testing preference where the most frequent reason for preferring home-based testing was “sleeping in one’s own bed” (4, 5).

We also found that PAP adherence did not differ by PAP initiation strategy, consistent with clinical trial results (6, 7). This is reassuring given concerns that durable medical equipment support for home-based initiation in the real world is lower than what has been provided in clinical trials. However, we did find that adherence was significantly lower among patients who had PAP initiated in a manner discordant with their personal preference. Specifically, patients who preferred laboratory-based initiation but received home autotitration had the lowest PAP usage. A preference for in-laboratory titration may lead to better treatment outcomes. Future research should hold true to the values of patient-centered care, but our data suggest it in selecting a strategy for PAP initiation. Not only does such a strategy fulfill the preferences of patients and incorporates patient values in clinical decision-making (9). Our findings suggest that patient preference should play a significant role in selecting a strategy for PAP initiation. Not only does such a strategy hold true to the values of patient-centered care, but our data suggest it may lead to better treatment outcomes. Future research should prospectively assess whether OSA treatment approaches that explicitly incorporate patient preference lead to improved clinical outcomes.

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The National Institute of Respiratory Diseases "Ismael Cosio Villegas" in México City science and bioethics committee approved the study (C16–20), and participants signed the informed consent form. Anthropometric data are presented as means and standard deviations or as number and percentage; Student’s t tests and Mann-Whitney U tests were used to compare groups. Analysis of variance was used to analyze the results of the 6-MWT with or without the face mask, and Spearman’s correlation coefficient (r_{sp}) and concordance correlation coefficient (CCC) were used to search for associations. Multivariable linear regression analysis was performed to investigate whether the difference walked in meters between both 6-MWTs (with and without face mask [dependent variable]) was predicted by some variables selected by their potential influence in the outcome, such as using or not using the face mask, the type of face mask, the presence of desaturation, the degree of dyspnea and fatigue (10-grade Borg Scale) (8), overweight or obese status, and tobacco use (independent variables). The Enright and colleagues’ reference equation, adjusted for body mass index, was used to calculate the percentage predicted for the 6-MWT (9).

**Discussion**

The main finding of this study is that the mean difference in the 6-MWD when using either a surgical or N95 face mask compared with not wearing a face mask was −0.65 m, with a broad 95% limit of agreement; 84% of the subjects had agreement within MCSL (±30 m).

The 6-MWT aims to measure the distance that a subject can walk during 6 minutes in a 30-m corridor (7, 10–12). It is indicated in the diagnosis, prognosis, and monitoring of individuals with chronic lung diseases (13–15). Although its importance is based on the analysis of the effects of the treatment on the meters walked in 6 minutes, the 6-MWT also allows for measuring the functional status through other parameters, such as the SpO2, HR, dyspnea, fatigue, and blood pressure (7, 13).

Recently, some authors have suggested the usefulness of the 6-MWT in the initial diagnosis of COVID-19 (16), for early discrimination of mild from severe cases; however, there are concerns about the likely transmission of COVID-19 via the air to healthcare personnel and individuals with other chronic lung diseases who attend pulmonary function test laboratories (17, 18). Therefore, new preventive measures have been proposed, one of which is the use of face mask to reduce the risk of infection (16).

Traditionally, the 6-MWT is performed without a face mask, and the use of a face piece that covers the mouth and nostrils can increase the CO2 concentrations to 3.0% (±0.5%), especially in subjects performing low-intensity exercise (19, 20). In this sense, using an N95 respirator may be associated with increased breathing effort, sensation of suffocation, and altered results during the 6-MWT. As far as we know, there is only one study that has evaluated the use of a surgical face mask during the 6-MWT (21); these authors found no difference in the meters walked (P = 0.99) in healthy subjects, and the only significant difference was in the degree of dyspnea (P < 0.001).
Table 2. 6-MWT differences with or without a surgical or N95 face mask

