National Jewish Health
Breathing Science is Life.

JOURNAL CLUB

Article Summary by: Matthew Koslow, MD & Jeffrey J. Swigris, DO, MS

ARTICLE

Effect of ambulatory oxygen on quality of life for patients with fibrotic lung disease (AmbOx): a prospective, open-label, mixed method, crossover randomized controlled trial. *Lancet Respir Med 2018;* 6: 759-70. https://pubmed.ncbi.nlm.nih.gov/30170904/

CLINICAL QUESTION

Should ambulatory oxygen be prescribed for adults with ILD who have exertional hypoxemia when breathing ambient air?

SUMMARY

The AmbOx trial was a prospective, open-label, crossover, randomized, controlled clinical trial that aimed to assess the effect of ambulatory oxygen on health-related quality of life (HRQOL) in patients with interstitial lung disease and isolated exertional hypoxemia. Patients had fibrotic ILD, were not hypoxic at rest but had a fall in peripheral oxygenation saturation to 88% or less on a 6-min walk test (6MWT). Patients were randomly assigned to receive either ambulatory oxygen treatment (AmbOx) or no oxygen treatment for 2 weeks, followed by crossover (to the alternative) for another 2 weeks. The primary outcome was the change in total score on the King's Brief Interstitial Lung Disease questionnaire (K-BILD). In a subgroup of subjects, experiences were examined through qualitative interviews. A total of 84 patients underwent randomization and 76 subjects completed the trial.

For the primary outcome, ambulatory oxygen was associated with significant improvements in K-BILD total and two of the three domain scores: Breathlessness and Activities (B and A) and Chest Symptoms (CS). The scores for the psychological symptoms' domain did not differ significantly between groups. The mean between-groups treatment-associated difference in total K-BILD score (3.7) favored AmbOx and was at the lower end of its estimated minimal clinically important difference (4.0, range 3.7-4.2). Greater improvements, again favoring AmbOx, were noted for the B and A scores (mean difference of 8.6). Benefits of AmbOx were perceived by a majority of subjects, with 51/76 (67%) patients who said they would choose to continue using AmbOx at the conclusion of the trial. Age and patients' global assessment of change in breathlessness were the strongest determinants of the choice to continue AmbOx after the trial.

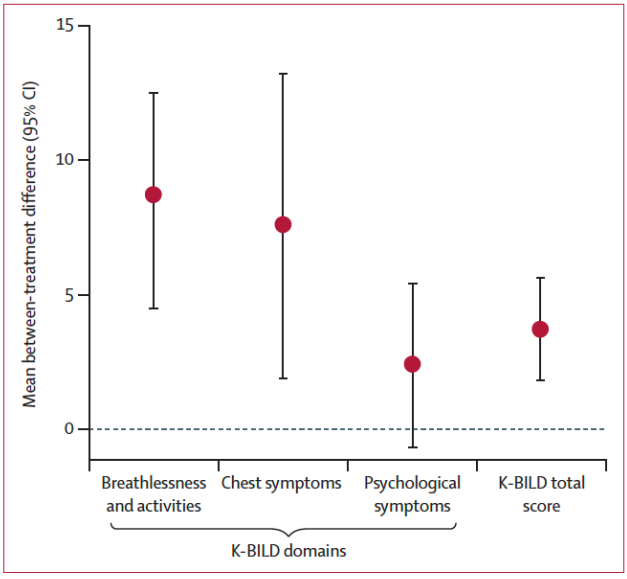

Figure 3: **Mean difference in K-BILD scores between ambulatory oxygen and no treatment, adjusted for order of treatment**
K-BILD=King's Brief Interstitial Lung Disease Questionnaire.

Among 21 subjects who participated in qualitative interviews, most reported apprehension about using AmbOx prior to the trial, but 15 subjects changed their opinion after noting improved exercise tolerance and quality of life. The patients who did not continue with AmbOx reported more challenges with it compared to those who continued treatment. Anecdotal quotes of patients' attitudes regarding the benefits and challenges with AmbOx are illustrated in the original article.[1]

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GROUP OPINION

The majority of data about oxygen supplementation is derived from studies of COPD patients.[2,3] Oxygen supplementation is considered standard of care for *resting* severe hypoxemia (Spo2 at or below 88%) and, in whom it confers a survival benefit and may improve pulmonary hemodynamics,[4] sleep quality,[5] cognition and mood.[6] Data for *ambulatory* oxygen are conflicting.[7] Results from the long-term oxygen therapy trial (LTOT), which included COPD patients with isolated moderate exercise-induced desaturation, suggested that AmbOx did not reduce mortality, hospitalizations or lead to meaningful benefits on QOL, depression, anxiety or functional status.[8] Whether these results can be generalized to patients with fibrotic ILD is unknown, particularly since exercise hypoxemia is more severe in patients with fibrotic ILD than in those with COPD, independent of resting Spo2 and baseline pulmonary physiology[9].

The AmbOx trial demonstrates that AmbOx leads to clinically significant improvements in breathlessness, walking ability and overall HRQL for ILD patients with isolated exertional hypoxia (Spo2 88% or less on 6MWT). Although the majority of subjects interviewed expressed apprehension about AmbOx prior to the trial, most changed their view because "they could do more" when using AmbOx and elected to continue using it after the study trial. However, a few patients interviewed had enduring negative impressions of AmbOx and did not continue treatment after the trial, despite reporting symptomatic benefits. This suggests that, while on average AmbOx is associated with improved outcomes, the decision to use or not use it in patients with fILD and exertional desaturation should be made on a case-by-case basis, after an informed discussion of the potential merits and challenges of AmbOx. Additional research is needed to further elucidate which patients with fILD may derive benefit from AmbOx and all the ways that benefit may be realized.

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ILD Journal Club dates and times: ***njhealth.org/ILDJournalClub***

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