Infezioni "difficult-to-treat": esperienza di *real life*

TRAPIANTO DI CUORE

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The International Society for Heart and Lung Transplantation (ISHLT) Guidelines for the Care of Heart Transplant Recipients

PROPHYLAXIS

Patient

Critically ill
Short-term MCS
Infected long-term MCS
Prolonged hospitalization

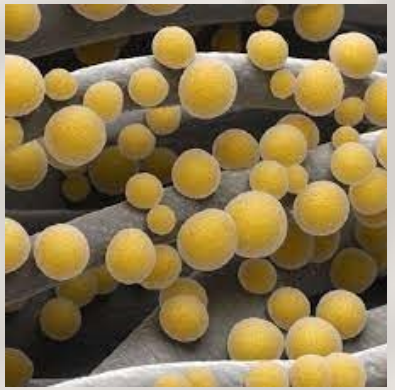
Immunosuppressive therapy

Graft rejection
High incidence of infections

Donor/Recipient Assessment

DONOR	RECIPIENT
CMV IgG/IgM	CMV IgG/IgM
EBV IgG/IgM	EBV IgG/IgM
TOXO IgG/IgM	TOXO IgG/IgM
HBV HBcAb HBsAg HBsAb HBV-DNA	HBV HBcAb HBsAg HBsAb HBV-DNA

Bacterial Prophylaxis



- Coagulase-negative Staphylococci and MSSA/MRSA first pathogens
- Gram negatives and Candida spp

First generation cephalosporin with or without vancomycin is commonly used for cardiac surgical procedures and transplantation.

- In patients with device-related infection (i.e., LVAD infection; infection/colonization of an ECMO circuit), should target the implicated pathogens with duration dependent upon the extent of infection

SHOULD BE TAILORED TO THE CLINICAL SCENARIO

Anti-fungal and Anti-protozoal Prophylaxis

- Candida spp → Lack of data about prophylaxis
  Class IIa, Level of Evidence C
- Aspergillus spp → Risk factors: airway colonization, re-operation, hemodyalisis, ECMO, CMV, spores in ICU. **SHOULD** Class IIa, Level of Evidence B
- Pneumocystis jiroveci → Risk factors: first 6-month after HTx; prolonged use of corticosteroids. **MUST (Bactrim) first 6-12 months**
- Toxoplasma gondii → Risk factors: D+/R-
  MUST (Bactrim) lifelong
  Class I, Level of Evidence B

CMV-EBV Prophylaxis or Pre-emptive Therapy?

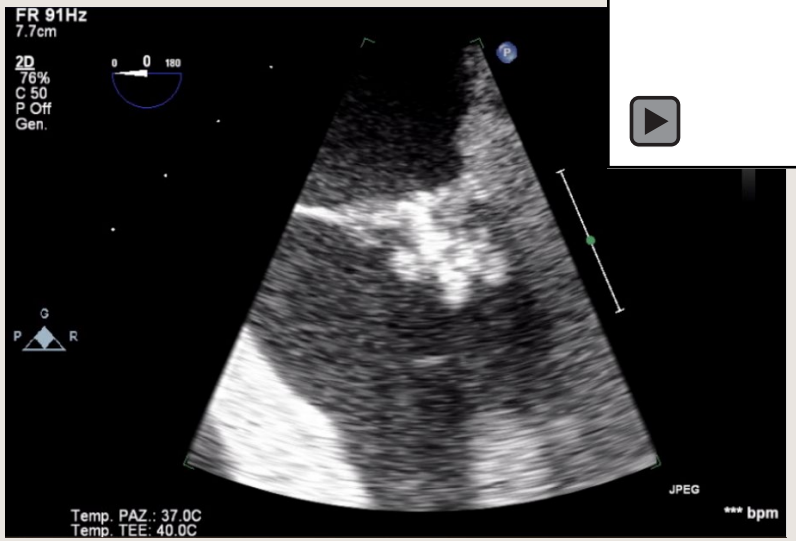
CMV

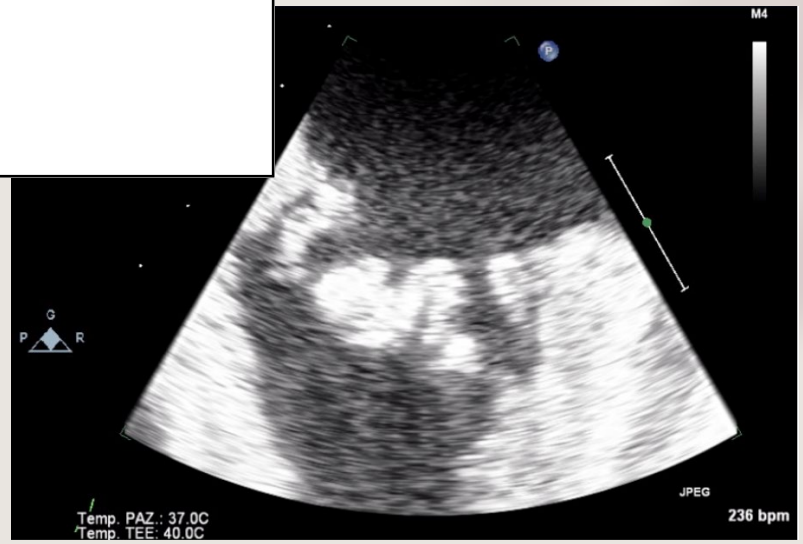
- D+/R-: Prophylaxis (Class IIa, Level of Evidence C)
- D-/R+: Pre-emptive
- D-/R-: Monitoring

