

# POEMs

## Patient-Oriented Evidence That Matters

### Routine Oxygen Supplementation After Acute Stroke Does Not Improve Functional Outcomes

#### Clinical Question

Does routine low-dose oxygen therapy following an acute stroke improve functional outcomes?

#### Bottom Line

For nonhypoxic patients with acute stroke, routine oxygen therapy for 72 hours, either continuously or at night only, does not improve functional outcomes at 90 days. Long-term outcomes were not assessed in this study, and the question remains whether 90 days is an adequate length of time to see most of the meaningful recovery from stroke. (Level of Evidence = 1b)

#### Synopsis

Adults with a clinical diagnosis of acute stroke and no indication for or contraindication to oxygen were randomized to receive continuous oxygen therapy for 72 hours, nocturnal oxygen therapy for three nights, or no oxygen supplementation. Oxygen was delivered at 3 L per minute if baseline saturation was 93% or less and 2 L per minute if baseline saturation was higher than 93%. The primary outcome was the 90-day modified Rankin Scale score for disability (range: 0 to 6, where 0 = no symptoms, 3 = moderate disability, and 6 = death). A total of 8,003 patients were randomized into one of the three groups using concealed allocation. After excluding patients who either withdrew before the 90-day assessment, were lost to follow-up, or had missing data for the primary

outcome, 7,719 patients remained in the modified intention-to-treat analysis. Overall, 92% of the study patients were independent in basic activities of daily living before the symptoms of stroke, and baseline characteristics were similar in the three groups.

Adherence to the treatment was 81% in the continuous oxygen group and 83% in the nocturnal oxygen group. The main reason for early discontinuation of oxygen was discharge from the hospital. In the primary analysis, oxygen supplementation did not improve functional outcomes at 90 days when comparing the two oxygen groups with the control group or when comparing the continuous oxygen group with the nocturnal oxygen group. Additionally, there were no differences in 90-day mortality, ability to live independently, ability to perform activities of daily living, or overall quality of life.

**Study design:** Randomized controlled trial (nonblinded)

**Funding source:** Government

**Allocation:** Concealed

**Setting:** Inpatient (any location) with outpatient follow-up

**Reference:** Roffe C, Nevatte T, Sim J, et al.; Stroke Oxygen Study Investigators and the Stroke Oxygen-Study Collaborative Group. Effect of routine low-dose oxygen supplementation on death and disability in adults with acute stroke: The Stroke Oxygen Study Randomized Clinical Trial [published correction appears in *JAMA*. 318(18):1831-1832]. *JAMA*. 2017; 318(12):1125-1135.

#### Nita Shrikant Kulkarni, MD

Assistant Professor in Hospital Medicine  
Northwestern University  
Chicago, Ill. ■

**POEMs** (patient-oriented evidence that matters) are provided by Essential Evidence Plus, a point-of-care clinical decision support system published by Wiley-Blackwell. For more information, see <http://www.essentialevidenceplus.com>. Copyright Wiley-Blackwell. Used with permission.

**For definitions** of levels of evidence used in POEMs, see [http://www.essentialevidenceplus.com/product/ebm\\_loe.cfm?show=oxford](http://www.essentialevidenceplus.com/product/ebm_loe.cfm?show=oxford).

**To subscribe** to a free podcast of these and other POEMs that appear in *AFP*, search in iTunes for "POEM of the Week" or go to <http://goo.gl/3niWXb>.

**This series** is coordinated by Sumi Sexton, MD, Editor-in-Chief.

**A collection** of POEMs published in *AFP* is available at <https://www.aafp.org/afp/poems>.