|                               | Surgical Facemask (n=36) | N95 Facemask (n=41) |
|-------------------------------|--------------------------|---------------------|
|                               | With Face Mask | Without Face Mask  | With Face Mask | Without Face Mask |
| 6-MWD, m                      | 516.2 ± 77.8 | 517.6 ± 90.6        | 535.5 ± 78.9 | 537 ± 73.6        |
| 6-MWD, % of predicted         | 86.7 ± 18.8 | 86.5 ± 16.5         | 88.6 ± 17   | 88.5 ± 17.2       |
| Basal SpO₂, %                 | 92.4 ± 1.6   | 93 ± 1.9            | 93 ± 1.6    | 93 ± 1.8          |
| Lowest SpO₂, %                | 88.2 ± 3.2   | 88.3 ± 3.5          | 87.8 ± 3.9  | 87.5 ± 4.1        |
| Final SpO₂, %                 | 90.3 ± 3.5   | 90.5 ± 3.7          | 89.4 ± 4.3  | 89.4 ± 4.3        |
| 1-min SpO₂, %                 | 92.6 ± 2.8   | 93.1 ± 2.1          | 91.8 ± 3.3  | 92.1 ± 2.9        |
| 3-min SpO₂, %                 | 93.3 ± 1.8   | 93.5 ± 1.6          | 94 ± 1.5    | 93.6 ± 1.7        |
| Basal HR, bpm                 | 83 ± 12      | 83 ± 12             | 82 ± 13     | 82 ± 14           |
| Highest HR, bpm               | 122 ± 15     | 123 ± 16            | 124 ± 16    | 123 ± 13          |
| Final HR, bpm                 | 114 ± 19     | 116 ± 18            | 121 ± 17    | 118 ± 17          |
| 1-min HR, bpm                 | 98.1 ± 17.6  | 95.7 ± 16.7         | 101.1 ± 17  | 100.8 ± 16.5      |
| 3-min HR, bpm                 | 91.5 ± 14.2  | 91.6 ± 15.5         | 92.6 ± 14.2 | 92.4 ± 14.7       |
| Dyspnea basal score           | 0.2 ± 0.7    | 0.3 ± 0.7           | 0.3 ± 0.4   | 0.3 ± 0.6         |
| Dyspnea final score           | 1.2 ± 1.2    | 1.0 ± 1.1           | 1.8 ± 1.5   | 1.2 ± 1.4         |
| Dyspnea 1-min score           | 1 ± 1.1      | 0.9 ± 1             | 1.3 ± 1.2   | 1 ± 1.2           |
| Dyspnea 3-min score           | 0.6 ± 0.8    | 0.5 ± 0.8           | 0.7 ± 0.7   | 0.5 ± 0.7         |
| Fatigue basal score           | 0.6 ± 1.0    | 0.6 ± 1.3           | 0.6 ± 1.0   | 0.6 ± 1.0         |
| Fatigue final score           | 1.8 ± 2.2    | 1.8 ± 1.2           | 2.4 ± 2.0   | 2.3 ± 2.0         |
| Fatigue 1-min score           | 1.6 ± 1.9    | 1.7 ± 2.1           | 2.1 ± 1.5   | 1.8 ± 1.7         |
| Fatigue 3-min score           | 1.1 ± 1.8    | 1.1 ± 1.9           | 1.3 ± 1.2   | 1.3 ± 1.4         |

Definition of abbreviations: 6-MWD = 6-minute walking distance; 6-MWT = 6-minute walking test; HR = heart rate; SpO₂ = oxygen saturation measured by pulse-oximeter. Data are presented in mean ± SD. The 1-minute and 3-minute scores correspond with measurements at 1 minute and 3 minutes after the 6-MWT. The dyspnea and fatigue scores were measured with the Borg Scale (8). The 6-MWD% predicted is the percentage predicted of the 6-MWD according to Enright and Sherrill (9). All parameters P > 0.05 between with and without the face mask according to the type of face mask (analysis of variance).

Figure 1. (A) Spearman correlation ($r_s$ = 0.9, P < 0.001) and (B) concordance correlation coefficient (CCC) between the meters walked during the 6-minute walking test (6-MWT) with and without face mask (CCC = 0.94). The small dashed lines represent the minimal clinically significant difference (≥30 m) proposed in the evaluation of patients with chronic lung diseases, the dashed and dotted lines represent the 95% limits of agreement, and the large dashed lines represent the average of difference between the walking meters during the 6-MWT with and without the face mask. Open circles = surgical face mask; open triangles = N95 face mask. 6-MWD = 6-minute walking distance; w/wo = with/without.
Our study found that in 84% of the participants, the difference in meters walked was within the MCSL (±30 m) (13, 22–24), and no differences were obtained in the degree of dyspnea (25).

This study has limitations. Although this is a cohort of individuals who recovered from COVID-19, the number of participants in each group could be higher.

Conclusions

Surgical or N95-type face masks can be used during the 6-MWT, especially among those recovering from COVID-19, and the results regarding the meters walked as well as other variables, such as SpO2, HR, and degree of dyspnea, are similar to those obtained without using a face mask.

