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Expecting the unexpected: COVID-19 in Kidney Transplant Recipients within United Network for Organ Sharing Region 1

Asha Zimmerman
Dartmouth-Hitchcock Medical Center

Et al.

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Corresponding Author:

Zimmerman, Asha

Dartmouth-Hitchcock Medical Center - Surgery

Lebanon 03756-1000

United States

az@hitchcock.org

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DR. ASHA ZIMMERMAN (Orcid ID : 0000-0001-8135-8458)

DR. HET PATEL (Orcid ID : 0000-0001-5321-9178)

Article type : Letter to the Editor

Expecting the unexpected: COVID-19 in Kidney Transplant Recipients within United Network for Organ Sharing Region 1

Regional COVID-19 in Kidney Transplantation

Dear Editors,

There are numerous case reports and a handful of single¹⁻⁵ center studies reporting on COVID-19 in kidney transplant recipients. Most reports arise from the epicenters of where the SARS-CoV-2 virus was first detected such as New York City^{1,2,5} and Europe^{3,4}. We in UNOS Region 1 experienced COVID-19 weeks to a month later and questioned whether our experience was different. The programs within UNOS Region 1 have had a long history of sharing information in an attempt to mitigate the effect of viruses on our patients. This was first achieved through the creation of the New England BK Consortium (NEBKCon) to share our clinical experiences and to conduct research in BK Virus related complications after kidney transplantation. NEBKCon includes the 14 kidney transplant centers in Connecticut, Maine, Massachusetts, New Hampshire and Rhode Island.

We formulated a 13-question survey to analyze our experience with kidney transplant recipients who contracted the SARS-CoV-2 virus. Thirteen of the 14 centers (93%) in NEBKCon responded to the survey between 6/15/2020 and 7/15/2020. From 1/1/2020 to 5/31/2020, 189 (mean 15, SD \pm 11, range 0-41) kidney transplant recipients tested positive for COVID-19. The 13 centers follow 6,568 patients, suggesting an incidence of 2.88%. Seven

patients (3.7%) were asymptomatic. One-hundred and thirty-seven required hospital admission (72.5%). Of those, 46 (24.3%) required ICU admission and 39 (20.6%) required intubation. Kidney dysfunction, as defined by KDIGO guidelines was reported in 29 (15.3%). Twelve (6.4%) patients required dialysis and 5 (2.7%) experienced graft loss. Twenty-three (12.2%) patients died of COVID-19 or COVID-19 related complications. There were 22 (11.6%) transplant recipients diagnosed with COVID-19 within 1 year of their transplant. Six centers (46%) reported that they were currently altering their deceased donor transplant decisions, offer selection or induction plans due to COVID-19 and all but one center (92%) was performing living donor kidney transplantation.

While this survey addresses outcomes and incidence, it lacks the detailed information necessary to make individual management decisions. The results suggest that the incidence and severity of COVID-19 in kidney transplant recipients in our UNOS Region are lower than those in more densely populated areas. Further, the incidence described in kidney transplant recipients in this study somewhat unexpectedly mimics those reported in the general and pediatric populations.

To our knowledge, this is the largest report of COVID-19 infected kidney transplant recipients and their outcomes since the start of the pandemic. Although still high, the cumulative mortality rate in Region 1 was 12.2% which is lower than the 13-30%¹⁻⁵ reported by the initial epicenters. Most importantly, this mortality rate might offer reassurance when compared to the reported mortality rate of maintenance dialysis patients of 28-31%⁶⁻⁸. While comparisons are challenging because of the rapid learning curve and changes in practice patterns as the pandemic has progressed, ongoing regional differences will be likely and individual centers need to make informed decisions based upon their patients' risk within their specific regions. These decisions would benefit from more robust data through a national prospective registry.

Asha Zimmerman (az@hitchcock.org)¹, Ralph Rogers (rrogers@Lifespan.org)², C. Sabrina Tan (ctan@bidmc.harvard.edu)³, Martha Pavlakis (mpavlaki@bidmc.harvard.edu)³, Kenneth Bodziak (Kenneth.Bodziak@umassmemorial.org)⁴, Francesca Cardarelli (fcardare@bidmc.harvard.edu)³, Jean Francis (FMARTY@BWH.HARVARD.EDU)⁵, Steven Gabardi (SGABARDI@BWH.HARVARD.EDU)⁶, Michael Germain (Michael.Germain@baystatehealth.org)⁷, Sandeep Ghai (Sandeep.Ghai@bmc.org)⁵, Hannah Gilligan (HGILLIGAN@mgh.harvard.edu)⁸, Nitender Goyal (NGoyal@tuftsmedicalcenter.org)⁹, Maricar Malinis (maricar.malinis@yale.edu)¹⁰, Het Patel (hpatel12@bidmc.harvard.edu)³, Nancy Rodig (Nancy.Rodig@childrens.harvard.edu)¹¹, Nicole M. Theodoropoulos (Nicole.Theodoropoulos@umassmemorial.org)⁴, Edward Walshe (edward.d.walshe@lahey.org)¹², Emily Wood (WOODE2@mmc.org)¹³, Michael Chobanian (Michael.C.Chobanian@hitchcock.org)¹

1 Dartmouth-Hitchcock Medical Center, One Medical Center Drive, Lebanon, NH 03766

2 Rhode Island Hospital, Providence, 593 Eddy St, Providence, RI 02903, United States

3 Beth Israel Deaconess Medical Center, 330 Brookline Ave, Boston, MA 02215, United States

4 University of Massachusetts Memorial Medical Center, 55 Lake Ave N, Worcester, MA 01655,

5 Boston Medical Center, 1 Boston Medical Center Pl, Boston, MA 02118, United States

6 Brigham and Women's Hospital, 75 Francis St, Boston, MA 02115, United States

7 Baystate Medical Center, 759 Chestnut St, Springfield, MA 01199, United States

8 Massachusetts General Hospital, 55 Fruit Street, Boston, MA 02114, United States

9 Tufts Medical Center, 800 Washington St, Boston, MA 02111, United States

10 Yale New Haven Hospital, 20 York St, New Haven, CT 06510, United States

11 Boston Children's Hospital, 300 Longwood Ave, Boston, MA 02115, United States

12 Lahey Hospital and Medical Center, 41 Mall Rd, Burlington, MA 01805, United States

13 Maine Medical Center, 22 Bramhall St, Portland, ME 04102, United States

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Table 1

	Covid-19 Positive Kidney Transplant Recipients (n = 189)
	No. (%)
Asymptomatic	7 (3.7%)
Hospitalized	137 (72.5%)
ICU Admission	46 (24.3%)
Intubation	39 (20.6%)
Graft Dysfunction	29 (15.3%)
Dialysis	12 (6.4%)
Graft Loss	5 (2.7%)
Died	23 (12.2%)
Within 1 yr of Transplant	22 (11.6%)

Table 1: Results from the survey of 13 programs.