




LETTER TO THE EDITORS

Light at the end of the tunnel: COVID-19 lockdown has not halted liver transplantation at a high volume center in Italy

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Dear Editors,

Although preliminary reports emphasized on an initial decline in organ procurement and liver transplantation (LT) in Italy [1,2], 3 months after enforcement of the coronavirus disease-19 (COVID-19) national lockdown data are better than anticipated. At our center in Tuscany, from February 18 to May 4, 2020 (end of lockdown), a total of 39 procedures were performed, namely 29 deceased donor LTs and 10 more brain dead donor surgeries resulting in liver grafts unsuitable for transplantation. Notably, mean (SD) deceased donor age was 76.4 (6.7); 27 (69.2%) were male and the mean (SD) body mass index (BMI) 29.8 (2.7) kg/m². This donor and transplant activity was slightly higher than the mean of the same calendar period in the previous 5 years (38.8 procedures, 2015–2019) despite a remarkable drop between March 16 and April 5, 2020 (Fig. 1).

Out of the total 29 LTs, 27 (93.1%) were primary surgeries and 2 (6.9%) were re-transplantations for primary nonfunction of the graft and venous outflow obstruction in one case each. Twenty-five (86.2%) deceased donors were from Tuscany, 3 (10.3%) were from Northern Italy, and 1 (3.5%) was from the South. Sixteen (55.1%) recipients were from Tuscany, and 13 (44.9%) were from Southern Italy. As per national and regional guidelines, all donors were tested for severe acute respiratory syndrome coronavirus-2 (SARS-CoV-

2) with both nasopharyngeal swab and bronchoalveolar lavage with no positive case. Accordingly, all recipients were tested with throat swab prior to transplantation; 2 were positive and referred to their general practitioners (GPs) for social confinement measures. One such patient was eventually transplanted after quarantine, while the other experienced progression of liver failure and was de-listed. All recipients are currently alive and none experienced COVID-19 at their latest follow-up. No staff surgeon was infected, and SARS-CoV-2 serology (IgM, IgG) was negative at the latest follow-up.

Despite the burden inflicted on our country, different reasons can account for the increased liver donation and transplant activity observed in our region during the COVID-19 lockdown. Briefly, these consisted of (i) increased regional intensive care unit (ICU) bed capacity by 80% (from 350 to roughly 630); (ii) identification and separation of COVID-19 ICUs in each regional hospital since the very early phase of SARS-CoV-2 outbreak allowing to not decrease deceased donor referral and management; (iii) medical and nurse staff recruitment to compensate for emergency referral, increased access to ICU, and redistribution of the health care workforce from non-COVID-19 to COVID-19 units; (iv) rescheduling of elective surgery programs to priority cases only in order to not overload regional ICUs; and (v) continuation of liver transplant activities in COVID-free areas.

Notably, our hospital is equipped with 54 ICU beds and further 50 beds were retrieved during national lockdown in different step-down wards and operating rooms. The weekly ICU occupancy rate by COVID-19 patients is illustrated in Fig. 2, and showed a peak between March 30 and April 5, 2020 (39 patients, i.e., 72.2% of total occupancy). Based on a mean of 2.6 LT procedures performed per lockdown week and on a mean ICU stay of 4 days, the permissible ICU saturation rate was presumably <90.7% (49/54).