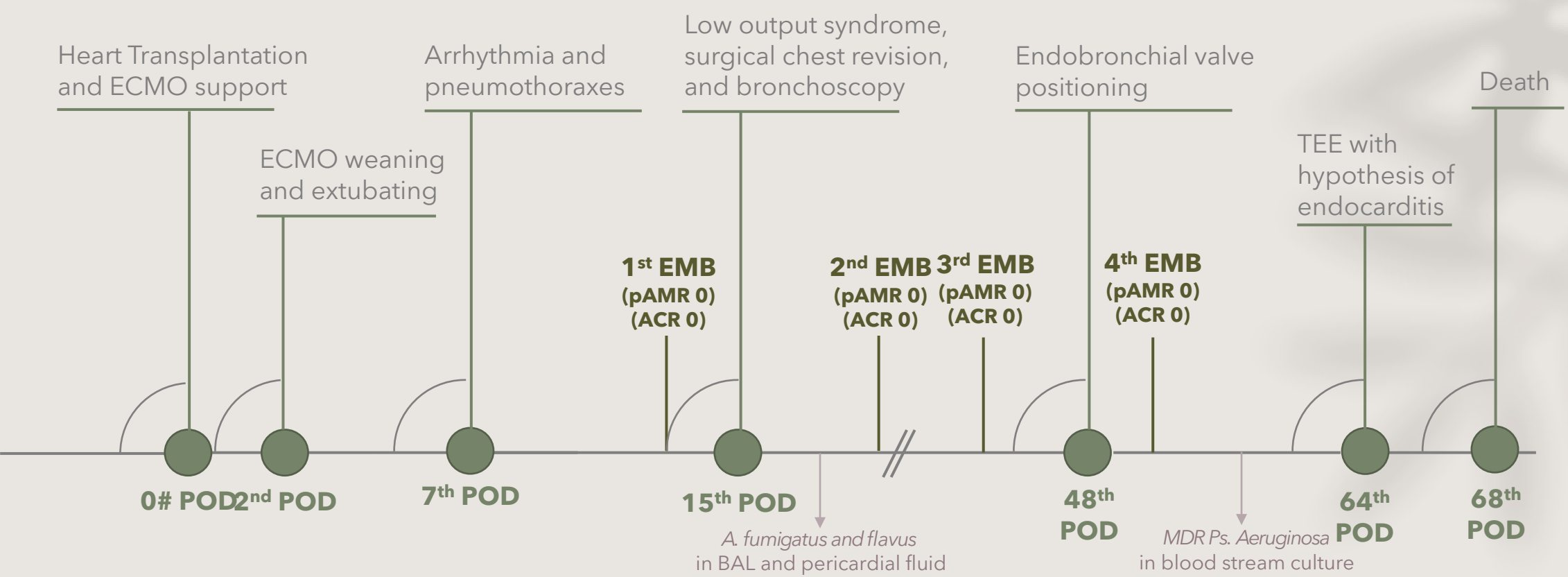
EBV

- D+/R-: Prophylaxis??? Lack of data. Pre-emptive could be considered
- D-/R+: Monitoring
- D-/R-: Monitoring

Endocarditis







IST	• Anti-thymocyte globulin • Methylprednisolone	• Cyclosporine • Methylprednisolone	• Cyclosporine • Mycophenolic Acid • Prednisone
ANTI MICROBIAL THERAPY	STANDARD POST-HT THERAPY Teicoplanin Piperacillin/Tazobactam Levofloxacin	HEAVIER EMPIRIC THERAPY Daptomycin Meropenem Fluconazole Atovaquone + Trimethoprim/Sulfamethoxazole (Toxo D+/R-)	TARGETED THERAPY Linezolid → Teicoplanin Meropenem Anidulafungin Voriconazole (*Aspergillus*) + Trimethoprim/Sulfamethoxazole (Toxo D+/R-) + Ganciclovir/Anti-CMV Ig/Foscarnet (CMV and HSV reactivation)

Others….

- M. chimaera

July 2017: HeartMate 3-LVAD implantation as bridge-to-transplant

Good conditions until July 2019.

August 2019: weight loss, fatigue, loss of appetite, pancytopenia, in particular of white blood cells.

Bone marrow biopsy was negative, on the contrary a Positron Emission Tomography (PET) revealed an hypercaptation site on the LVAD outflow, with preserved function of device.

Blood culture was positive to Mycobacterium Chimaera and therapy with azithromycin, rifampicin and ethambutol was started immediately.

One month later (april 2020), a compatible heart was reported for this patient: a multidisciplinary team made of the chiefs of Cardiac Surgery Department, Infectious Disease Department and North Italian Transplant Centre considered the patient transplantable and confirmed that removal of LVAD and transplantation was the **only way to eradicate infection**. The patient agreed to undergo surgery.

Polymerase chain reaction on recipient's heart revealed a positivity for Mycobacterium Chimaera and histology showed chronic ischemic cardiomyopathy and inflammatory cardiomyopathy with granulomatous and gigantocellular pattern.

Mycobacterium Chimaera blood tests resulted negative for 3 months after HTx

July 2020: bronchoaspirate positive per M. chimaera, then blood tests became positive.

Patient died 1 month later.