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Cost-Utility of Video-Electroencephalography Monitoring followed by Surgery in Adults with Drug-Resistant Focal Epilepsy in Thailand

Pimprapa Kitwitee, PhD, candidate, Kanjana Unnwongse, MD, Epileptologists, Teeradej Srikijvilaikul, MD, Neurosurgeon, Tinonkorn Yadee, MD, Epileptologists, Chulaporn Limwattananon, Ph.D.

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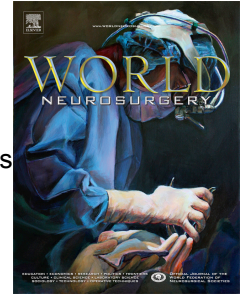
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Abstract

Objectives: This study assessed, whether video-electroencephalography (VEEG) monitoring followed by surgery was cost-effective in adult patients with drug-resistant focal epilepsy under Thai healthcare context, as compared to continued medical treatment without VEEG.

Methods: Total cost (in Thai Baht, THB) and effectiveness (in quality-adjusted life years, QALYs) were estimated over a lifetime horizon, using a decision tree and a Markov model. Data on short-term surgical outcomes, direct health care costs, and utilities, were collected from Thai patients in a specialized hospital. Long-term outcomes and relative effectiveness of the surgery over medical treatment were derived, using systematic reviews of published literature.

Results: Seizure-free rates at years 1 and 2 after surgery were 79.4% and 77.8%, respectively. Costs of VEEG and surgery plus 1-year follow-up care were 216,782 THB, of which the VEEG and other necessary investigations were the main cost driver (42.8%). Based on societal perspective, total cost over a 40-year horizon accrued to 1,168,679 THB for VEEG option; 64,939 THB higher than that for no-VEEG. The VEEG option contributed to additional 1.50 QALYs over no-VEEG, resulting in an incremental cost-effectiveness ratio (ICER) of 43,251 THB (USD 1,236) per one QALY gained. Changes in key parameters had a minimal impact on the ICER. Accounting for uncertainty, there was a 84% probability that the VEEG option was cost-effective based on Thailand's cost-effective threshold of 160,000 THB/QALY.

Conclusions: For patients with drug-resistant epilepsy, VEEG monitoring followed by epilepsy surgery was cost-effective in Thailand. Therefore, it should be recommended for health insurance coverage.

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