

Potential influence of acute CT on inpatient costs in patients with ischemic stroke.

[Gleason S, Furie KL, Lev MH, O'Donnell J, McMahon PM, Beinfeld MT, Halpern E, Mullins M, Harris G, Koroshetz WJ, Gazelle GS.](#)

Department of Economics, Trinity College, Hartford, CT 06106, USA.

RATIONALE AND OBJECTIVES: Patients presenting with ischemic brain symptoms have widely variable outcomes dependent to some degree on the pathologic basis of their stroke syndrome. The purpose of this study was to determine the cost implications of the emergency use of a computed tomographic (CT) protocol comprising unenhanced CT, head and neck CT angiography, and whole-brain CT perfusion. **MATERIALS AND METHODS:** By using a retrospective patient database from a tertiary care facility and publicly available cost data, the authors derived the potential savings from the use of CT angiography, CT perfusion, or both at hospital arrival by means of a cost model. The cost of the CT angiography-CT perfusion protocol was determined from Medicare reimbursement rates and compared with that of traditional imaging protocols. Cost savings were estimated as a decrease in the length of stay for most stroke patients, whereas the most benign (lacunar) strokes were assumed to be managed in a non-acute setting. Misdiagnosis cost (erroneously not admitting a patient with nonlacunar stroke) was calculated as the cost of a severe complication. Sensitivity testing included varying the percentage of misdiagnosed patients and admitting patients with lacunar stroke. **RESULTS:** The nationwide net savings that would result from the adoption of the CT angiography-CT perfusion protocol are in the \$1.2 billion range (-\$154 million to \$2.1 billion) when patients with lacunar strokes are treated nonacutely and \$1.8 billion when those patients are admitted for acute care. **CONCLUSION:** The results demonstrate the potential effect of implementing a CT angiography-CT perfusion protocol. In particular, prompt CT angiography-CT perfusion imaging could have an effect on the cost of acute care in the treatment of stroke.

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