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

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