Social Determinants of Health Impact COVID-19-Related Mortality Among Liver Transplant Recipients in the United States

Background: Liver transplant (LT) recipients are vulnerable to COVID-19 due to immunosuppression and comorbidities. This study evaluated the association between social determinants of health (SDOH) and COVID-19-related mortality (C19M) in LT recipients in the United States.

Methods: We utilized the Scientific Registry of Transplant Recipients to collect information on adult LT recipients between March 13, 2010, and December 31, 2023. We evaluated the incidence and risk factors for C19M among primary LT recipients using univariable and multivariable competing risk analysis.

Results: There were 82 995 prevalent LT recipients with 7817 non-C19 deaths and 671 C19M. Non-medical factors associated with higher C19M included Hispanic ethnicity (sub distribution hazard ratio [SHR] = 1.72; 95% CI = 1.31-2.26; ref = White), Native American/American Indian race (SHR = 3.59; 95% CI = 2.29-5.64; ref = White), Medicare insurance (SHR = 1.40; 95% CI = 1.16-1.69; ref = private insurance), less than high school-level education (SHR = 1.35; 95% CI = 1.14-1.59; ref = > high school-level education), and residency in highly distressed communities (highest Distressed Community Index (DCI); SHR = 1.33; 95% CI = 1.01-1.75; ref = lowest DCI). Medical factors associated with higher C19M included higher BMI, diabetes, MELD score, and simultaneous liver and kidney transplants.

Conclusion: SDOH are significantly associated with C19M in LT recipients. While focused on the United States, these findings have international relevance, emphasizing the importance of integrating SDOH into transplant risk assessment and targeted public health interventions. Addressing social and geographic disparities is critical for protecting immunocompromised transplant populations during the pandemic and other infectious-related emergencies.