Also, drug response rates and incidence of adverse effects differed between study populations, despite use of identical protocols and patient selection.

The management of refractory seizures and their effects on the quality of life of the patient are reviewed (Devinsky O. Patients with refractory seizures. N Engl J Med May 20 1999;340:1565-1570). The optimal use of antiepileptic drugs, first-line and second-line choices, and their effects on other drug serum levels are tabulated. Vagus-nerve stimulation, recently approved as an adjunctive therapy for refractory seizures in patients older than 12 years, is discussed.

SEIZURE DISORDERS

VAGUS NERVE STIMULATION FOR REFRACTORY EPILEPSY

The efficacy of vagus nerve stimulation (VNS) was evaluated in 24 patients, aged 4 to 40 years (median 18 years), at the New York Presbyterian Hospital-Cornell Medical Center, NY; Mercy Children's Hospital, Kansas City; and University of California at San Diego. Seizure rates during a 1-month baseline were compared to those with 3 months of VNS. Improvements occurred in 22 (88%); 16 had >30% reduction, and 11 had >50% reduction in seizure rate. The median seizure rate reduction was 46%. Idiopathic epilepsy patients improved more than those with symptomatic epilepsy (-60% cf -40%). Generalized tonic seizures responded better than generalized tonic-clonic seizures (-70% cf -33%). Patients with higher baseline seizure rates responded better. Age at onset of epilepsy (median 2, range 0-14 years) was also a predictor of response; seizures developing in later childhood were more responsive.

Adverse events included cough (6 patients), abdominal pain (2), and anorexia, hiccups, dysphagia, emesis, and fatigue (1 each). All were considered mild except one moderate cough and one with anorexia. The median heart rate was slowed compared to baseline. (Labar D, Murphy J, Tecoma E, E04 VNS Study Group. Vagus nerve stimulation for medication-resistant generalized epilepsy. Neurology April 1999;52:1510-1512). (Reprints: Dr Douglas Labar, Comprehensive Epilepsy Center, New York Hospital-Cornell Medical Center, K-619, 525 E 68th Street, New York, NY 10021).

COMMENT. Vagus nerve stimulation may be indicated in older children and adolescents with drug-refractory epilepsies, especially generalized tonic seizures. This pacemaker device, connected by two stimulating electrodes to the left vagus nerve, appears to be safe and generally well tolerated. Transient hoarseness is the most common adverse effect, but cough and anorexia may also occur. Further studies are needed to define the types of seizures responsive to VNS in children.

OUTCOME OF EPILEPSY SURGERY IN EARLY CHILDHOOD

The medical records of 23 children, ages 0-3 years, who were treated surgically for epilepsy between 1991 and 1996 were analysed at the Hospital for Sick Children, Toronto, Canada. The mean age at onset of seizures was 4.7 months, and the mean age at time of surgery was 15.3 months. Partial seizures were diagnosed at onset in 20, infantile spasms in 2, and generalized tonic-clonic seizures in one. Focal cortical resection was performed in 21 and hemispherectomy in 11. Pathological findings included focal cortical dysplasia (8 patients), Sturge-Weber syndrome (5), hemimegalencephaly (3), low-grade glioma (3), and tuberous sclerosis (1). Seizure outcome was class I in 12, class II in 3, class III in 6, and class IV in 2 (Engel's criteria). Outcomes for Sturge-Weber and low-grade glioma patients were better than those with neuronal migration disorders (NMD). Patients with NMD who did poorly had normal MRI/CT findings