Author disclosures are available with the text of this letter at www.atsjournals.org.

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Alcohol Consumption and the Risk of Acute Respiratory Distress Syndrome in COVID-19

To the Editor:

During the coronavirus disease (COVID-19) pandemic it has become clear that patients with comorbidities are not only at higher risk of contracting the disease but also to develop serious complications such as acute respiratory distress syndrome (ARDS). A dose-dependent correlation between alcohol consumption and viral infections is well documented (1) and, furthermore, alcohol consumption has been shown to increase the risk of acquiring community infections (2).

A general increase in the consumption of alcohol has been reported during the severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) pandemic (3). It has been hypothesized that patients with alcohol-related disorders are at an increased risk of COVID-19 (4). However, it remains unknown whether alcohol consumption is associated with a more severe course of COVID-19.

Methods

We conducted a cohort study to understand the association of alcohol use and ARDS development using data from ECHOVID-19 (The COVID-19 Echocardiography Study), a prospective multicenter cohort study of 215 hospitalized patients with COVID-19 recruited from eight hospitals in eastern Denmark (March 30 to June 1, 2020). All patients were included consecutively with the investigators blinded to the health status of patients before inclusion. Inclusion criteria for ECHOVID-19 were laboratory-confirmed SARS-CoV-2 infection, age ≥18 years, not admitted to an intensive care unit (ICU) at time of inclusion (patients were not excluded if later transferred to the ICU), and being capable of signing a written informed consent. Additional exclusion criteria for this substudy was an unknown history of alcohol consumption (N = 44).

The primary outcome was ARDS (defined according to the Berlin Criteria) (5) during hospitalization. Severe ARDS, defined as ARDS with an arterial oxygen pressure/fraction of inspired oxygen ratio < 100 mm Hg, was a secondary outcome.

Information on alcohol consumption was obtained by a questionnaire. The exposure was defined as the continuous number of drinks of alcohol per week (12 g ethanol/drink). We used parametric and nonparametric tests to assess differences in baseline characteristics in relation to the outcome. Logistic regression models were used to test and visualize the association between alcohol consumption and the outcomes. A multivariable model was constructed to adjust for potential confounders of ARDS and severe ARDS development. The multivariable model included the variables: age, smoking status (ever-smoker vs. never-smoker), prevalent heart failure, and chronic obstructive pulmonary disease. All participants gave written informed consent, and the study was performed in accordance with the second Declaration of Helsinki and approved by the regional ethics board. The study is registered at Clinicaltrials.gov (NCT04377035).

Results

A total of 171 patients were included in the final sample. The mean age of the study sample was 69 ± 13 years and 55% were male. Baseline characteristics of patients progressing to ARDS and patients not developing ARDS are listed in Table 1. During follow-up (median, 6 d; interquartile range [IQR], 4–11) 44 patients (25.7%) developed ARDS. Of these, 22 patients (12.9%) developed severe ARDS. ARDS was not observed significantly more frequently in patients excluded from the study sample (N = 15 [34%]; P = 0.27). The comparison of self-reported alcohol consumption revealed that patients developing ARDS consumed more drinks of alcohol per week than patients free of ARDS (7.0 drinks: IQR, 5.0–20.0 vs. 3.0 drinks: IQR, 2.0–8.0; P = 0.010). In a univariable model, weekly alcohol consumption was associated with development of ARDS (odds ratio [OR], 1.06; 95% confidence interval [95% CI], 1.01–1.12; P = 0.015, per 1-drink increase) and severe ARDS (OR, 1.07; 95% CI, 1.02–1.13; P = 0.009) (Figure 1).

The association between self-reported alcohol consumption and ARDS remained significant after multivariable adjustments (ARDS: OR, 1.05; 95% CI, 1.00–1.10; P = 0.046, per 1 drink increase; severe ARDS: OR, 1.07; 95% CI, 1.01–1.13; P = 0.013, per 1 drink increase).

Discussion

In this study, weekly alcohol consumption was associated with an increased risk of developing ARDS during hospitalization for COVID-19. Higher alcohol consumption is known to be detrimental to health, but it may also be an indicator of psychosocial and socioeconomic challenges. Currently, there does not exist published literature regarding the prognosis after COVID-19 infection according to alcohol consumption. However, before the COVID-19 pandemic, Simou and colleagues conducted a review and metaanalysis investigating the association between alcohol consumption and risk of ARDS in hospitalized adults (N = 177,674) (6). The authors found that chronic high alcohol consumption significantly increased the risk...