



Estimating the economic burden of status epilepticus to the health care system

L.T. Penberthy^{b,*}, A. Towne^a, L.K. Garnett^a, J.B. Perlin^{a,c},
R.J. DeLorenzo^a

^aDepartment of Neurology, Medical College of Virginia, Virginia Commonwealth University, Richmond, VA 23298-0306, USA

^bDepartment of Internal Medicine, Medical College of Virginia, Virginia Commonwealth University, 1200 East Broad Street, West 10 West 402, P.O. Box 980306, Richmond, VA 23298, USA

^cVeterans Health Administration, 810 Vermont Avenue, N.W. Washington, DC 20420, USA

KEYWORDS

Status epilepticus;
Seizures;
Direct cost

Summary

Purpose: Status epilepticus (SE) is a major neurological condition associated with significant morbidity and mortality. No studies to evaluate the cost burden of SE have been performed to date. This study estimates the direct cost related to an inpatient admission for SE in an urban academic medical center.

Methods: Cases of SE were defined based on a standard 30 min or greater seizure duration. The inpatient claims data were analyzed for 192 patients admitted with SE from 1 July 1993 through 30 June 1994. Patient demographic and clinical characteristics associated with increased cost were identified using multiple regression. The direct costs for SE were compared with other common DRGs.

Results: The median reimbursement for a patient with SE was \$8417. The average length of stay for all SE patients was 12.9 days. Age groups (17–45 and 46–64) and etiology (acute CNS) were the only patient factors significantly associated with increased cost. SE patients had 30–60% higher reimbursements than patients admitted for other acute health problems including acute myocardial infarction or congestive heart failure.

Conclusions: The direct inpatient costs for SE are high compared with the direct costs of admissions for other major conditions such as acute myocardial infarction or congestive heart failure. Data from this study were used to estimate a \$4 billion annual direct cost for inpatient admissions for SE. Given the incidence and the high costs, further more detailed evaluation of these costs may be useful in assessing the adequacy of reimbursement for this subset of patients with epilepsy.

© 2004 Published by Elsevier Ltd on behalf of BEA Trading Ltd.

* Corresponding author. Tel.: +1 804 828 6938; fax: +1 804 828 4862
E-mail address: lpenberth@hsc.vcu.edu (L.T. Penberthy).

Background

Studies assessing the cost-of-illness of various neurologic diseases including epilepsy, refractory epilepsy, and stroke have demonstrated a high economic burden of these diseases on the health care system, the patient and their families.^{1–8} Because this is a heterogeneous disease, the range in the costs of epilepsy varied widely, depending on the method and focus of the analysis, whether direct and indirect costs were included, or whether the disease is new onset or established.^{2,9} The economic burden of epilepsy is high, with the greatest cost per person occurring in the first year of diagnosis and ranging from \$917–3157. The costs in subsequent years have been estimated to be lower, ranging from \$245–641.^{4,8} Status epilepticus (SE) represents an important subset of the epilepsy population because it is a major neurological and medical condition associated with significant morbidity and mortality.^{10–15} Estimating the costs attributable to this entity independent of other epilepsy disorders may be important not only because of the severity of this disease, but also because of the substantial number of cases. Epidemiologic data from the Richmond, Virginia metropolitan area determined that the annual incidence of SE was 41 episodes/100,000 adults per year in the United States. This would result in approximately 200,000 cases occurring each year.¹⁰ SE may also occur in association with other diseases such as metabolic coma, or may be associated with neurologic conditions such as stroke, tumor or hypoxic brain injury, further complicating the measurement of the economic burden of this disease.¹² Given the high incidence and the associated morbidity and mortality of SE^{10–12,16,17} the economic burden of this disease is likely to be significant. To date, there have been no studies that have estimated the costs related exclusively to status epilepticus.

Methods used to estimate the economic burden of epilepsy have varied because of differences in the inclusion of different components of health care costs such as the direct medical costs to the health care system or to the patient.^{4,6,7} Indirect costs are an important contributor to the costs of epilepsy, due to ongoing treatments and visits to the health care provider.^{4,6–8} The majority of publications that have assessed the costs of epilepsy have used an annual cost estimate because it is difficult to define an episode of care for epilepsy.^{2,5,8,9} Unlike other forms of epilepsy, SE may lend itself better to identifying an episode of care related to a hospital admission. That admission is likely to represent the largest proportion of direct costs to the health care system. Given that the incidence burden of disease

is substantial, and that the SE events are most likely to occur in a high health care cost setting, studies to estimate the cost of SE independent of that for other seizures seems warranted.

Data from the NIH Greater Metropolitan Area Status Epilepticus Data System provided a unique opportunity to assess the economic burden to the health care system associated with an inpatient hospital admission for SE. Because the patients were identified prospectively and comorbidity information was collected the effect of other diagnoses on the direct costs surrounding an episode of SE could be examined. Finally, costs measured by reimbursement and associated with an SE admission, were compared with those for other acute admissions including myocardial infarction, stroke, and congestive heart failure.

Methods

Case definition

SE has been defined for all studies related to this project using well-established criteria as (1) any seizure lasting 30 min or longer; or (2) intermittent seizures totaling more than 30 min, between which the patient did not regain consciousness.^{10,11,13,15,18}

Population

The Medical College of Virginia of Virginia (MCV) Commonwealth University prospectively collects and maintains epidemiologic and clinical data on SE in the Greater Richmond Metropolitan Area Status Epilepticus Data System.^{10,14} Data on a subset of these patients, cases diagnosed and treated at MCV Hospital, were used to assess the direct medical costs as represented by reimbursement for inpatient stays for SE. The inpatient claims data for 192 patients admitted to the MCV Hospital from 1 July 1993 through 30 June 1994 were analyzed to calculate the direct economic burden of an episode of SE.

Patients admitted with an admission DRG of acute myocardial infarction, cerebrovascular hemorrhage, or congestive heart failure in 1994 were identified and claims data were used to estimate the direct costs of inpatient medical care for these diseases. The direct costs measured as reimbursement provided a set of relative comparisons for the same costs associated with an admission for SE.

Costs

Because SE is treated primarily in the acute inpatient setting, the largest proportion of the costs of

Download English Version:

<https://daneshyari.com/en/article/10308768>

Download Persian Version:

<https://daneshyari.com/article/10308768>

[Daneshyari.com](https://daneshyari.com)