Analysis supports use of surgery to treat medication-resistant epilepsy

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Persons with temporal lobe epilepsy who do not respond to medication could receive a substantial gain in life expectancy and quality of life by undergoing surgery of the temporal lobe part of the brain, according to an analysis reported in the December 3 issue of JAMA.

Despite currently available anti-epileptic drugs, 20 percent to 40 percent of all patients with epilepsy do not respond to medical management. Temporal lobe epilepsy is the most common form of epilepsy and the most likely to be medically non-responsive, and these patients are at increased risk of premature death, according to background information in the article. An alternative form of treatment is temporal lobe resection (procedure in which brain tissue in the temporal lobe is cut away). Patients becoming seizure free after anterior (toward the front) temporal lobe resection have reduced death rates relative to patients continuing to have seizures.

"Studies have reported the effectiveness of temporal lobe resection since the 1950s, yet a minority of patients are being referred to surgery and those only after an average of 20 years of illness. For adolescents and young adults, this delay may be particularly significant during a critical period in their psychosocial development," the authors write.

Hyunmi Choi, M.D., M.S., of the Columbia University Medical Center, New York, and colleagues conducted an analysis using a simulation model to estimate the effect of anterior temporal lobe resection vs. continued medical management on life expectancy and quality-adjusted

life expectancy among patients with medication-resistant temporal lobe epilepsy. The model incorporated possible surgical complications and seizure status and was populated with health-related quality-of-life data obtained directly from patients and data from the medical literature.

Model predictions of being seizure-free 5 years and 10 years after anterior temporal lobe resection were consistent with results from published studies. The researchers found that anterior temporal lobe resection would increase life expectancy by 5.0 years, with surgery preferred in 100 percent of the simulations, and that resection would increase quality-adjusted life expectancy by 7.5 quality-adjusted life-years, with surgery preferred in 96.5 percent of the simulations.

For a 35-year-old patient, the model suggests that anterior temporal lobe resection increased the number of seizure-free years by 15.0 and reduced the lifetime absolute risk of dying from seizure-related causes by 15 percent.

"For patients with pharmacoresistant temporal lobe epilepsy and neurologists, these results provide an additional perspective for comparing the relative benefits of epilepsy surgery vs. continued medical management," the authors write. "Referral of patients in a timely manner is crucial, because factors such as older age at surgery and longer duration of epilepsy are associated with a lower likelihood of becoming seizure-free after anterior temporal lobe resection. Referral to a specialized epilepsy surgery program should be considered when at least 2 appropriate antiepileptic drugs have been tried at maximum tolerable doses and when patients are experiencing disabling partial-onset seizures."

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