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Short communication

## Impact of the COVID-19 lockdown on patients suffering from idiopathic interstitial pneumonia



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Idiopathic interstitial pneumonias (IIPs) are rare pulmonary diseases classified as major, rare and unclassifiable IIPs. Major IIPs include idiopathic pulmonary fibrosis (IPF), which is the commonest IIP, and idiopathic non-specific interstitial pneumonia (iNSIP). Most IIPs, and notably IPF, can be mainly characterized by:

- dyspnea on exertion;
- a poor prognosis (mainly in fibrotic form);
- limited treatment options though there are specific treatments for some of them (i.e. IPF);
- chronic respiratory failure requiring oxygen therapy on effort and/or long-term oxygen therapy (LTOT); and;
- a clinical benefit of exercise training maintenance [1].

In France, stage 1 of the COVID-19 epidemic was announced on February 23<sup>th</sup>, 2020 leading to a lockdown on March 14<sup>th</sup>, 2020 with an epidemic peak occurring during the second week of April 2020. The COVID-19 lockdown had physical [2] and psychological

[3] effects that influenced treatment adherence, disease stability and level of physical activity in many individuals.

A cross-sectional phone survey was conducted on a sample of 63 randomly drawn patients followed for an IIP at the Reference Constitutive Center For Rare Pulmonary Diseases at the Dijon University Hospital and confined to their homes. Three trained interviewers used a standardized questionnaire to collect data by phone between 14<sup>th</sup> and 30<sup>th</sup> April 2020, i.e. 4 weeks after the start of the French lockdown. Characteristics of the study population, the impact of lockdown on disease symptoms, level of activity, and use of oxygen therapy were evaluated. Compliance regarding lockdown rules, physical activity and oxygen use were self reported. Psychological distress was assessed using the K6 screening scale and considered significant when the result was  $\geq 5$  [4]. Informed consent was orally obtained before starting the questionnaire. The study was registered on ClinicalTrials.gov (identifier: NCT04390126).

Among the 60 patients interviewed (3/63 did not respond after 3 phone calls), mean age was  $71.5 \pm 9.3$  years. Patient characteristics are detailed in Table 1. Forty (67%) had a diagnosis for IPF, 5 (8%) for iNSIP and 15 (25%) for another IIP. Twenty-six (43%) patients received antifibrotic treatment (65% of IPF patients) and 15 (25%) were treated with an immunosuppressive therapy (steroids, azathioprine, mycophenolate mofetil or tacrolimus). Two IPF patients

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**Table 1**  
Patient characteristics and medical and lifestyle parameters.

| Demographic characteristics   |                         |
|---|-------------------------|
| Age, mean $\pm$ SD  | 71.5 $\pm$ 9.3          |
| Female, No. (%)   | 15 (25)                 |
| Male, No. (%)   | 45 (75)                 |
| Baccalaureate (A levels) $\pm$ higher education, No. (%)                | 24 (40)                 |
| Employed, No. (%)   | 3 (5)                   |
| Living alone, No. (%)   | 10 (17)                 |
| Urban area, No. (%)   | 19 (32)                 |
| Rural area, No. (%)   | 41 (68)                 |
| Disease-specific treatments   |                         |
| Pirfenidone, No. (%)  | 7 (12)                  |
| Nintedanib, No. (%)   | 19 (32)                 |
| Immunosuppressive therapy, No. (%)                                      | 15 (25)                 |
| No treatment, No. (%)   | 19 (32)                 |
| Oxygen therapy  |                         |
| Long-term oxygen therapy (LTOT) only, No. (%)                           | 10 (17)                 |
| Ambulatory only, No. (%)  | 10 (17)                 |
| Both, No. (%)   | 8 (13)                  |
| General parameters  |                         |
| Decrease in global health status, No. (%)                               | 19 (32)                 |
| NYHA I No. (%)  | 5 (8)                   |
| NYHA II No. (%)   | 26 (43)                 |
| NYHA III No. (%)  | 19 (32)                 |
| NYHA IV No. (%)   | 9 (15)                  |
| Psychological distress, No. (%)   | 9 (15)                  |
| Medical parameters  |                         |
| Specific treatment discontinuation by patients during lockdown, No. (%) | 0 (0)                   |
| Modification of LTOT use  |                         |
| Increase  | 8/18 (44)               |
| Decrease  | 1/18 (6)                |
| Modification of ambulatory oxygen use                                   |                         |
| Increase  | 4/18 (22)               |
| Decrease  | 5/18 (28)               |
| Dyspnea increase, No. (%)   | 15/57 (26)              |
| Cough increase, No. (%)   | 2/42 (5)                |
| Lifestyle parameters  |                         |
| Physical activity, No. (%)  |                         |
| Decrease  | 34 (57)                 |
| No change or increase   | 26 (43)                 |
| Smoking increase (>25%), No. (%)  | 0 (0)                   |
| Vaping increase (>25%), No. (%)   | 0 (0)                   |
| Body weight change [minimum–maximum], (mean $\pm$ SD), kg               | [−6–+4–0.13 $\pm$ 1.58] |

