LETTER TO THE EDITORS

COVID-19 health restrictions in a transplanted Italian cohort

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Dear Editor,

An exponential diffusion of severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) prompted Italian institutions to take extraordinary healthcare restrictive measures since March 8, 2020, declaring quarantine for COVID-19 [1].

The whole population had to adapt to new limits, which were interestingly in line with the postdischarge indications given to liver recipients (LRs) in our Transplant Center.

The aim of this work was to analyze the tolerance to the health restrictions of LRs, comparing them with the rest of the Italian population.

We investigated the compliance of the 96 consecutive LRs discharged between January 2017 and March 2020 from our Center. Then, we created a web-based national survey, spread via social media, in order to create a standard of quarantine compliance involving the nontransplant population from all over Italy with an age ≥18 years (Fig. S1).

Furthermore, we performed a subgroup analysis between LRs and the nontransplanted population living in the same regions as LRs (local control group, LCG), in order to decrease bias related to the incidence of COVID-19 across Italy.

All data were analyzed using chi-square test and Student’s t-test.

We created a survey with 510 participants who gave their informed consent to the survey.

In particular, we enrolled 76 LRs and 434 nontransplanted individuals. From the latter population, we obtained the LCG with 202 individuals.

Liver recipients’ response rate was 79.2%. The response rate of the nontransplant population cannot be calculated due to the way the survey is administered.

The LRs were confirmed to be older than the nontransplant population (median age 58 years vs. 44.5 years, \( P < 0.001 \)), with more male individuals among LRs than in the nontransplant population (81.6% vs. 30.9%, \( P < 0.001 \)), in line with the data in the literature [2] (Table 1A).

Social distancing was respected homogeneously in all three time ranges examined (0–14, 15–30, >30 days), by both the LRs and the nontransplant population; no differences were found also comparing the LRs with the LCG.

Indeed, the low rate of SARS-CoV2 swab tests recorded in both the LRs and the nontransplant population (6.6% and 1.8%, respectively) was in favor of a good self-isolating.

A continuous use of the personal protective equipment (PPE) was present in 94.7% among LRs, compared with 76% in the nontransplant population (\( P < 0.001 \)) and 73.8% in the LCG (\( P < 0.001 \)).

In the subgroup analysis (Table 1B), among participants respecting a maximum social distancing ≥30 days, the LRs reported a greater constant use of PPE than the nontransplant population (100% vs. 78.8%, \( P = 0.02 \)) and the LCG (100% vs. 80.6%, \( P = 0.02 \)).

Also, in the subgroup analysis among participants with a maximum social distancing ≤15 days, the continuous use of PPE is higher in LRs (94.3%), than in the nontransplant population (70.6%, \( P = 0.003 \)) and the LCG (66.7%, \( P = 0.001 \)).

Liver recipients are a population at high risk of infection [3]. A strict outpatient follow-up and an increased awareness in LRs about prevention measures are fundamental to reduce post-transplant complications [4].

Liver recipients manage to consider health restrictions as a useful instrument, acquiring a fundamental advantage in a pandemic.

In our series, LRs prove high levels of tolerance with COVID-19-related restrictions, partly explaining lower incidence of SARS-CoV-2 infection in transplant population [5].

Our data also confirm the good compliance of the nontransplant population, too.

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Table 1. Results of comparison analysis. (A) Comparison of LRs with nontransplant population and subgroup analysis with local control group. (B) Subgroup analysis for PPE compliance, according to the maximum period of social distancing ≤15 days or ≥30 days.

| (A) | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- |
| | Liver recipients (n = 76) | Nontransplant population (n = 434) | P value | Local control group (n = 202) | P value |
| --- | --- | --- | --- | --- | --- |
| Median age, years | 58 | 44.5 | <0.001 | 44.5 | <0.001 |
| Male sex, n (%) | 62 (81.6%) | 134 (30.9%) | <0.001 | 58 (28.7%) | <0.001 |
| Maximum period of social distancing | | | | | |
| 0–14 days, n (%) | 31 (40.8%) | 207 (47.7%) | 0.3 | 97 (48%) | 0.3 |
| 15–30 days, n (%) | 23 (30.2%) | 106 (24.4%) | 0.3 | 48 (23.8%) | 0.3 |
| >30 days, n (%) | 22 (29%) | 121 (27.9%) | 0.9 | 57 (28.2%) | 0.9 |
| Social distancing interruption reason | | | | | |
| Purchases, n (%) | n.d. | 280 (64.5%) | – | 133 (65.8%) | – |
| Work, n (%) | n.d. | 74 (17.1%) | – | 30 (14.9%) | – |
| Pet care, n (%) | n.d. | 34 (7.8%) | – | 16 (7.9%) | – |
| Other, n (%) | n.d. | 46 (10.6%) | – | 23 (11.4%) | – |
| Use of PPE | | | | | |
| Always, n (%) | 72 (94.7%) | 330 (76%) | <0.001 | 149 (73.8%) | <0.001 |
| Sometimes, n (%) | 4 (5.3%) | 68 (15.7%) | 0.02 | 36 (17.8%) | 0.008 |
| Never, n (%) | 0 (0%) | 36 (8.3%) | 0.009 | 17 (8.4%) | 0.009 |
| Swab test, n (%) | 5 (6.6%) | 8 (1.8%) | 0.02 | 6 (2.9%) | 0.2 |
| Positive swab test, n (%) | 1 (1.3%) | 4 (0.9%) | – | 3 (1.5%) | – |

| (B) | Maximum period of social distancing ≤15 days | Maximum period of social distancing ≥30 days |
| --- | --- | --- |
| Use of PPE | Liver recipients (n = 35) | Nontransplant population (n = 156) | P value | Local control group (n = 108) | P value | Liver recipients (n = 24) | Nontransplant population (n = 156) | P value | Local control group (n = 72) | P value |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Always, n (%) | 33 (94.3%) | 154 (70.6%) | 0.003 | 72 (66.7%) | 0.001 | 24 (100%) | 123 (78.8%) | 0.02 | 58 (80.6%) | 0.02 |
| Sometimes, n (%) | 2 (5.7%) | 44 (20.2%) | 0.04 | 27 (25%) | 0.01 | 0 (0%) | 20 (12.8%) | 0.06 | 7 (9.7%) | 0.1 |
| Never, n (%) | 0 (0%) | 20 (9.2%) | 0.06 | 9 (8.3%) | 0.08 | 0 (0%) | 13 (8.3%) | 0.1 | 7 (9.7%) | 0.1 |

n.d, no data; n, number; PPE, personal protective equipment.
The main limit of this work is the monocentric design with LRs out of the area with the highest COVID-19 incidence.

The compliance of the population with the social distancing measures is fundamental to reduce the spread of SARS-CoV-2 [6,7].

The tolerance of a high-risk group can be used as a benchmark.

Conflict of interest

The authors of this manuscript have no conflicts of interest to disclose as described by Transplant International.

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SUPPORTING INFORMATION

Additional supporting information may be found online in the Supporting Information section at the end of the article.

Figure S1. Distribution of survey participants from all over Italian regions, in relation with COVID-19 incidence (updated to 7th May [1]).

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