

# Statins and perihemorrhagic edema in patients with spontaneous intracerebral hemorrhage

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## Study objective

The study aimed to test the hypothesis that prior statin usage does not affect relative perihemorrhagic edema (rPHE) sizes on admission CT (aCT) scans in patients with spontaneous intracerebral hemorrhage (ICH).

## Summary results

Prior statin usage is not associated with rPHE sizes on aCT scans.

## What is known and what this paper adds

Some studies have reported that prior statin usage is associated with reduced PHE sizes on aCT scans, but this association is not reliably reproducible. This study shows that no association is present after controlling for the time between symptom onset and aCT.

## Participants and setting

This study reviewed data from a prospectively recruited cohort of 176 patients with nontraumatic ICH (55% male) who were consecutively admitted to the Columbia University Medical Center in New York City between September 2009 and October 2012.

## Design, size, and duration

Statin usage was detected by reviewing prospectively collected clinical data. Two investigators who were blinded to clinical data independently reviewed aCT scans and calculated each patient's rPHE size as the ratio of perihemorrhagic edema size to hematoma size. A binary logistic regression model was used to identify variables associated with rPHE sizes.

## Primary outcomes measures

The primary outcome was association between any statin usage and rPHE sizes after controlling for the time between symptom onset and aCT.

**Table** Results from the binary logistic regression model constructed to identify variables associated with rPHE sizes

Variable	Adjusted odds ratio (95% CI) for increased rPHE size
Time to aCT, h	1.016 (1.012–1.124)
Intraventricular hemorrhage binary	0.398 (0.203–0.780)
Prior statin usage	1.173 (0.549–2.515)

## Main results and the role of chance

Prior statin usage was recorded for 38 patients (22%). The binary logistic regression model showed that prior statin usage was not associated with rPHE sizes after controlling for the time between symptom onset and aCT ( $p = 0.678$ ).

## Bias, confounding, and other reasons for caution

This study relied on retrospective data analysis. Changes in clinical care standards and guidelines since 2012 might have affected this study's results. This study lacked data on statin types and dosages.

## Generalizability to other populations

This study's small sample size and single-center nature may limit the generalizability of the results.

## Study funding/potential competing interests

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