

The burden of decisional uncertainty in the treatment of status epilepticus

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Abstract

Objective Treatments for convulsive status epilepticus (SE) have a wide range of effectiveness. The estimated effectiveness of non-intravenous benzodiazepines (non-IV BZDs) ranges from approximately 70% to 90% and the estimated effectiveness of non-benzodiazepine antiseizure medications (non-BZD ASMs) ranges from approximately 50% to 80%. This study aimed to quantify the clinical and economic burden of decisional uncertainty in the treatment of SE. Methods We performed a decision analysis that evaluates how decisional uncertainty on treatment choices for SE impacts hospital admissions, intensive care unit (ICU) admissions, and costs in the United States. We evaluated treatment effectiveness based on the available literature. Results Use of a non-IV BZD with high estimated effectiveness, like intranasal midazolam, rather than one with low estimated effectiveness, like rectal diazepam, would result in a median (p(25)-p(75)) reduction in hospital admissions from 6 (3.9-8.8) to 1.1 (0.7-1.8) per 100 cases and associated cost reductions of \$638 (\$289-\$1064) per pediatric patient and \$1107 (\$972-\$1281) per adult patient. For BZD-resistant SE, use of a non-BZD ASM with high estimated effectiveness, like phenobarbital, rather than one with low estimated effectiveness, like phenytoin/fosphenytoin, would result in a reduction in ICU admissions from 9.1 (7.3-11.2) to 3.9 (2.6-5.5) per 100 cases and associated cost reduction of \$1261 (\$445-\$2223) per pediatric patient and \$319 (\$-93-\$806) per adult patient. Sensitivity analyses showed that relatively minor improvements in effectiveness may lead to substantial reductions in downstream hospital admissions, ICU admissions, and costs. Significance Decreasing decisional uncertainty and using the most effective treatments for SE may substantially decrease hospital admissions, ICU admissions, and costs.

Palabras clave

Palabras clave de autor: [decision analysis](#); [epilepsy](#); [health services research](#); [outcome research](#); [status epilepticus](#)

KeyWords Plus: [CONVULSIVE STATUS EPILEPTICUS](#); [DIPHENYLHYDANTOIN DILANTIN SODIUM](#); [INTRANASAL MIDAZOLAM](#); [2ND-LINE TREATMENT](#); [RECTAL DIAZEPAM](#); [OPEN-LABEL](#); [MEDICATIONS](#); [PHENYTOIN](#); [COST](#); [LEVETIRACETAM](#)

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