory and language function was preserved. Patients with early-onset seizures (< age 4 years) had more severe cognitive deficits than those whose epilepsy developed after age 4 years. (Pavone P. Bianchini R, Trifiletti RR et al. Neuropsychological assessment in children with absence epilepsy. Neurology April (2 of 2) 2001;56:1047-1051). (Reprints: Dr Piero Pavone, Divisione di Neuologia Pediatrica, Clinica Pediatrica, Universita di Catania, Viale Andrea 6, 95125 Catania, Italy).

COMMENT. Possible factors responsible for the impaired cognitive functioning in absence epilepsy syndrome include the effects of the seizures, the frequency and duration of the seizures, the underlying cause of the epilepsy, and the cognitive effects of antiepileptic drugs. The majority of patients in this study were treated with valproate monotherapy, and the possible adverse effects of the anticonvulsant cannot be discounted. (See Ped Neur Briefs Dec 2000;14:92, for report of study showing adverse effects of valproate on learning, memory, and behavior (Ronen et al. 2000)). The long-term follow-up of patients, comparing those whose seizures remit early and those requiring persistent therapy, would assist in differentiating the cause or causes of the cognitive dysfunction.

SUPPRESSION OF INTERICTAL EPILEPTIC ACTIVITY BY AEDs

Rates of full suppression of interictal epileptiform activity were compared for phenobarbital (PHB), carbamazepine (CBZ), and valproate (VPA), in a study at Tufts University School of Medicine, Boston, MA. Comparing 213 pairs of EEGs, overall suppression rates of epileptiform activity in the second EEG were 12/55 (22%) for PHB, 27/81 (33%) for CBZ, and 35/77 (46%) for VPA (P=.005 for VPA vs PHB). Comparing EEG pairs with only generalized or focal discharges, VPA and CBZ were superior to PHB in suppressing generalized interictal epileptiform activity (47%, 38%, and 17%, respectively) and focal discharges (42%, 32%, and 23%, respectively). Comparing EEG pairs whose inter-EEG interval was less than 1 year, VPA and CBZ were equally effective and superior to PHB in suppressing generalized discharges (46%, 50%, and 14%, respectively), whereas VPA was superior to both CBZ and PHB in suppressing focal discharges (40%, 22%, and 19%, respectively). (Libenson MH, Caravale B. Do antiepileptic drugs differ in suppressing interictal epileptiform activity in children? Pediatr Neurol March