Lying Flat vs Sitting Up: No Difference in Stroke Outcomes

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Results of the HeadPoST study, showing no difference in disability outcomes in acute stroke patients who were laid flat vs those sitting up for the first 24 hours, has now been published in the June 22 issue of the *New England Journal of Medicine (NEJM)*.

The study was first presented at the International Stroke Conference (ISC) in February, and reported by *Medscape Medical News* at that time.

In the *NEJM* paper, the authors, led by Craig S. Anderson, MD, George Institute for Global Health, Sydney, Australia, explain that it has been thought that lying a patient flat after acute stroke may improve cerebral perfusion, but there has been concern about a possible increase in the risk for aspiration pneumonia.

To investigate the issue further, they conducted the current study, in which 11,093 patients with acute stroke (85% ischemic) were randomly assigned to receive care in a lying-flat position or a sitting-up position with the head elevated to at least 30 degrees.

The median interval between the onset of stroke symptoms and the initiation of the assigned position was 14 hours; patients in the lying-flat group were less likely than patients in the sitting-up group to maintain the position for 24 hours (87% vs. 95%; $P < .001$).

In a proportional-odds model, there was no significant shift in the distribution of 90-day disability outcomes on the global modified Rankin Scale between patients in the lying-flat group and patients in the sitting-up group (unadjusted odds ratio for a difference in the distribution of scores on the modified Rankin Scale in the lying-flat group, 1.01; $P = .84$).

Mortality within 90 days was 7.3% among the patients in the lying-flat group and 7.4% among the patients in the sitting-up group ($P = .83$). There were no significant between-group differences in the rates of serious adverse events, including pneumonia.

The researchers say that "the negative results of this trial suggest that any modification of cerebral blood flow that may have occurred as a result of head positioning initiated within 24 hours was insufficient to reduce the neurologic deficit associated with acute stroke."

They note that most patients in the trial had the assigned head position implemented after the time window for reperfusion with thrombolytic or endovascular treatment had passed, and the patients had mostly mild neurologic deficits from a range of causes of stroke. They therefore suggest that earlier initiation of head position after symptom onset, when the ischemic penumbra is potentially modifiable, may have produced different results.

The authors point out that the rate of pneumonia was lower in this trial than in some other series, which they say might relate to "careful assessment and care of patients, including the use of dysphagia screening protocols and feeding regimens, as well as the exclusion of high-risk patients such as those who underwent intubation."

The trial was fu nded by the National Health and Medical Research Council of Australia. Dr Anderson reports receiving advisory board fees from Medtronic and AstraZeneca and lecture fees and travel support from Takeda China and Boehringer Ingelheim. Disclosures for coauthors appear in the paper .

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