Long-Term Oxygen Therapy for 24 or 15 Hours per Day in Severe Hypoxemia | New England Journal of Medicine

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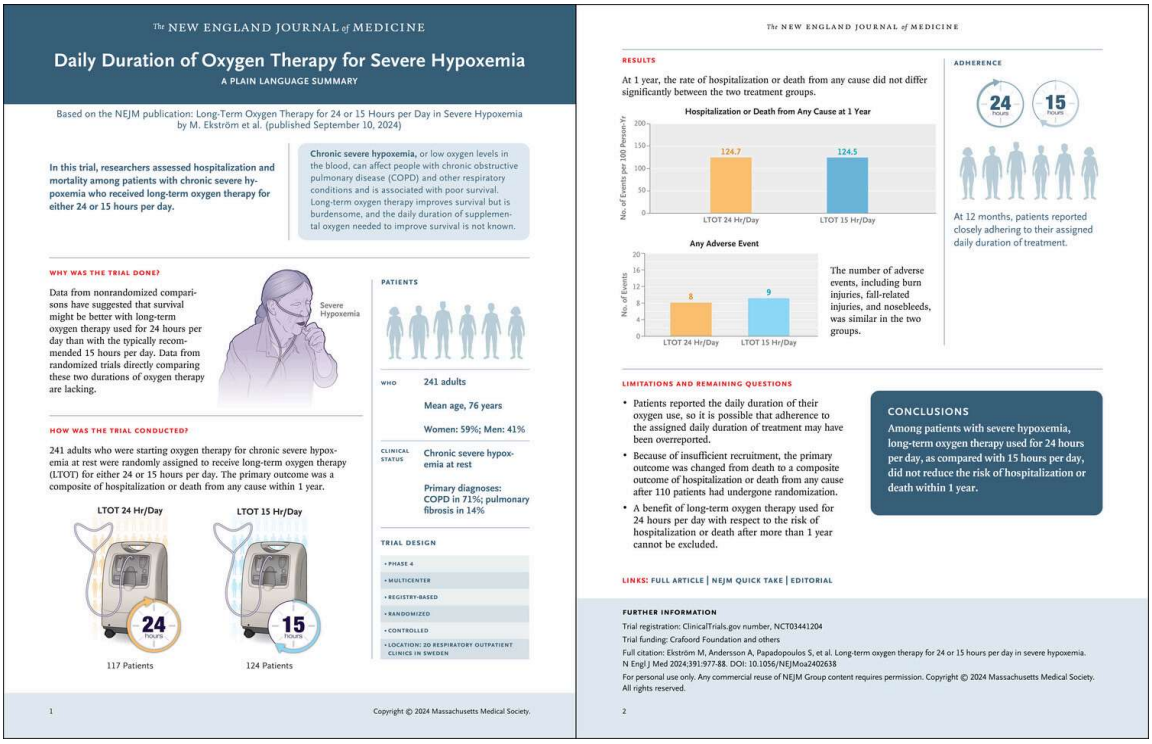
Abstract

Background

Long-term oxygen supplementation for at least 15 hours per day prolongs survival among patients with severe hypoxemia. On the basis of a nonrandomized comparison, long-term oxygen therapy has been recommended to be used for 24 hours per day, a more burdensome regimen.

Methods

To test the hypothesis that long-term oxygen therapy used for 24 hours per day does not result in a lower risk of hospitalization or death at 1 year than therapy for 15 hours per day, we conducted a multicenter, registry-based, randomized, controlled trial involving patients who were starting oxygen therapy for chronic, severe hypoxemia at rest. The patients were randomly assigned to receive long-term oxygen therapy for 24 or 15 hours per day. The primary outcome, assessed in a time-to-event analysis, was a composite of hospitalization or death from any cause within 1 year. Secondary outcomes included the individual components of the primary outcome assessed at 3 and 12 months.



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Results

Between May 18, 2018, and April 4, 2022, a total of 241 patients were randomly assigned to receive long-term oxygen therapy for 24 hours per day (117 patients) or 15 hours per day (124 patients). No patient was lost to follow-up. At 12 months, the median patient-reported daily duration of oxygen therapy was 24.0 hours (interquartile range, 21.0 to 24.0) in the 24-hour group and 15.0 hours (interquartile range, 15.0 to 16.0) in the 15-hour group. The risk of hospitalization or death within 1 year in the 24-hour group was not lower than that in the 15-hour group (mean rate, 124.7 and 124.5 events per 100 person-years, respectively; hazard ratio, 0.99; 95% confidence interval [CI], 0.72 to 1.36; 90% CI, 0.76 to 1.29; P=0.007 for nonsuperiority). The groups did not differ substantially in the incidence of hospitalization for any cause, death from any cause, or adverse events.

Conclusions

Among patients with severe hypoxemia, long-term oxygen therapy used for 24 hours per day did not result in a lower risk of hospitalization or death within 1 year than therapy for 15 hours per day. (Funded by the Crafoord Foundation and others; REDOX ClinicalTrials.gov number, NCT03441204.)