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## Natural History of Perihematomal Edema and Impact on Outcome After Intracerebral Hemorrhage.

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Abstract: Edema may worsen outcome after intracerebral hemorrhage (ICH). We assessed its natural history, factors influencing growth, and association with outcome.

We estimated edema volumes in ICH patients from the Helsinki ICH study using semiautomated planimetry. We assessed the correlation between edema extension distance (EED) and time from ICH onset, creating an edema growth trajectory model up to 3 weeks. We interpolated expected EED at 72 hours and identified clinical and imaging characteristics associated with faster edema growth. Association of EED and mortality was assessed using logistic regression adjusting for predictors of ICH outcome.

From 1013 consecutive patients, 861 were included. There was a strong inverse correlation between EED growth rate (cm/d) and time from onset (days):  $EED\ growth = 0.162 * days \exp(-0.927)$ ,  $R(2) = 0.82$ . Baseline factors associated with larger than expected EED were older age (71 versus 68;  $P = 0.002$ ), higher National Institutes of Health Stroke Scale score (14 versus 8;  $P$

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