A recent study of epilepsy surgery trends in the US found that despite Class I evidence and subsequent practice guidelines, utilization of lobectomy has not increased from 1990 to 2008. Published in *Neurology*, the study sparked debate about what it meant to truly practice evidence-based medicine and why epilepsy surgery has not increased.

The researchers performed a population-based cohort study with time trends of patients admitted to US hospitals for medically refractory focal epilepsy between 1990 and 2008 who did or did not undergo lobectomy, as reported in the Nationwide Inpatient Sample. A trend of increasing hospitalizations over time was not accompanied by an increase in surgeries, producing an overall trend of decreasing surgery rates ($F = 13.6, p < 0.01$). Factors associated with this trend included a decrease in epilepsy hospitalizations at the highest-volume epilepsy centers, and increased hospitalizations to lower-volume hospitals that were found to be less likely to perform surgery. “White patients were more likely to have surgery than racial minorities (relative risk [RR], 1.13; 95% confidence interval [CI], 1.10-1.17), and privately insured individuals were more likely to receive lobectomy than those with Medicaid or Medicare (RR, 1.28; 95% CI, 1.25-1.30),” the authors report. The weighted data revealed over 110,000 hospitalizations for medically refractory focal epilepsy and 6,653 resective surgeries (lobectomies and partial lobectomies) from 1990 to 2008.

One of the study authors, Dario J. Englot, MD, PhD, a resident in the Department of Neurological Surgery at the University of California, San Francisco, told *Practical Neurology* there are likely several contributory factors that explain why the utilization of lobectomy has not increased from 1990 to 2008. “Our study findings suggest more patients are being referred to local, community hospitals rather than large, academic epilepsy centers. The former are less likely to perform epilepsy surgery,” he said. Other factors include an under-appreciation of the efficacy and safety of surgery among medical practitioners, in that many patients with medically refractory epilepsy are still not being referred for surgical evaluation at all.

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The breath of new antiepileptic drugs may also have influenced practice parameters. Clinicians may wish to try newer agents in patients who have failed older agents. “However, the rate of medically refractory epilepsy has unfortunately not been impacted significantly by these new agents,” he said. “There is also the question of whether increased use of vagus nerve stimulator implantations has affected the rate of definitive resective epilepsy surgery. This needs to be investigated, and practitioners need to be educated that while VNS may decrease seizure frequency in some patients, it rarely results in complete seizure freedom.”

Dr. Englot suspects this delayed response happens throughout medicine. “I think in medicine in general, there is often a delay in accepting evidence-based practice parameters. Old habits and stereotypes tend to persist. I think epileptologists want more data, and I think it is the job of the academic community to continue to provide that data regarding epilepsy surgery efficacy, but also to educate the community that a breadth of firm convincing Class I data already exists.”

**CARE DISPARITIES?**

One sensitive issue was that the study found white patients were more likely to have surgery than members of racial minorities were, and privately insured individuals were more likely to receive lobectomy than those with Medicaid or Medicare. “There are multiple reasons for this, which we could not address in our study. I suspect the usual reasons are at play: lack of access to specialty care, racial bias, financial reimbursement, and also cultural beliefs about surgery,” said another study author, Edward F. Chang, MD, Assistant Professor and Chief of Epilepsy and Pain Neurosurgery, and Co-Director of the Center for Neural Engineering and Prostheses at the University of California, San Francisco. Dr. Englot echoed these sentiments, saying this applies to all medical care, including primary care for treatment of common conditions such as diabetes or hypertension. “The finding in our study serves to remind us how critically healthcare reform is needed in America.”

The evidence offers guidance on when to consider surgery, although this isn’t necessarily being followed. In light of this, Dr. Englot believes there is absolute criteria that warrants a patient receiving at least a surgical referral and evaluation. “The data are clear that any patient with epilepsy that continues to have seizures after failing two different antiepileptic drugs should at least be referred for surgical evaluation.”

—Dario J. Englot, MD, PhD

The study found “a decrease in epilepsy hospitalizations at the highest-volume epilepsy centers, and increased hospitalizations to lower-volume hospitals that were found to be less likely to perform surgery.” But Dr. Chang doesn’t believe this suggests something about the economic benefits of surgery and this is a valid reason to consider surgical intervention. “This is not about the economics. It just means that more people are being evaluated at smaller centers, which tend to do fewer surgeries individually. They may not have the needed resources to truly determine someone’s candidacy for surgery.”

**NEW THERAPEUTIC RESOURCE LAUNCHED**

The Epilepsy Therapy Project’s (ETP) new “Epilepsy Therapy Pipeline” is a public resource the group says is intended “to foster critical support for innovative new therapies.” ETP says it has provided financial support and expertise to more than 40 of the 80 active new therapy projects in the pipeline, including therapeutic drugs, biologics, devices and other treatments over the past decade.

The new ETP pipeline is designed as a resource for patients, physicians, philanthropists, investors, and industry partners. It will track and provide updates on product advances. The pipeline is available at http://www.epilepsy.com/etp/pipeline_new_therapies.

“For a physician, there is nothing more tragic than a person severely affected by a disorder for which there is no good treatment available. In epilepsy, this is a daily experience,” said Orrin Devinsky, MD, Professor of Neurology, Neurosurgery, and Psychiatry at NYU School of Medicine, and Co-Founder of ETP, in a statement. “We need to advance new therapies that can reduce the severity, frequency, progressive nature, costs and fatalities associated with epilepsy and seizure conditions. ETP is unique in its focus on new therapies in development.”

The epilepsy pipeline identifies the most promising products from early-stage development to commercial-stage.

—PN Staff