

## Early impact of COVID-19 pandemic on heart transplant volumes in Asia and Oceania: results from the Global Observatory on Donation and Transplantation (GODT)

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**Introduction:** Massive demand for healthcare services worldwide following the emergence of coronavirus disease 2019 (COVID-19) has limited the availability of healthcare resources needed for certain high-complexity procedures, including orthotopic heart transplantation (OHT). Whereas the negative impact of COVID-19 pandemic on several elective procedures has been well-documented, data on regional changes in OHT volumes after COVID-19 are limited. Therefore, we aimed to quantify the impact of COVID-19 pandemic on OHT volumes in Asia and Oceania.

**Methods:** Using data from the Global Observatory on Donation and Transplantation (GODT), the world's most comprehensive source of data on organ donation and transplantation, we recorded the number of OHT procedures performed in years 2019 (pre-COVID-19 era) and 2020 (COVID-19 era). The analysis was limited to countries with reported OHT data within Asia and Oceania (Australia, China, India, Iran, Israel, Japan, New Zealand, Russian Federation, Saudi Arabia, Thailand, Turkey, and the United Arab Emirates). OHT rates were reported for each country per million population (PMP), and change in the COVID-19 era was reported as percentage of the pre-COVID-19 rates. The association of total COVID-19 cases with relative reduction in OHT was evaluated using linear regression.

**Results:** Across the Asia/Oceania region, number of OHT in COVID-19 era (median 0.64 procedures PMP, IQR 0.28, 2.15) was significantly lower compared with the pre-COVID-19 era (median 1.18 procedures PMP, IQR 0.49, 2.50), with a median change of -0.29 (IQR -0.70, -0.08;  $P = 0.04$ ). The impact of COVID-19 on OHT was most pronounced in Turkey, United Arab Emirates, and India, where OHT volumes decreased by 75.4%, 60.8%, and 53%, respectively. Country-level reduction in OHT volumes was not associated with total number of COVID-19 cases during the year 2020 in that country ( $r = 0.31$ ;  $P$ -value = 0.3).

**Conclusion:** The number of heart transplants during the early phase of COVID-19 pandemic significantly decreased in most countries of the Asia/Oceania region. Furthermore, the change in OHT volumes did not correlate with the total number of recorded COVID-19 cases, suggesting the pandemic's impact on OHT numbers extended beyond limiting availability of resources. Identifying factors leading to OHT deferral during COVID-19 pandemic will advance our understanding of the pandemic's true impact on the care of advanced heart failure patients in the region.

Abstract Figure.

