



CT Perfusion and Functional Outcomes in Acute Ischemic Stroke

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Introduction

The role of CT perfusion (CTP) in selecting the appropriate patients for intervention remains debated. The aim of this study was to use CTP data to identify functional outcomes after acute stroke.

Methods

This was a retrospective review of 100 consecutive patients with anterior circulation ischemic stroke who underwent CTP (2/2011-10/2014). Data collected included clinical information along with CTP data in specific locations of the brain. The analysis was focused on identification of areas of infarction in the following territories: caudate, insular ribbon, lentiform nuclei, internal capsule, ACA, M1-M6 per ASPECTS, thalami, perisylvian fissure and motor strip regions. We analyzed core infarct and penumbral volumes. Infarct was defined as a matched deficit on CTP, while penumbra was defined as a mismatch between cerebral blood flow and volume. Outcome was defined by mRS at discharge.

Results

Median age was 67 years, median NIHSS was 16. mRS at discharge was 0 in 2% of patients, 1 in 8%, 2 in 15%, 3 in 18%, 4 in 31%, 5 in 14%, and 6 in 12% of patients. Having an infarct in the following regions was associated with a higher mRS at discharge; perisylvian fissure (P=0.002), M2 (P<0.001), M4 (P=0.042), M5 (P=0.001), M6 (P=0.002), and motor strip (P<0.001). There was also a significant association with higher mRS at discharge for volume of infarct core >22mL (OR: 3.39, P=0.002). All of these associations remained significant in multivariable analysis.

Conclusions

The results of this study suggest an association between CTP measures of infarction and outcomes in ischemic stroke. A worse mRS at discharge was noted in patients with evidence of infarct within the perisylvian region, motor strip region, M2 region, M4 region, M5 region, and M6 region, and also in patients with a greater volume of core infarct.

Learning Objectives

By the conclusion of this session, participants should be able to: 1) Describe the regions of the ASPECTS score, 2) Discuss the association of CTP and outcomes after acute ischemic stroke.