Supplementary material

Nowak A, Małyszek-Tumidajewicz J, Araszkiewicz A, et al The course and treatment of COVID-19 in heart transplant recipients. Kardiol Pol. 2023.

Criteria for hospitalization of HT recipients with COVID-19 applicable during the study period at Heliodor Swiecicki Clinical Hospital (at least one required):

- early post-transplant period (≤6 mon)
- event of recent rejection (≤3 mon)
- outpatient treatment failure
- moderate to severe disease
- COVID-19 unvaccinated status

Table S1. Demographics, clinical characteristics, administered therapies, and outcomes among five HT recipients with COVID-19

	Case 1	**Case 2**	**Case 3**	**Case 4**	**Case 5**
Sex/Age (y)	M/47	M/22	M/52	M/58	M/72
Cause of HT/ time from transplant[a]	DCM/5 mon	DD/5 mon	DCM/17 mon	ICM/3 mon LVAD as BTT DLI	ICM/18 y
History of induction	no	no	no	no	no
Recent rejection (≤3 mon)	no	no	yes	no	no
Immunosuppression regimen	MMF 750 mg bid Tac 2.5 mg bid Pred 5/10 mg qd	MMF 1000 mg bid Tac 2 mg bid Pred 5/10 mg qd	MMF 1250 mg bid Tac 1 mg qd Pred 50 mg qd	MMF 750 mg bid Tac 3.0 mg qd Pred 25 qd	MMF 1000 mg bid CsA 75 mg bid

Comorbidities	HTN[b], CKD[c]	HTN[b], DM[d], vacuolar myopathy	HTN[b], DM[d], CKD[c], COPD, obesity[e], pulmonary aspergillosis	HTN[b], DM[d], CKD[c], pulmonary aspergillosis	HTN[b], DM[d], CKD[c], HFmrEF[f], AF, obesity[e], history of pulmonic embolism
BMI (kg/m^2)	22	22	30	23	38
Anti-COVID vaccination	no	1 dose (mRNA)	3 doses (mRNA)	1 dose (mRNA)	3 doses (mRNA)
Symptoms[g]	Fatigue, fever, chills, pharyngitis	Rhinitis	Fatigue, cough, rhinitis (fever, dyspnea)[g]	Asymptomatic screening[g] (fatigue, subfebrile temperature headache)[g]	Fatigue, cough, dyspnea, chills
Duration of symptoms[h] (days)	2	2	3	Asymptomatic screening	10
Vital signs[i]					
Pulse oximetry saturation on room air (%)	100	99	85	98	89
Heart rhythm (beats per minute)	90	100	100	120	105
SBP (mmHg)	120	140	125	100	140
DBP (mmHg)	70	85	80	60	80
Laboratory findings[i]					
Neutrophils (×10^9/L)	2.5	3.1	2.8	3.0	7.0
Lymphocytes (×10^9/L)	0.7	0.4	0.7	0.3	0.5

CRP (mg/l)	49	23	60	221	177
Procalcitonin (ng/ mL)	0.14	0.07	0.24	0.54	1.3
IL-6 (pg/ mL)	nd	3.9	13.1	74.6	134
D-dimer (ng/ mL)	1260	215	328	1026	797
Creatinine (umol/L)	213	85	191	199	184
AST (U/L)	38	584	55	68	56
Chest CT	normal	n/a	bilateral GGO (20%)	bilateral GGO (10%)	unilateral consolidation pleural effusion
Echocardiography (EF%)[j]	60	60	60	60	45
Microbiology	blood culture - negative urine culture – *K. pneumonia*+	n/a	blood culture - negative urine culture – negative	blood culture- *E. coli*+ urine culture – *E. coli*+	blood culture – negative urine culture - negative blood test *CMV* DNA+ (day 5)
Therapy					
Respiratory support	none	none	NC (10l/min)	none	NC (6l/min)
Antivirals or biologics	Remdesivir (5 days)	Remdesivir (5 days)	Molnupiravir (5 days) Remdesivir (5 days)	Molnupiravir (5 days)	Tocilizumab (800 mg)
Steroids	Dexamethasone 8 mg[k]	Dexamethasone 6 mg[k]	Pred (continuation)	Pred (continuation)	Dexamethasone 12 mg[k]

Convalescent plasma	yes	no	no	no	no
Antibiotics	Meropenem	none	Meropenem	Meropenem	Meropenem
Others	Enoxaparin 40 mg qd	Enoxaparin 40 mg qd	Enoxaparin 60 mg qd	Enoxaparin 40 mg qd Filgrastim (5 days)	Warfarin Valganciclovir
Immunosuppression management	maintained	maintained	maintained	MMF held (5 days) Tac maintained	MMF reduced (15 days) CsA maintained[l]
Duration of hospitalization (days)[m]	16	7	12 (24)[m]	29 (44)[m]	19
COVID-19 severity[n]	mild	mild	severe	mild	severe
Outcome	Discharge to home	Discharge to home	Discharge to home	Discharge to home	Discharge to home
Follow-up **EMB**	ACR 0, AMR -	ACR 1R, AMR-	ACR 0, AMR -	ACR 0, AMR -	n/a Readmission 7 days later, neutropenia, septic shock, death on day 0 blood culture – *K. pneumonia+ Enterobacter+*

Abbreviations: ACR, acute cellular rejection; AMR, antibody-mediated rejection; AF, atrial fibrillation; AST, aspartate aminotransferase; BMI, body mass index; BTT, bridge to transplant,

CKD, chronic kidney disease; *CMV*, *Cytomegalovirus*; COPD, chronic obstructive pulmonary disease; CRP, C-reactive protein; CsA, cyclosporine A; CT, computed tomography; DBP, diastolic blood pressure; DCM, dilated cardiomyopathy; DD, Danon disease; DLI, driveline infection, DM, diabetes mellitus (posttransplant); EF, ejection fraction; EMB, endomyocardial biopsy; GGO, ground glass opacity; HFmrEF, heart failure with mildly reduced ejection fraction; HT, heart transplant; HTN, hypertension; ICM, ischemic cardiomyopathy; IL-6, interleukin 6; MMF, mycophenolate mofetil; LVAD, left ventricle assist device, NC, nasal cannula; Pred, prednisolone; SBP, systolic blood pressure; Tac, tacrolimus

[a] Time interval from transplant to diagnosis

[b] Defined by a blood pressure ≥ 130/80 mmHg

[c] Defined by a glomerular filtration rate < 60 ml/kg/1.73 m^2

[d] Defined by a glycated haemoglobin > 6,5%

[e] Defined by a BMI ≥30 kg/m^2

[f] Defined by a left ventricle ejection fraction 41-49%

[g] For all patients, symptoms on first presentation to care (case 4 was asymptomatic on presentation); the two patients in parentheses gave symptoms on admission after outpatient treatment.

[h] For all patients, the interval from onset of symptoms to first presentation to care

[i] For all patients, findings on admission

[j] Performed post hospitalization for cases 1-3; performed during hospitalization for cases 4 and 5

[k] Intravenous for 7-14 days in tapering doses; in these cases baseline prednisolone therapy was temporarily discontinued

[l] For case 5, the average CsA concentration during hospitalization was 54 ng/ml

[m] For two patients (in parentheses), the interval from the COVID-19 diagnosis to discharge

[n] According to the WHO classification