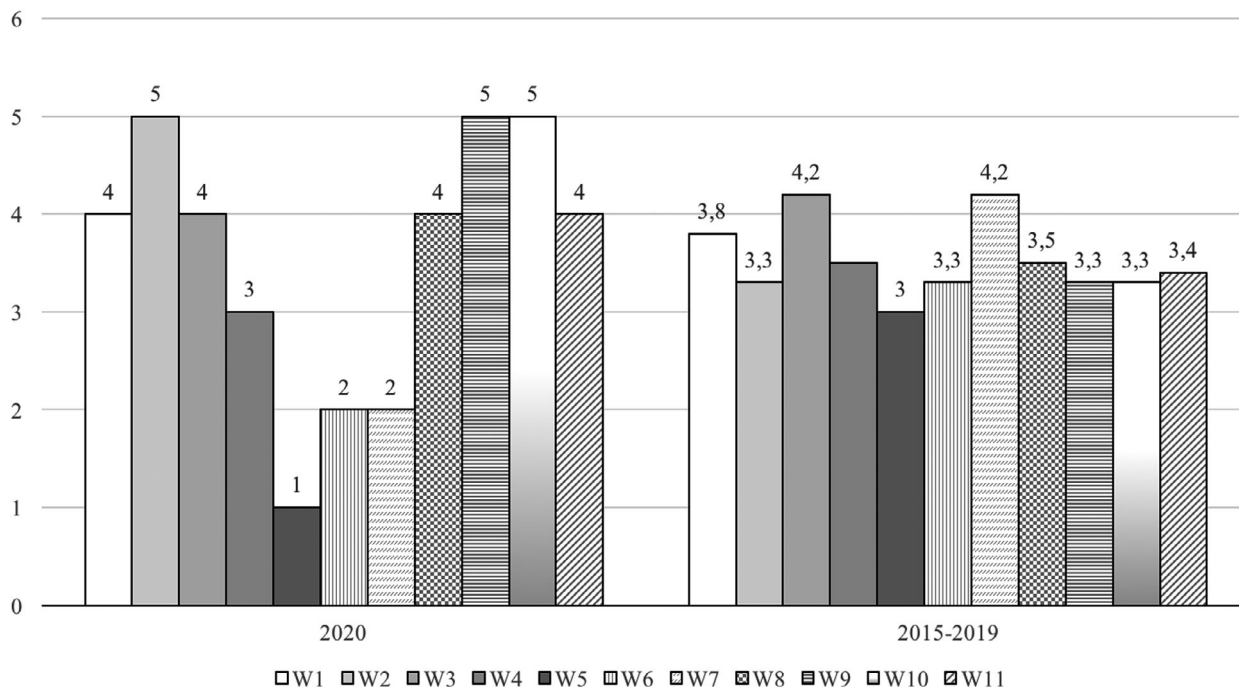


Figure 1 Weekly number of donor procurement and liver transplant surgeries performed at our center in the index period (February 18 through May 4, 2020) versus the weekly means of the same calendar period 2015–2019.

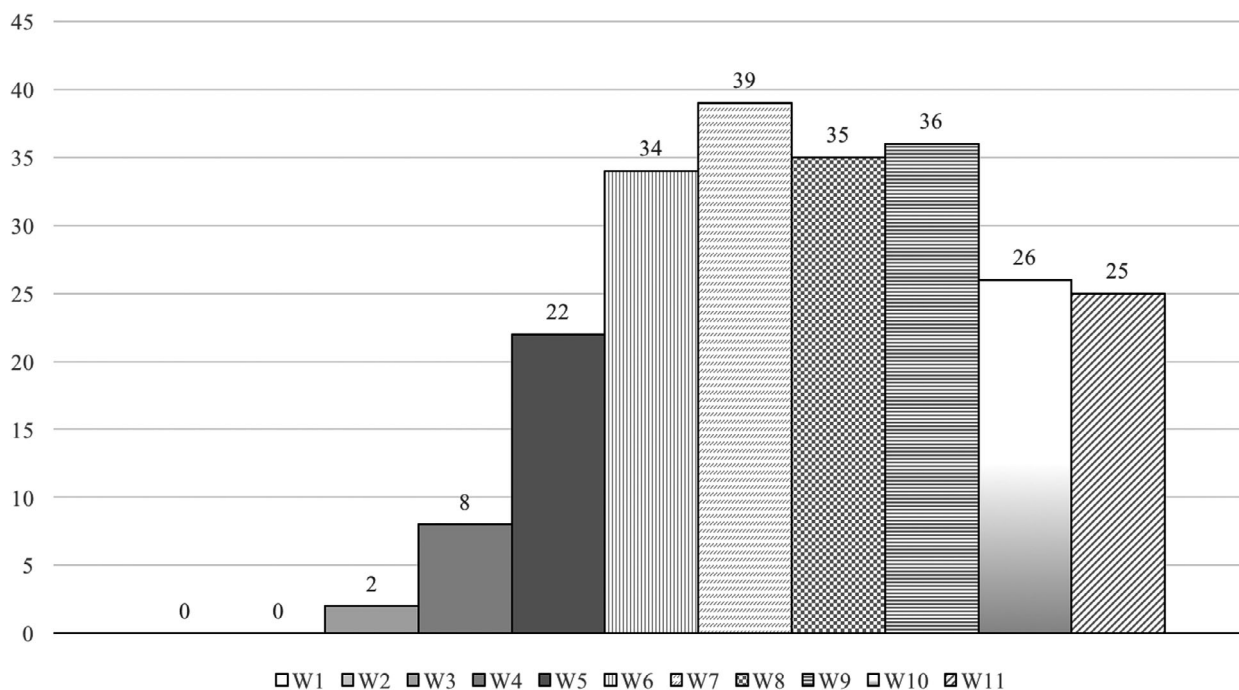


Figure 2 Weekly hospital ICU occupancy by COVID-19 patients during the index period (February 18 through May 4, 2020). Total ICU bed capacity was 54.

Although Tuscany ranked as the fifth COVID-19 affected area in Italy with 9631 confirmed cases of infection as of May 5, 2020 (as per throat swab

diagnosis), implementation of these initiatives resulted in maintenance of regional deceased donation rates (49.5 per million population in 2019); efficient

hospital resource utilization; and minimization of the risk for healthcare workers and patients alike. COVID-19 acted as an incredible *stress test* for our transplant network. However, commitment of our healthcare workforce allowed to counteract the potentially negative impact of SARS-CoV-2 infection and to preserve the standards of excellence achieved in the past.

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