SD: standard deviation; NYHA: New York Heart Association functional classification.

had both antifibrotic treatment and tapered steroid treatment following previous acute exacerbation. Steroids were not taken into account when they were used as antitussive therapy ( $\leq 10$  mg/day – two patients). One IPF patient had a single lung transplantation.

All patients said that they were following the rules of the lockdown. Three (5%) patients were employed, two of whom worked full-time. Fifty-three patients (88%) were retired. Two (3%) patients were tested for SARS-CoV-2 PCR during the period and were found to be negative.

Ten patients (17%) reported feeling psychologically uncomfortable during the lockdown and 8 (13%) felt cramped in their home. Nine patients (15%) reported significant psychological distress according to the K6 questionnaire.

Interestingly, although French media relayed confusing and alarming information about the association between anti-inflammatory drugs intake and the risk of developing severe forms of COVID-19, all patients maintained strict adherence to antifibrotic treatment and immunosuppressive therapy.

Overall, 57% of patients reported doing less physical activity. Among them, 38% ( $n = 13$ ) had a marked reduction (>25%). There

was no difference between patients with and without marked reduction in physical activity in terms of mean age ( $P = 0.50$ ), education level ( $P = 0.50$ ), residential area ( $P = 0.2$ ), LTOT ( $P = 0.3$ ) and ambulatory oxygen use ( $P = 0.2$ ). In contrast, maintenance of physical activity was associated with the presence of family member at home ( $P = 0.0017$ ), underlying the major role of primary caregivers in supporting patient lifestyle [5,6]. Nineteen (32%) patients reported body weight change (i.e. > or < 2 kg), either loss (17%) or gain (15%) weight since the start of the lockdown.

Twenty-six percent of patients had experienced an increase in dyspnea since the start of the lockdown. This may have been the result of a decrease in physical activity leading to muscle deconditioning. Among the 18 patients receiving LTOT, almost half ( $n = 8$ ; 44%) increased their daily use. In contrast, 28% of patients requiring ambulatory oxygen therapy reduced their use.

LTOT use may have increased because of the respiratory discomfort frequently felt in lockdown situations since dyspnea can be triggered by cognitive, contextual and affective factors. Difficulties using oxygen outside the home because of the weight of the device or to avoid embarrassment could also potentially explain the increase in LTOT (instead of ambulatory oxygen therapy) in these patients [7]. Finally, the decrease in physical activity probably also explains the reduction in ambulatory oxygen use.

In conclusion, this study highlights the impact of the COVID-19 lockdown on the lifestyle of individuals with IIPs. Lockdown did not have a negative effect on drug adherence, but it did have a negative effect on physical activity, mainly for patients living alone. Patients also reported an increase in dyspnea associated with an increase in LTOT use. We believe that physicians should be aware of these changes in case of other epidemic waves.

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## Disclosure of interest

The authors declare that they have no competing interest.

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## Appendix A. Supplementary data

Supplementary data associated with this article can be found, in the online version, at <https://doi.org/10.1016/j.resmer.2020.100808>.

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